

# Online file sharing

## The music industry's paradigm shift

This will be decided not in the courts, but around American dinner tables ...

Cary Sherman, President of the RIAA<sup>1</sup>

I am all for destroying their machines ... [damaging an accused pirate's machine] may be the only way you can teach someone about copyrights.

Orin Hatch, Chair of the US Senate Judiciary Committee

In the late 1990s the music industry experienced an unparalleled period of growth. The coming of age of the compact disc (CD), and the economic boom at the time, made music a worldwide boom industry. Unfortunately, the same technology boom that was driving consumer spending was also driving a new technology that would threaten, if some observers are to be believed, the very livelihood of the industry and the musicians and artists who provided the content that made the industry so successful.

Between May and November 2003 the RIAA issued over 911 subpoenas to Internet service providers demanding the names of clients who were still offering music on file-sharing networks. In June 2003 Jesse Jordan, a 19-year-old college student, was one of the first individuals to be hit with a lawsuit by the RIAA. Mr Jordan settled the suit by paying \$12 000 to the RIAA. On 29 September 2003, Alan Davis was sentenced to six months in jail for criminal music copyright infringement, and on 2 October 2003 four individuals pleaded guilty to criminal copyright infringement charges.

Many people are passionate about music: the people who buy it, the people who write it, the people who perform it, and usually the people who

sell it. A considerable body of economic theory also shows that the usual relationship between price and utility changes significantly when consumers add such an emotion to their purchasing decision, and for decades this has driven almost continuously rising revenues and profits for the music industry.

In late 1998 everything changed. Shawn Fanning, a young computer whizz-kid, put the Internet, music lovers and traditional file-sharing together in an explosive cocktail that took on Fanning's hacker handle for its name: Napster. File-sharing, over Usenet, bulletin board systems, cassettes and eight-tracks, had been around for years, although the level of activity had never really posed a major threat to the record industry in its established markets.

Fanning's ignition of the taper was his decision to create a system that was 'presence aware' and that actively encouraged users to share their own material: any user logging on to Napster could now see what was being shared by all the active users (replacing the frustration of trying to download something that was on a computer that was not connected) and could painlessly share their own files without having to endure a complicated process to do so.

Napster would never have taken off without the creation of an acceptable compression algorithm to shrink music files from ~10Mb<sup>2</sup>/minute of music to 1Mb/minute – the Motion Picture Expert Group's

<sup>1</sup> RIAA, Recording Industry Association of America.

<sup>2</sup> Mb, megabyte. One byte represents one character or piece of information; there are 1 048 576 bytes (1024 × 1024) in a megabyte.

MPEG-1 layer 3 format (better known as MP3)<sup>3</sup>. Nor would such an innovation have worked without the growth in mass, inexpensive bandwidth, or the fall in mass-storage prices. Nevertheless, the ability to share music on a scale not seen before sent shockwaves through the music industry. Early on, music CD sales began to decline as what the industry describes as the 'LP/CD upgrade cycle' – the music industry cash cow that has seen music buyers upgrade old collections from eight-track to LP,<sup>4</sup> to cassette, to CD – faltered.

In the best traditions of the music business and the people who work with it, the industry began to eat itself: Metallica sued Napster and immediately became the target for industry alumni and other bands, with some making recordings attacking Metallica and others joining the RIAA suits against Napster and the clones that soon began to spring up.

The sharing of music has been around since music itself, but its frequency has increased dramatically as new media have become available to the general public. The advent of the cassette, for example, led to a long and eventually unsuccessful record industry campaign with the tagline 'Stop home taping; it's killing music.' More recently, those who wanted to share their music moved to dialling directly into one another's computers using bulletin boards.

With widespread Internet availability, however, major changes began to take place. Initially, music aficionados would use file transfer protocol (FTP) servers and their own homepages and websites. For nearly three years after 1995, this was recorded as the most common method for sharing music.

In 1998, however, Shawn Fanning's Napster finally put together the components needed to make file-sharing a major force. Fanning was helped by a motley crew of dot.com wannabes, including his uncle, to turn Napster into a runaway success, with millions of worldwide users sharing huge numbers of songs.

Not surprisingly, it was not long before the lawyers were on the scene: the RIAA sued Napster for \$100 000 for each song that was copied, on the basis of infringement of copyright. By early 2000, Napster had entered into a relationship with German media giant Bertelsmann. Hoping to provide a legitimate service to the millions of people who had downloaded the Napster client, they attempted to block sharing of hundreds of thousands of songs on a list provided by the RIAA. This failed and the RIAA sued

again. Combined with other woes, such as the blocking of Napster traffic by some universities – the biggest source of such traffic – this proved to be the final straw: in late 2001, Napster had closed down.

