Flat Rate Online Music Distribution

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Translated from Distribution de musique en ligne au forfait

Digital distribution allows multiple formats, options, and channels. However, content producers and distributors are stuck with past concepts, which used to work but are now unable to accommodate newer technological challenges. The appendix to this paper features a point of view on the various tactics employed by the record industry to stop piracy, and their (feeble) results, as well as examples of new solutions which are now being commercially tested.

Indeed, it is possible to do it better and innovate in the domain of music distribution by adapting what works elsewhere.

This paper describes a new music distribution system, based on the association of three simple concepts.

- Flat rate is a convenient and straightforward purchasing model.

- Personalization of downloaded contents secures them to a certain extent by making consumers responsible.

- Revenue sharing is possible provided that downloads are centralized and recorded at an intermediary level.

This system could be generalized to other media like cinema or video games but this paper will concentrate on online music distribution for a flat rate.

Principles of Flat Rate

A flat rate means payment of a fixed price for a given service without limit of use for a given period of time. This concept has been proposed in France in an even more general form called *licence globale* as a possible solution to illegal P2P sharing during the last discussions on intellectual property at the French Assemblée Nationale. It was quickly dismissed due to the music industry's intense lobbying, as was the Blur/Banff proposition at its time.

Nevertheless, the flat rate model has proved successful in other areas. It offers several advantages for providers and customers alike.

First, cash for the seller: like a subscription, a flat fee is paid before use, when a classic invoice comes afterwards. As a bonus, it wins the customer's loyalty.

Next, simplicity of invoicing: the customer pays only once for a set of services for a given period and must manage to use it in the most profitable way.

Last, the customer also sees the ability to access resources at the right time, without being stopped by financial - or other - issues, as an advantage.

Operations

A proxy, a hub between content providers and users, is in charge of counting downloads and spreading revenues between the providers. It is simply classic distribution. On the other hand, since it is dealing with digital data, this distributor only manages a virtual stock. Furthermore, global revenue does not depend on the number of downloads but on the number of subscribers.

Providers

Providers are record labels owning a download infrastructure which is compatible with the distributor's platform. Admission of providers on the network must be conditioned by periodically checking on the quality of their infrastructure as well as information accuracy and content harmlessness.

Given the variable character of revenues coming from a flat rate distribution, it is possible that artist contracts be updated. One can only hope these updates will be more profitable to artists than the ones formerly governing online remuneration.

The provider decides which contents are sent to the distributor, along with related data in a normalised, open format.

Contents sent by the provider are MP3 or FLAC audio streams. These formats provide an efficient data compression (MP3 is lossy, FLAC is lossless) and provision for metadata.

Distributors

A distributor is an independent organisation which is mandated by providers. It can be an ad-hoc company, or a provider consortium, or a network infrastructure company, or even a state-sponsored organisation. Many distributors can coexist in order to cover the largest possible population.

Of course, the distributor must be recognised by the providers using a strong authentication mechanism. Acceptance conditions have yet to be detailed but should follow strict rules in terms of financial, technical, and security guarantees.

This last point is essential. The distributor is a trusted partner, which constitutes a crucial point in the distribution chain. It receives anonymous streams from the distributors, assets which shall be protected, and manages subscriber money. Trust infrastructure and security measures have to be implemented following this domain's best practices.

Distribution Operations

The distributor acts as a secure transit platform. Any legal content being acquired by a customer in this context passes through the distributor via a secure link, be it from the provider or to the subscriber.

The distributor has to sign data flowing through its infrastructure, which means it cannot simply route downloads. It has to store the audio streams. When a final user asks for it, it adds three additional data on the fly: the e-mail address for this user, a cryptographic signature combining the whole data (audio stream and e-mail address) with the distributor's private key, and an URL where the file identity can be verified. This information is simply stored in metadata like ID3 tags.

Finally, it adds the signature, the e-mail and the name of the download in a database if the signature is not present yet. This operation allows de-duplication of download counts for a single track and a single user.

Sharing Operations

Standing at the center of operations, the distributor is able to count downloads and to distribute collected money, just like a traditional distributor. The sum transferred to each content provider amounts to the percentage of downloads for this provider applied to the global revenue coming from end users, minus the distributor margin and the rights management organisations share.

