When Business Models Go Bad: The Music Industry's Future

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Abstract: The music industry is an interesting example for how business models from the pre-Internet area can get into trouble in the new Internet-based economy. Since 2000, the music industry has suffered declining sales, and very often this is attributed to the advent of the Internet-based peer-to-peer file sharing programs. We argue that this explanation is only one of several possible explanations, and that the general decrease in the economic indicators is a more reasonable way to explain the declining sales.

Whatever the reason for the declining sales may be, the question remains what the music industry could and should do to stop the decline in revenue. The current strategy of the music industry is centered around protecting their traditional business model through technical measures and in parallel working towards legally protecting the technical measures. It remains to be seen whether this approach is successful, and whether the resulting landscape of tightly controlled digital content distribution is technically feasible and accepted by the consumers. We argue that the search for new business models is the better way to go, even though it may take some time and effort to identify these business models.

1   Introduction

Since its invention in the early 1990's, the Web has changed many things. It is the first global information system with a user base counting in hundreds of millions, and in many industrialized countries, the user base covers 50% of the population or more. This means that the Web is a medium that can fundamentally change businesses, in particular when the businesses are dealing with immaterial goods (i.e., ideally suited for electronic distribution) rather than physical products. Among others, the music industry has been seriously affected by the Web, and in this paper we describe the observable facts, their interpretation of the music industry, some interesting alternative interpretations, and conclude with some remarks about more appropriate and promising ways to act and react in a rapidly changing world.

A detailed and insightful study of the music industry has recently been published by (Phillips and Johnson, 2004). For the purpose of this paper, the following players and concepts are most important: The *Recording Industry Association of America (RIAA)* is the biggest national music industry association, and thus the most important player in the field of music industry associations. However, the national bodies in this field are united under the roof of the *International Federation of the Phonographic Industry (IFPI)*, which is the world-wide organization of currently 46 national members.

With regard to legislatory action, the 1998 U.S. *Digital Millennium Copyright Act (DMCA)* has been the most thoroughly discussed law for regulating intellectual property rights and their technical implementation. The DMCA prohibits the circumvention of technical measures intended to protect the rights of copyright owners in addition to the legal protection of the content itself. Furthermore, removal or alteration of copyright management information are prohibited.

However, the DMCA has not been an initiative of U.S. legislation. It simply is a national implementation of the international *WIPO Copyright Treaty (WCT)*, which in 1996 had been created by the *World Intellectual Property Organization (WIPO)*, a UN-funded organization. Other countries or political entities are following the path of the DMCA, for example in 2001 the EU published the *EU Copyright Directive*, and EU countries are now transforming the EU directive into national law, for example Germany in 2003.

2 Historic Perspective

The invention of new devices or ways of recording, storing, playing, and distributing media has always been the source of huge changes in the media market. For the music market, inventions such as the radio, the phonograph, the magnetic tape, the compact cassette, the *Compact Disc (CD)*, and then even digital recording media such as *Digital Audio Tape (DAT)* or the MiniDisc have been turning points in the way the industry worked. Whenever new inventions changed the landscape of the music industry, many companies claimed that these inventions would ruin their business. For the most inflexible companies, this sometimes turned out to be true, but the majority of companies managed to adapt to the new reality and survived, and often even thrived because of new business opportunities that had opened up.

For a very long time now, since the invention of the phonograph in the late 19th century, the music industry was centered around physical products, even though the actual products changed. For the first time now, the industry faces a shift away from physical products, since computer networks and efficient audio compression methods have enabled users to treat music as simple data. And since data is most powerful when it is as loosely coupled with physical media as possible, people are doing exactly this, copying their music from one CD to another, from a CD to their computer or their portable audio device, or vice versa.

Users are expecting this kind of freedom because they are used to so-called *fair use*. Fair use is what enables users to use copyrighted material to a certain extent, so that they can create private copies of their CDs, even give these away to their friends, without doing anything illegal. Since for a very long time, all this fair use required the use of blank media (such as empty cassettes), Europe's music industry managed to collect a share from every sold blank media, based on the assumption that a substantial fraction of them would be used to record copyrighted material. With the recent development of treating everything as data, it becomes difficult to downright impossible to continue along this road, because blank media are no longer specific to the media type, and a blank DVD may be used to record one possibly copyrighted film or days worth of music.