In January 2002, Bertelsmann, which had invested US\$85 million in the company, offered to buy the remains for \$20 million. In-fighting followed, and the tattered remains of the business, including the brand name and rights thereto, were sold to Roxio.

## The rise of peer-to-peer

The fall of Napster was not the end of the story for savvy Internet users who wanted to listen to music. While the RIAA was smothering Napster in legal judgments, America OnLine (AOL) was purchasing a small company called Nullsoft, one of whose projects was to become the Gnutella network. AOL quickly cancelled the project, but by then it was too late and the code and design were in the public domain.

Gnutella was the first of the peer-to-peer (P2P) networks. With no central server or presence that could be shut down by litigious copyright owners, it was a supposedly safe way to share one's files. All that was required was that someone wrote the client software, which would allow Internet users to connect to this network. This was accomplished quickly and, just as quickly, competitors began to spring up. Most file-sharing applications allow the user to share files of all types as well as MP3s. They run on Windows, Macintosh, Linux, Sun and other computing platforms. The applications operate essentially along the same lines, whereby they offer:

- searching ability (by artist, genre, or other meta information);
- multi-tasking (it is possible to operate multiple searches and multiple downloads at the same time);
- integrated file libraries;
- browsing abilities (when someone else is online, it is possible to browse the contents of their shared folders);

3 MP3 is a compression algorithm that allows data to be compressed and expanded 'on the fly', given sufficient computing power. However, the algorithm is lossy to provide better compression; it strips some of the data from the original source, thus making any MP3 file an imperfect copy of the original.

4 LP, long-play disc.

- interchangeable colour schemes ('skins');
- availability in different many different languages;
- speed of downloads (most sharing systems allow you to download a track from multiple locations and attempt to optimize use of bandwidth and download times).

These systems not only allow for sharing music but also encourage users to publish their original works and share these works with the general public. Because the systems allow multiple users to exchange the same information, the effect is that the information is more easily accessible and quicker to obtain.

The user downloads the desired program, be it Kazaa, Gnutella, Morpheus, Grokster, etc.; with that program, the user is allowed to search other users' hard drives that they have made available and that are running on the same program. For example, a user using Kazaa or the Kazaa Media Desktop (KMD), which is owned and operated by Sharman Industries, can search the shared files on the hard drive of someone else who is running KMD. For example, Dorothy and Albert, as well as a lot of other people, are running KMD. Dorothy searches for 'Where did our love go?' by the Supremes. Dorothy runs the search, the program finds the song on Albert's hard drive, and Dorothy downloads it to her computer. As sharing is the name of the game and the ability to swap content (music or other) is key, the program requires the user to set up a folder ('My shared folder') in which the user stores material that he or she wants to share. The file-sharing services urge users not to make their entire hard drive or 'My documents' folder available and to keep the folders from which they would like to share information separate and well marked to avoid unwanted infiltrators. (An HP report in 2002 found that most users had little idea as to precisely what they were sharing, evidence borne out by some of the users named by the RIAA's latest legal cases.<sup>5</sup>)

The philosophy behind the file-sharing programs is to make available and share information. Users are encouraged to share responsibly at least as much information (content) as they download. Kazaa rewards those who actively participate in downloading as well as making content available by rating each user's participation level. The level of participation is then used when a user is searching for information. When a file is requested by another user and it has

already been requested by someone else, the user with the highest participation level will be given priority. (This would matter, of course, only in terms of a highly desired file.)

To date, the most popular of these is the FastTrack network, which can be accessed using clients offered by Kazaa and Grokster. As of 26 May 2003, Kazaa had become the most downloaded piece of software ever on the Internet, with 203 million copies downloaded.

Since Gnutella and FastTrack, a number of alternative networks have emerged, all operating on a similar business model (see below). On any given day, millions of people are typically active on these networks, as shown in Table 1 (numbers obtained 7 December 2003 at midday).

**Table 1** Peer-to-peer networks and user numbers

Network	Users
FastTrack	3 941 240
eDonkey	1 598 842
iMesh	1 311 015
Overnet	688 128
MP2P	279 254
Gnutella	191 650
DirectConnect	189 899
Ares	57 446
Filetopia	4,284
<b>Total</b>	<b>8 261 758</b>

Source: [www.slyck.com](http://www.slyck.com), 7 December 2003.