Reports are sent to content providers along with payments. They recap the activity related to them and detail downloads so as to allow internal sharing, according to artist contracts.

Authentication Operations

The distributor must identify and authentify customers because it is responsible for the legitimacy of each download. The usual id/password method can be used. A strong authentication is better but needs more complicated processes, which could be ill-perceived by customers.

It also has to provide straightforward means of authenticating audio files of its customers by offering them an entry form, in the public area of its Web site, where it is possible to enter a file signature. If it exists in its database, the file name is displayed back. In theory, this operation is possible locally but the Web site should put it at anyone's disposal.

Additional Operations

The distributor manages a Web site offering an access to a metacatalog, consolidated from the catalogs of content providers to which it is connected. A multi-criteria search engine allows to find tracks by title, by artist or by tag, this last system resulting from an active participation from the users. This very point opens doors to differentiation activities (user communities, Web 2.0) which could consolidate the position of the distributor.

The distributor might also provide an API, allowing a reseller like an ISP to build a catalog for its customers and integrate it to personalised services, which could take the form of servlets or mashups.

Monitoring

Control mechanisms must be implemented in order to guarantee exact accounting data, so that the distributor can give the providers statistics and accounting details in real time.

Distribution operations must be logged, log entries being timestamped and signed.

Dispute resolution procedures should be laid out, allowing a settlement before going to court. However, a rigorous implementation of a trust infrastructure, one able to manage elements of proof, would allow a court to decide should the case happen.

Users

Consumers pay a flat fee to the distributor, usually through their ISP acting as middleman and account manager, which pays this sum to the distributor minus its margin. The sum may vary, from a base fee allowing only one download at the same time with a limited bandwidth, to a less restrained premium charge.

User access to resources is supplied by a Web site via HTTPS (secure protocol) where users are authenticated by an id/password, an X.509v3 certificate, or other methods like OpenID.

The main purpose of the e-mail address which is integrated in audio files is to give the user a sense of responsibility through a feeling of ownership. Experience shows

that this shallow watermarking system is somewhat efficient in limiting illegitimate copies, end users being reluctant to suppress personal data.

Financial Estimates

This system must be profitable for providers (and the artists they are representing) and for distributors. It should also be attractive for users.

Profitability for providers is not only defined in terms of revenues generated by this channel but also, in a negative way, by the loss provoked by competition to more traditional sale channels.

On the one hand, traditional market shares will certainly be lost. On the other, the market itself will grow when the fraction of the public who now finds it simpler to illegally copy turns to this flat rate model.

Profitability - a Tentative Study

It is obviously difficult to evaluate results for a new activity. As a reference point, let us take existing numbers for comparable activities, keeping in mind these are just indicators.

According to the ARCEP, 17.1 millions French households are connected to high-bandwidth Internet. These households represent obviously the main target for such a service.

Canal Plus announces 5.5 millions subscribers in 2007, in its yearly financial report. This means more than a fifth of all French households.

Finally, a subscription to CanalSat costs 29.90 € a month and TPS Star is 18.90 € a month. A service such as the one described in this paper cannot reasonably cost more in its base version.

A low-profile hypothesis with a floor price of 10 € a month, subscribed by 10% of high-bandwith households, gives 205.20 millions euros in yearly revenue.

By the way, this represents five times the total amount of online music sales in France for 2007.

Specific Risks

Cheating on Sharing

A rogue provider could be tempted to artificially create downloads for a recent release in order to inflate sales numbers and receive undue money.

If multiple downloads of a single track by one user count for only one download, this operation is not profitable anymore. The solution is straightforward because it is sufficient to keep track of the signature (unique to a single track and a single user) in a database.

Depreciation of Cultural Works

It is true that intellectual property is now depreciated, especially in music. Of course, unlimited access - unheard of until now - to any work is responsible of the current state of affairs. Wouldn't a flat rate system make matters worse?

One could note that this reason is not the only one, and producers themselves are guilty of over-industrializing their business. A part of magic has been replaced by product managers and the audience feels more or less consciously this evolution.

Furthermore, variable pricing for CDs, from 1 to 20 € whether records are packaged in bundles, or new releases, or older recordings, scrambles the information on music value.

Still, anonymous access to any existing music remains the main factor for lack of user responsibility. In order to counter this tendency, one need to associate the user to the works to give him a feeling of ownership. Having the legitimate owner's identifier on the copy could suffice.