So the challenge the music industry is facing is that they are essentially moving away from their niche of a specialized business in a specialized hardware world, but are simply becoming content providers. The current tactics of the music industry is to protect their niche through technical and legislative actions, and the interesting question is whether this will succeed technically, and whether it will succeed culturally, when long-standing rights such as the fair use practice are essentially taken away from the consumers.

3 Technical Development

All file sharing tools use *Peer to Peer (P2P)* technology, meaning that the actual files are always exchanged between individual users. This is a departure from the more traditional client/server-model, where service providers offer a particular service (such as the pages of a Web site), and clients use this service by connecting to the server. P2P is an architecture where participants dynamically can be server and/or clients, which makes the overall architecture much more flexible. Furthermore, for large amounts of data, transferring them in a grid of cross-connected computers is much more scalable then a centralized architecture, where a central server would turn into a bottleneck if too many clients were using it.

While P2P architectures are still an active field of research, first approaches and implementations were available in the early days of the Web. However, it was not until Napster arrived that P2P became popular. Napster combined a user-friendly interface design and a focus on music, which quickly attracted a large number of users. Before Napster, file sharing was only practiced in rather small circles of people using technology that was much less user-friendly. As a result, the supply of available music was limited. Napster attracted enough users to make virtually everything available, which again attracted more users and thus helped Napster to succeed as it did.

3.1 Centralized P2P Directory

Napster was the first file sharing application that used the Internet for distributing files. Napster's approach was to implement the actual file transmission as a P2P transaction, but the directory and search services were hosted centrally. This centralized architecture made the system an easy target to attack (both technically and/or legally), and Napster was shut down (by a court decision made in San Francisco) in 2000.

Since this was the proof that centralized systems would be the targeted legally, no other centralized system or service appeared. Furthermore, P2P technology had already advanced past the centralized architecture and developed new architectures, which did not have any centralized host.

3.2 Distributed P2P Directory

After Napster's shutdown, applications such as *Kazaa* and *Grokster* (using *FastTrack*) and *Morpheus* (based on *StreamCast* and the open *Gnutella* protocol) appeared, and they are still in use today. These P2P applications do not have a central host, but instead continually exchange directory and search information. Thus, a dynamic network of participating users

is formed, which cannot be easily targeted legally or technically. A newer application in this area is *eDonkey*, which improves the search mechanisms and improves download performance by splitting files into pieces and distributing the pieces.

However, the recent aggressive RIAA campaign in the United States proves that given sufficient legislative support, even systems as volatile and seemingly anonymous as distributed P2P applications can be targeted legally. The RIAA intercepts protocol messages from these applications, concludes that a user is illegally sharing copyrighted material, and then uses the DMCA to force ISPs to disclose the identity of the individual user. This practice has been rejected by a D.C. district court order in December 2003, requiring a formal lawsuit to get the information from the ISPs.

Even though the legal battle will continue, it is clear that the music industry is targeting users instead of the makers of P2P software[1]. The weak point that is exploited by the RIAA is the directory information that is made available by the P2P clients. To address this issue, new forms of P2P file sharing have been developed, which do not require any directory information to be transmitted over the P2P network at all.

3.3 Directory-less P2P

The *BitTorrent* application introduced a new concept into the P2P file sharing world: Directory information is no longer part of the P2P application, but handled individually. In practice, BitTorrent is based on Web servers which list available files, and these lists are regular Web pages which can be accessed with any Web browser. As soon as a user selects one of the files to download, the request is handled by a local BitTorrent client, which starts the download as a highly optimized P2P activity, thereby sharing the data with other users downloading this particular file.

The disadvantage of this approach is the fact that the Web servers again are an easy target for technical and/or legal measures, but since they do not need any specialized software, it is rather easy to move the contents between different servers, and at the time of writing, there is an ongoing hide-and-seek game between groups of individuals hosting the Web pages, and institutions claiming that the Web pages aid the illegal distribution of copyrighted content.

Another interesting facet of BitTorrent (as well as some modern applications using the distributed P2P directory approach) is that the P2P principle is extended to encompass all users interested in a certain file. Consequently, if there are 20 users exchanging a file, it is never completely transmitted from one user

to another user. Instead, every users provides fragments of the file to others, and receives fragments of the file from others, so that there is no single, easily identifiable interaction where to users actually exchanged a complete file. This makes legislation more difficult, since it is much harder to identify complete transactions.