## P2P revenue streams

Currently, the companies selling or offering clients to P2P networks have three revenue streams:

- Subscriptions from users who choose to purchase the clients.
- Advertising revenue from partners who advertise through the P2P clients (typically using a product like Cydoor or Gator<sup>6</sup>).
- Payments from Altnet for hosting specific files.

5 Brett Glass, 'Kazaa and others expose your secrets', [www.extremetech.com](http://www.extremetech.com),

6 Both Cydoor and Gator are considered by hardcore users as 'spyware': they install small software clients, which watch a user's surfing behaviour in an attempt to target the user with more appropriate advertisements.

## Subscriptions

The number of subscriptions purchased for P2P clients appears to be low, with as few as 1% of completed downloads resulting in a subscription. However, this still represents some 2.5 million subscriptions (based on a P2P community of roughly 250 million people),<sup>7</sup> based on typical subscription fees of \$20–35. Given the predominant attitude towards paying for services that is held by many Internet users, it is hard to see how subscriptions will provide meaningful revenue streams for the P2P companies. However, the issue of subscription was recently caught up in the RIAA subpoenas: one of the first people to be targeted was a 12-year-old New York girl, whose mother believed that since she had paid Kazaa a \$29.95 subscription, her daughter was free to use the software (and the material downloaded using it) as she wished.

## Advertising

Of the three revenue streams, the second seems to be the hands-down winner in terms of generated revenue: figures are not directly available because online advertising rates fluctuate hugely and P2P companies are shy of releasing such figures. However, recent speculation suggested that a number of the key figures involved in the creation of various P2P networks have made handsome returns from their creations:

Niklas Zennström and Janus Friis [founders of Kazaa and FastTrack] ... may be sharing up to US\$70m ... on an annual basis. ... Elan Oren formed iMesh in 1999 ... Slyck estimates that iMesh has earned the Israeli owner a cool US\$100m ...<sup>8</sup>

Anecdotal information – as well as any examination of the essential technology involved – suggests that a P2P network once set up can be extremely profitable. Providing a network has sufficient users to interest advertisers, then the incremental revenue from customers is almost entirely profit.

## Altnet

Streamwaves, the first music service backed by major record companies, approached Kazaa to find a way in which file sharers would pay for downloaded music. Streamwaves' Altnet pays Kazaa for the right to place its clients' files on the top of search results. Those files are scrambled to deter piracy and in some cases require users to pay to play them. Under the deal, Kazaa users who search for many major-label artists will find a link to Streamwaves at the top of their

search results. Clicking on that link will launch Streamwaves' software, providing samples of songs by the artist and related performers from an online jukebox. Streamwaves streams music to users rather than offering downloadable tracks. Altnet's files are protected by electronic locks (i.e. DRM,<sup>9</sup> see later) that control how files are opened and used. Altnet also offers to pay users to share files authorized for distribution. They are able to accumulate what are called 'peer points' which could amount (in theory) to \$250 000 worth of prizes each month to those who transmit the most files to other Kazaa users. But the only files that earn points are Altnet files; the non-paid-for downloaded files from Kazaa cannot be used. Hence, Altnet is using honey to try and rid Kazaa of what the RIAA terms illegally downloaded files while the RIAA's vinegar seems to be antagonizing users.

## Future revenue streams

Partly because of its close association with Kazaa and Sharman Networks, Altnet is not an option that is liked by most of the P2P industry, who set up their own lobbying group, P2PUnited, in mid 2003.

Other P2P companies are looking at similar revenue models that do not embrace such proprietary solutions. In a recent interview, Limewire's COO Greg Bildson described his company's attempt. Called 'Magnetmix', it allows artists to cheaply publicize their content without the expense of hosting that content, and offers users a higher value-added experience beyond simply searching for a specific item and downloading it.

Because P2P networks essentially allow users to share data easily, and with a low cost to them, it is already making small inroads into areas such as online gaming, telephony solutions, and software distribution. How the networks – the people who make the software – succeed in making money from such services remains to be seen; perhaps the type of data-sharing envisaged in these applications will become such a seamless, unseen part of users' operating systems that the software vendors will be swallowed up by operating system suppliers.

7 Over 500 million downloads have been made of P2P clients, but there is no agreed methodology for assessing the actual number of people on all the file-sharing networks.