Removing identification data in order to distribute anonymously a song is part of a conscious process which gives the word "counterfeiting" its real meaning. This psychological effect is well known to convertible drivers who park leaving the top open, but who lock the doors anyway. Simply grabbing the handle to open the door is one thing; getting the hand behind the door to unlock it is something else entirely.

An experiment lead by O'Reilly France is telling. On 3,500 PDF files sold on the site, simply protected by a watermark bearing the name of the buyer, constituting 40% of the turnover, none has been found on pirate sites... contrarily to many books of the publisher, some of them simply scanned as-is.

Conclusion

This paper proposed a new concept of music distribution taking into account evolutions in technology and consuming, exact conditions of implementation remaining to be defined. This implementation will face fierce oppositions: first, majors are content with half-successes in difficult times; then, right owners who are now earning most may be afraid that this new revenue sharing model would give them less in the future.

The plunge of sales of physical supports is unavoidable, however, and can only accelerate as the audience has taken the habit of direct access to music. It would be futile to frontally oppose this trend: new consuming models mechanically entail new distribution models, such as the one described here, fully respecting right owners, artists and producers, as well as the audience.

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Appendix: Music, Piracy and the Internet

Piracy by illegal copying has become the main concern for content providers. This concern is nothing new, one that can be traced back to the 1900's with mechanical pianos, i.e. the beginnings of commercial music distribution.

Since digital technologies have emerged, the record industry faces an even more aggressive piracy, mostly due to possibility of a lossless reproduction. This phenomenon has been amplified with the advent of a publicly accessible Internet causing an explosion of content distribution means, without taking into account the legitimacy of distributed copies.

State of the Market

Apple, basically a computer manufacturer, entered this market via the iPod. Content distribution is part of an integrated environment: iTunes Store profitability is less crucial than hardware sales.

Still, Apple quickly became #1 on this market. A possible explanation could be a lack of bias as well as an excellent integration. But it does not explain such a blistering success.

The lack of competition from traditional actors comes from several factors, one of the most important being a purely defensive attitude. After having condemned any Internet distribution, majors have created their own online stores and begun to allow third parties to sell online with mitigated success.

A brutal description of the situation could compare the record industry to a child, lost in the forest, without any point of reference and unable to take advantage of available resources.

Anyway, online music sales in France amount to a turnover of $40\,\text{M}\,€$ in 2007, to be compared with a bit more than $1000\,\text{M}€$ for CDs.

Fight Against Piracy

A poll shows that 18% of the French population illegally downloads music, this number being comparable to the percentage of legally downloading population. The BPI talks of 20 illegal downloads for one legal but this evaluation seems to lay on shaky grounds. More serious studies show that the average English teenager keeps 800 illegal songs on his MP3 player. Artists are obviously first in line to suffer from this situation. Their revenues are trimmed down but the audience does not really seem to care.

Attempts at solving this situation have been tried, and we are going to review some of the more significant ones.

Ad Campaigns

Usual campaigns, aiming at discrediting musical content piracy, have visibly no effect whatsoever - even less in fact when it has been discovered that a few artists lent themselves to these campaigns when their works were not even avalaible online. This is not the least of the inconsistencies we are used to, coming from the majors.

DRM

Digital rights management is well known in computing, where a content is protected against copying.

This data protection method has problems in its own right because technical norms are bypassed, and in certain cases, there are software conflicts.

Furthermore, the end user depends on continuity of service at the provider level. In fact, (s)he is at the mercy of the provider, as demonstrate the respective demises of MSN Music Store, Yahoo! Music Store and Wal*Mart. Outcries from customers do succeed in pressing these providers to keep their servers up and running, but for how long?

The problem with DRM really is intrinsic. Any popular protection mechanism gets cracked one day because the user must access the content anyway, even if this content is hidden in a safe. A key is needed at one moment or another... and one has only to be skilful and patient to intercept it.

DADVSI, DMCA, RIAA...

Producers also tried to protect contents by more restrictive laws. The French DADVSI law, on the heels of the American DMCA, made provision for penalties up to

300 000 € and 3 years in jail. However, it has yet to be tested when some consider it unenforceable.