4 Online Music Sharing Statistics

One of the most important tools for carrying opinions are statistics. Since the music industry's goal is to influence legislation, there must be some data supporting the claims made by the music industry. History, as discussed in the previous section, does not provide any evidence that technological revolutions had a negative influence on the music industry. The music industry thus claims that this specific technological revolution is completely different than the previous ones, because it enables perfect copies, and facilitates worldwide distribution for everyone. To back this claim, the music industry presents statistics, which are very interesting to look at.

The problem with file sharing is that the evolution of file sharing tools (as described in Section 3) has continually reduced the possibility to measure the number of shared files. In order to overcome this problem, many statistics presented are based on highly questionable numbers, which euphemistically could be described as upper bounds of the (unknown) real numbers:

- *Software downloads:* Commercially oriented companies such as Kazaa and Morpheus often report the number of times a software has been downloaded in order to show the popularity of their service. Naturally, this number is of some significance, again constituting an upper bound of users (if installation files are not further distributed). However, the number of actual users heavily depends on the quality of the software (if the software is unstable and hard to use, many people will stop using it) and the utility of using it (many commercial P2P products are notorious for containing a variety of Adware and Spyware add-ons). Thus, the number of software downloads may be interesting, but is a number of very low significance when measuring the usage of a service.

- *Shared files:* P2P clients using directory information make it possible to plug into the P2P network and get information about the shared files. However, the number of files shared is no indication of how many of them are copyrighted material, how many of them are duplicates, and how many of them can be retrieved successfully. Even though a file is appearing in the directory service does not

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[1]In a L.A. court decision from April 2003, it was decided that the P2P itself is not illegal, but the exchange of copyrighted material using this software could be.

mean that is has or will ever be shared. Many will not be shared because the users have disabled or reduced uploading speed, and many others are never successfully shared because transfers stop before the complete file is transmitted.

For directory-less P2P clients, it is principally impossible to even measure something like the number of shared files, so for these clients this number cannot be given or even estimated. To summarize, the measurement of shared files is a number that may be interesting (and often is used by commercial P2P software vendors to lure new customers), but is of very low significance. To make things even less meaningful, since April 2003 the RIAA has begun to systematically flood various P2P networks with fake files.

- *Sales of recordable media:* Since many users archive media files on digital media (mostly CD-R, with an increasing share of DVD-R), the sales of recordable media are taken as a direct measurement of illegally copied content. The measurements are based on user polls which in many cases involve a rather small number of users, so that (1) the significance of these polls is limited. It is (2) also unclear how much of the media being used for music recording are used for fair use copies of legally acquired music. And it is (3) assumed that each media that is recorded is counted as a CD that otherwise would have been bought. This claim seems to be bold to make.

What makes things even more irritating is that the music industry receives money for each recordable media being sold, through long-standing agreements which in the past had been designed to cover fair use. Since file sharing is not regarded as fair use, the music industry claims that all the recordable are filled with illegally acquired content, but still collects money for the media. And in an effort to compensate the revenue losses of the last years, the music industry wants to increase the amount of money that users pay for each empty recordable medium, and maybe even introduce charges on recording equipment.[2]

Even though there certainly is some correlation between file sharing and the measurements presented above, it is highly questionable whether the methods employed by the music industry do more than providing an upper bound (which may be very far away from the real numbers). The error margins in the individual statistical numbers are very large and get even larger when these numbers are used in combination.

Even if it were possible to reliably measure the

number of shared files, the simple technique of multiplying this number with the normal sales prize of music media is, again euphemistically speaking, an upper bound of the loss of revenue. The simple reason is that P2P users collect far more music then they would ever buy. Even though the per capita expenditure for (mainly) immaterial goods is constantly rising, there is still a limit to how much people are going to pay for their immaterial possessions (such as music or literature).