8 Ciarán Tannam, 'P2P millionaires on the increase', [www.slyck.com](http://www.slyck.com), November 2003.

9 DRM, digital rights management: software that controls how DRM protected material can be used, by restricting copying, etc.

## Music industry background

The music industry as we know it was started by Thomas Edison, whose invention of the first phonograph in 1877 paved the way for music to be reproduced in one's own home. From these early beginnings, records came into popular usage from the turn of the 20th century, and the industry experienced its first boom.

This continued until the 1920s, when radio became a mainstream medium. Fearing the loss of their livelihoods and their monopoly, the musicians' unions forbade their members from recording for radio or licensing their material to the nascent radio networks. This all changed when Louis Armstrong and a host of largely black, non-unionized musicians began to record for radio: their rapid rise to popularity convinced the unions and the recording companies that radio – far from threatening their livelihoods – was driving an overall growth in the market for music consumption.

Especially in the USA, industry growth continued with little interruption throughout the inter-war years and the Second World War. Throughout this period, the record was the sole mass medium for people to listen to their music on demand. In 1940 RCA Victor awarded Glenn Miller the first ever gold disc for selling one million units of 'Chattanooga Choo-Choo'.

The invention of the cassette in 1964 spelt the beginning of a long, slow decline in sales of records. Since their original design, with a mono soundtrack recorded at 78 rpm, and made from thick bakelite (an early type of plastic), records had moved on to stereo and quadrophonic recording (although the later was a commercial failure) and were now available as full LPs on 33 rpm.

Philips chose to widely license its cassette technology, driving rapid uptake and incurring the wrath of music industry executives, who treated the cassette as the second coming of radio, believing that it would drive piracy and shrink the overall music market. In fact, although piracy grew as a result of the introduction of this new technology, the overall music market grew sufficiently to far outweigh this loss of revenue. Furthermore, extensive independent research suggested that although cassettes allowed consumers to share music in a fashion that had not previously been possible, this sharing of music broadened general

tastes in music consumption and led indirectly to an overall growth in per-capita consumption of music.

In 1978 Philips demonstrated the compact disc, sounding the beginning of a long but initially slow decline in cassette sales. Just as the cassette was eating away at vinyl sales, so would CDs eat into the market share of both vinyl and cassette. Surely enough, in 1988 CDs sold more units than vinyl, and by 2002 the IFPI<sup>10</sup> estimated that CDs provided 89% of global music industry revenue. (see Table 2).

**Table 2** Global value of music industry sales by format

Media	Value share (%)	
CD	89	
Others	11	
Of which	Singles	40
	DVD video	27
	Cassette	24
	VHS video	6
	Vinyl	2
	Other audio	1

Source: IFPI Recording Industry World Sales Report, April 2002.

In 1991, Sony introduced the mindisc (MD), hoping to replace the cassette with a medium that offered the flexibility of the cassette with the technology of the CD. Despite their earlier success with the Walkman, which revolutionized the consumer electronics and music markets, the MD has been less of a trend-former, being rapidly overtaken by recordable CDs and MP3 players.

## The music industry

Throughout its history, the music industry has seen extensive mergers and acquisitions activity. From the humble beginnings at the turn of the last century, the music industry is now a sprawling multi-billion Euro monster. In the last year for which we have figures, the world music market was worth US\$32.23 billion, with the USA the largest single market (see Tables 3 and 4).

Much of this activity is either controlled by, or at some point touches on the businesses of, five major players: Sony Music, Universal Music and Distribution, Bertelsmann Music Group, AOL Time Warner and EMI. Around one-quarter of the market

<sup>10</sup> International Federation of the Phonographic Industry

**Table 3** International music markets and sales breakdowns

Market	% of world sales
USA	39
Japan	16
UK	9
France	6
Germany	6
Canada	2
Italy	2
Spain	2
Australia	2
Mexico	1
Others	15

Source: IFPI Recording Industry World Sales Report, April 2002. NB Slight errors introduced due to rounding.

**Table 4** Regional summary of market changes, 2001–2002

	Unit change (%)	Value change (%)	Value (US\$ billions)
World	-8.40	-7.20	32.2
North America	-10.10	-8.20	13.2
Europe	-4	-4.10	11.1
EU	-2.90	-3.90	10
Asia	-12.80	-10	6
Asia (excluding Japan)	-15.20	-13.40	1
Latin America	-5.40	-9.80	1
Australasia	-2.80	-5.40	0.6
Middle East	-20.50	-15.50	0.2
Africa	-3.10	1.40	0.1

Source: IFPI Recording Industry World Sales Report, April 2002.