Even if it was enforceable, trials would probably have the same consequences on piracy as in the USA (more than 16,000 have been brought up by the RIAA before 2006), i.e. virtually none.

Going Too Far

Shall we talk about excessive behaviour from the record industry and its minions? Alas, yes.

Let's begin with these sickening trials brought up by the RIAA to grandmothers and ten-year olds, sometimes simply giving up while letting ex-defendants pay their attorney fees.

The way too famous XCP a.k.a. Sony Rootkit, used by Sony-BMG in 2005, has been described by security researchers as functionally identical to a rootkit, opening the machine to arbitrary code execution from any site on the Internet.

MediaSentry, a SafeNet subsidiary operating on behalf of media companies, occasionally uses dubious methods to block sites by attacking them deliberately. These activities have brought up controversies to the point where they are now illegal in the state of Michigan and in Holland.

MediaDefender is another company using rogue tactics.

Results

An assessment of results obtained by the record industry in its crusade against piracy shows that the public image of the majors, which was already unimpressive, is now appalling. Worse, the audience being driven into irresponsibility by a strategy based on constraint and repression, intellectual property is more than ever disdained.

What about piracy? Piracy is alive and kicking, thank you.

Examples of New Solutions

Users will definitely keep pirating but, lacking a panacea, realistic solutions should aim at limiting the phenomenon in order to guarantee profitability for activities surrounding music production.

Advertising

Deezer is a free and legal online streaming music site. It is theorically impossible to back up tracks to listen to them later. Following an agreement with the SACEM and majors, artists and other right owners are paid by advertisement revenues.

Other services like Last.fm, Imeem, or Lala offer streaming music according to more or less similar terms, with variable success.

Shareware

Sharewares like WinZip have been in existence for a long time now. Being distributed at no cost, the user decides to give - or not - the author a certain sum.

In 2000, Courtney Love had written a paper for salon.com where she described this concept put to work in another context, the tip given to a busker.

In 2008, Radiohead made use of this idea for a freely downloadable album with an enormous success, the money collected during this operation exceeding the totality of the earnings produced by their other online albums. This experiment does not mean it is reproducible or adaptable to any artist, but a label like Magnatune tries to systematize this idea.

Subscription

Monthly, customers of eMusic may download a defined number of songs according to the selected tariff. Only independent labels offer today their catalog through this site. Alas, it has been somewhat unreliable and its CEO, who opposes DRM, is leaving at the end of 2008.

Flat Rate

There is no concrete example of flat rate music distribution in the conditions described herein, yet. On the other hand, a few cases can be listed in other domains where, too, innovation has been needed.

Cinema Pass   For a few years now, major French movie distributors have set up a system of passes allowing the buyer to see as many movies (s)he wants during one year, only in this distributor's theaters. Other advantages are integrated to this offer but, clearly, the unlimited side is a winner for regular customers.

From X.25 To IP   Before the advent of public Internet in the 1990's, the main network protocol - at least in Europe - was X.25, be it in corporate networks (mail,

applications) or in the general public (Minitel, Compuserve). In this model, invoicing would depend mostly on transmitted data.

IP, the Internet base protocol, is invoiced on a flat rate basis according to a given bandwidth. After a transition period for network providers, IP enforced its position and obsoleted X.25.

Books   Books of the US publisher Safari, specializing in technical works, can be accessed online in several ways. One of them, Safari Library, is a flat rate subscription with which the customer can download the 6000 books of this publisher as well as search their contents, for $43 a month. None of the actors, from authors to customers, seem to complain about it.

Video Games   Metaboli is especially interesting in that it proposes games to download on a PC, which come from game publisher catalogs. Of course, only "oldies" are proposed, not new releases. The - enormous - difference between videogames and music is the perenniality of classics. Doom, Myst, and half a dozen others are exceptions; anyway, no game preserves any commercial value ten years after its release, contrarily to numerous records.

Music   Yes, there is at least one site where a flat rate allows to download "millions of songs," including artists under contract with majors. No, this site is not interesting, cannot really function with its current model. We are talking about Napster's current incarnation. Downloaded songs are protected by a DRM which links files to precise models of hardware and a limited number of successive devices (3 PCs, 3 portable players). Besides, subscribers may buy MP3 without DRM at a reduced price, provided they reside in the USA. The recent acquisition of Napster by Best Buy does not mean its model will evolve.