It is interesting to look at some of the numbers presented by the music industry. These numbers are very important, because only a negative impact of new ways to use music enabled by computers and networks will convince legislators to change the law in the favor of content distributors. Legislation always has been friendly to content distributors (for example by expanding the time period for copyright protection), but some serious statistic sort of justification is required for changing the law.
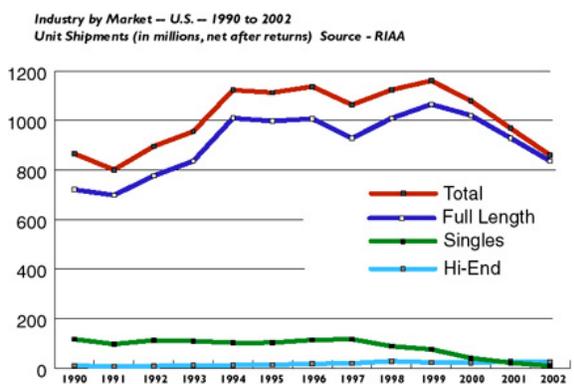

Figure 1: Total Sales U.S. Music Market 1990-2002

In Figure 1 (Figures 1, 2, and 3 are reprinted from http://www.azoz.com/riaa/news/logic.html), the sales for different formats of music media is shown. The "Hi-End" category summarizes music videos, DVD Music Video, and DVD Audio, but even together with the single market, which almost disappeared, does not constitute a relevant segment of the market. The "Full-length" market comprises vinyl LPs, cassettes, and CDs, and is the only relevant market. As can be seen from the figure, the sales numbers have declined since 1999, and Napster went online in 2000.

Thus, this figure could be used to point out that "sales declined since the first P2P application became popular". This is certainly true and is a correlation that can be easily observed, but as every statistician knows, a correlation is not a proof for a cause/effect-relationship. It may be an indication, and further research or experiments must be conducted to prove or disprove that there is an cause/effect-relationship. In

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[2]With the lucrative side-effect that since music is simply data, every computer is considered to be recording equipment and would thus be an additional source of income.

the case of P2P file sharing, it is hard to make any additional analyses, since the invention of P2P file sharing was a singular event and cannot be repeated or simulated in a controlled environment.

However, in search for reasons for the decline of sales since 1999, it may be interesting to look at the general economic development, particularly in case of a product such as music, which can be considered a luxury good which people will only spend money for if they have additional money to spend.
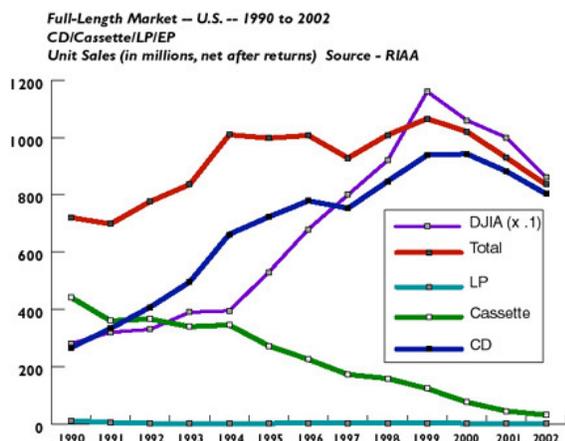

Figure 2: Music Market vs. Dow Jones 1990-2002

Figure 2 shows a comparison of the various full length media (vinyl LP, cassette, and CD) and the *Dow Jones Industrial Average (DJIA)*. The DJIA is a reliable and generally accepted indicator of the general strength of the economy, and suffered a steep decline since the beginning of 2000, when the so-called *Internet Bubble* (Perkins and Perkins, 1999) burst. There is an interesting correlation between the DJIA and the music industry sales figures in general, and in particular since 1999.

Looking at this picture, the industry's claims that Napster and the following music sharing tools caused the decline of the music industry sales appear in a different light. To make this alternative interpretation of the music industry sales even more interesting, Figure 3 shows the development of the retail prices (suggested list price and actual retail price) between 1997 and 2002.

As can be seen, the retail prices for media increased constantly over the period of time shown in the figure. In a slow economy, constantly rising prices for luxury goods will not help sales. The combination of the economic situation and the pricing strategy of the music industry is another way to explain the shrinking sales since 1999. However, this interpretation is rarely heard or seen, even though it is probably at least as convincing as the Napster-based explanation.
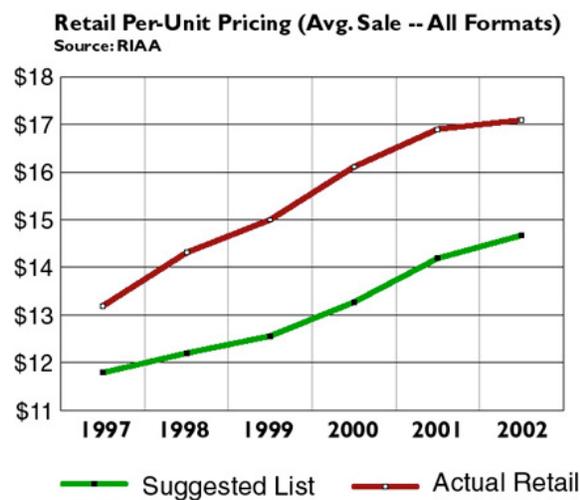

Figure 3: Average Retail Prices 1997-2002

As a result of this bias towards one interpretation, politicians tend to favor the music industry in their legislation. The reason for this is two-fold:

- *Statistics are convincing:* Only few people in legislation know the fundamental difference between correlation and cause/effect-relationships, and presented with the statistics and the Napster-based explanation, they are easily convinced that the music industry is in danger, and that this is caused by file sharing.

- *Unorganized users:* While industry associations have a lot of money which they can invest in lobbying, lawyers, and studies backing their claims, users do not have a voice that is easily heard or powerful enough to influence legislation.

Recent legislation such as the DMCA and the EU Copyright Directive are only implementations of the WCT, but they are also examples for the extent to which legislation is influenced by associations. At present, it seems certain that WCT-influenced laws will become the normal state of legislation.

It will be interesting to observe the reaction of the general public when the right for fair use is taken away from them, at least for certain forms of content. Even though this is a logical consequence when moving from buying content by buying some physical media, to acquiring a license to use some data, the cultural consequences remain to be seen. For more than hundred years people have been used to the idea of "their books" and "their recordings" (and the right to do with these whatever they like, including copying, lending, and selling), and it will take some time to move away from this when eBooks and online music become the rule rather than the exception.

5 Consequences

The consequences of the Web so far have left the music industry rather helpless. The reaction to the new reality of music as data flowing freely through the available data channels has been to attempt to stop this flow through technical measures and legislation. The alternative, adaptation to the new world, so far has found amazingly little consideration. In the following two sections we look at these two strategies. A third way, which would involve more philosophical than commercial action, is discussed in Section 6, and it is more a vision and ideal than a realistic course of action for the current music industry, given its current focus and way of working.

5.1 Copy Protection

In order to stop or at least reduce the sharing of music, various *Digital Rights Management (DRM)* technologies have become the focus of attention. Rather primitive ways are copy-prevention technologies for CDs as described by (Halderman, 2002). However, these technologies have been met with some reluctance by users, because many of them mandate violating the CD standard, so that, technically speaking, the CDs that users are buying are no longer CDs. Apart from the principal question whether such a hasty departure from a proven, trusted, and widely accepted standard such as the CD is a smart thing to do, CD copy-prevention technologies also reduce the ways in which a user can use the CDs (after all, this is the one and only purpose of these technologies).

While the wide-scale distribution of copy-protected CDs in Europe has been met with only little criticism and publicity, record companies are still reluctant to do the same on the American market, because American consumers are generally known to be less tolerant and complain more when they get what they consider as an inferior product.

Going beyond simple copy-prevention technologies for CDs, true DRM technologies including cryptographic methods and licensing, are also slowly catching on. However, the required infrastructure for these technologies still make them very heavyweight, and from the perspective of a user, they are much less user-friendly than traditional CDs. (Haber et al., 2003) argue that even if piracy is identified as the most important problem for the music industry, it is questionable whether DRM technologies are the solution to this problem. They argue that even though DRM may handle the authorization of copy-protected content, there will always be a significant amount of unprotected content available (obtained by dissociating the content from the DRM information), which then is distributed to interested consumers.

5.2 Adapting to a New World

While the music industry is mainly concerned with protecting their traditional sources of income, the record sales, other companies concentrate on new business models. Apple's *iTunes* was the first online music distributor to become rather popular, and one of the reasons is that the concept is modelled around user-friendliness rather than the goal to protect old business models. The online distribution on music still is in its infancy, but it seems to be able to support a business, given the business is designed to work within the new world rather than against it. Users are willing to pay for a real alternative to P2P, if they can choose among titles of major labels, in user-friendly formats, without copy protection and for Windows and Apple platforms. Business models with copy restrictions or proprietary formats are less attractive and less successful.

(Fetscherin, 2003) describes the three major challenges that content providers are facing in the future, which are (1) competing against pirated copies of their own products, (2) viewing the Internet as a new distribution channel with fundamentally different properties, and (3) learning to observe user acceptance of controls and limitations that are imposed on users. While it seems that the first points are already included in the music industry's new business plans, the third point is largely ignored.

It will be interesting to see how content providers as well as users adapt to a new world of licensing and pure data. For example, for an eBook, the perceived value for a user may be higher or lower than for a traditional book. For a novel, it may be more convenient to have a paperback which can be easily handled and is less fragile than an eBook reader. For a technical manual, however, it may be very valuable to have it in eBook form thus providing sophisticated indexing and searching facilities. For music, there may be similar categories, and unless the content providers have not invested more effort into finding out what people want and how much they are willing to pay for it, the adaptation process to the new world of content distribution will remain more difficult than necessary.

6 Alternatives

While the previous sections described ways how the music industry could and might be able to make the transition into a new area, the question remains whether the whole idea of a completely product-based view of music is desirable. To phrase this approach differently: While there maybe companies (even big ones) that have made their living from viewing and selling music as a product, it is questionable whether

this view of the world should be endorsed by legally protecting it. Legislators in the U.S. and Europe protect digital content by enacting stronger intellectual property law, based on the WIPO treaties. The high price for a legal framework with such excessive copyright restriction will be loss of fair use and anonymity for the user. Law combined with increasing technical control shifts the balance between the interests of users and copyright owners towards the latter.

The WCT and resulting national laws are simply protecting the interests of traditionally working industries in a new world, and the price for this often is privacy. The RIAA's recent actions against users of file sharing programs not only have shown that the new legislation is criminalizing significant fragments of the population, but also that many privacy issues have been treated rather lightly when introducing the new legislation. As an alternative, the *Electronic Frontier Foundation (EFF)* has suggested to let users of P2P file sharing services pay a voluntary monthly fee, which would then be collected and distributed similarly to the European fee on blank media. A similar approach is letting *Internet Service Providers (ISPs)* collect the fee as described by (Sobel, 2003).

As a radical alternative for content providers, the *Creative Commons* concepts developed by (Lessig, 1999; Lessig, 2001) is an interesting solution. It is based on the assumption that all cultural work is interconnected and thus cannot be regarded and marketed as an individual product. This concept is mainly targeted at content providers with no commercial motivation, which want to make sure that their content is available and can be used by interested parties.

7 Conclusions

While we argue that the music industry in general could benefit from concentrating on new business models rather then protecting the old ones, we do not deny that commercial music piracy (such as producing and selling counterfeit CDs) is a problem and should be prosecuted. However, the current trend to criminalize a substantial fraction of the consumer base is probably counterproductive and will definitely not help to increase the speed of adaptation to the new reality of music as data. While large-scale online sharing of copyrighted material is illegal, P2P applications are not illegal by nature, and could also serve as a foundation for a new way of making money with music. Additionally, new studies such as (Oberholzer and Strumpf, 2004) indicate that the actual loss of sales is much smaller than usually claimed.

The current copyright law (before the WCT/DMCA legislation) is sufficient to protect copyrighted material, and the attempts to legally protect the technical protection mechanisms for content show that the resulting architecture will probably result in more restrictions for users. The statistics that are used to convince legislators to accept this kind of legislation are highly questionable, starting from the business figures and ending with the user counts and the concluded loss of revenue. Only the complete absence of effective user interest lobbying makes the current legislation possible.

Promising new business models such as iTunes show that it is possible to make money on the Internet, and that users can be offered a service that is not overly restrictive but still effective enough to avoid large-scale exploitation. While we cannot present a business model that will successfully move the music industry into the area of the Internet, we are confident that the current complaints will disappear once the thinking has moved from protecting the old ways to discovering and using the new ways.

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