**Table 5** Worldwide market share ('Big Five' and independents), 2002

Company	Worldwide market share, 2002 (%)
Universal	25.9
Sony	14.1
EMI	12
Warner	11.9
BMG	11.1
Independent labels	25

Source: *Forbes Magazine*, August 2003.

is controlled by so-called 'indie' labels – labels independent of these groups (see Table 5).

## Making music

The process of making and selling music seems, in many respects, very simple. However, a look at the industry's value chain<sup>11</sup> and a look at the cost breakdown of a typical CD (see Table 6) shows how many people can be involved in the production and sale of a single or LP: depending on the agreements signed by an artist and the other creative people and businesses who have an input into a recording, a contract can look more confusing than the King of Spain's early attempts to 'share' the wealth of the New World with those who had travelled there and enslaved the locals on his behalf.

The complexity and opacity of this system is perhaps one of the reasons that so many musicians are publicly disgruntled with the music business. Even before the Beatles formed Apple in the late 1960s, there had been high-profile defections from major record companies. However, this was only one high-profile example of a number of ways in which artists 'get back' at the industry majors:

- Mariah Carey signed a £70-million deal with EMI's Virgin subsidiary in 2001. After the failure of the first album ('Glitter'), EMI paid Carey £19 million to extricate itself from the contract.
- Prince took to using a symbol for his name, then called himself 'the artist formerly known as Prince', then just 'Artist' in order to make his point to his then label Warner Bros. about the music he wished to pursue.<sup>12</sup>
- George Michael fell out publicly with Sony and ended up in court. After losing the case, Michael reached an agreement with Sony so that the latter could avoid expensive and embarrassing litigation: he moved to Virgin/Dreamworks and Sony received a lump sum payment.<sup>13</sup>
- Courtney Love famously took the industry to task in 'Courtney Love does the math[s]', published

<sup>11</sup> R. Schulze, (1994) quoted in Shuman Ghosemajumder, *Advanced Peer-based Technology models*, MIT Sloan, 2002, identified up to 15 different organizations that might seek a share or payment from an artist's work, from recording studios, managers, agents and distributors to sound engineers, retailers and marketers (obviously, some organizations might perform a number of these functions).

<sup>12</sup> Ann Harrison, *Music: The Business*, Virgin Books, 2002.

<sup>13</sup> *Ibid.*

online in *Salon* magazine. She wrote: 'Piracy is the act of stealing an artist's work without any intention of paying for it. I'm not talking about Napster-type software. I'm talking about major label recording contracts.'

- Robbie Williams signed a US\$80-million deal with EMI in 2002, including the record company in his merchandising, concerts and other commercial activity.
- Janis Ian attacked the industry in May 2002 for its negative approach to file-sharing and the opportunities she said it offered ([www.janisian.com](http://www.janisian.com)).

In a 1999 report, one consultancy reported that any given album release in the USA had a 0.4% possibility of becoming a million-selling release, with a majority of the 30 000–40 000 albums released there each year losing money.<sup>14</sup> Courtney Love did her maths well from an artist's point of view, but she ignored the unpleasant reality that record companies simply do not know who will be a financial success and thus they need successful acts to subsidise less successful acts.

To the un-initiated, for example, a £250 000 advance is a lot of money. However, when one 'does the maths', the economics of the record industry start to become a little clearer. The record company is advancing £250 000 to a promising artist or band to get their first album. The band then needs to cover its living expenses for up to three years and to make some or all of the following payments: legal costs, accountancy costs, management fees, studio fees for album, tax, and cost of video production

At this point, if the band fails to come up with material that the record company feels able to release, then the company is out of pocket by £250 000 in cash, plus whatever value it puts on management time and other resources it has devoted to helping the band members get their act together.

Assuming that the album is 'up to standard' – in any case, this is a highly subjective judgement – the record company now needs to commit time and money to the promotion and marketing of the album, another black hole into which limitless cash could be poured.

## The music industry's response

### Shutting down the file-sharing services

The RIAA joined forces with the film industry in 2001 filing a copyright infringement suit against the

larger P2P networks (including Morpheus and Grokster). Napster used a central server in order to co-ordinate and distribute the music and hence was held responsible for the infringement of the copyrights by the users of the service. File-sharing programs like Kazaa, Morpheus and Grokster use a decentralized network, where files are distributed from and by the user(s). Napster, being incorporated in the USA, was wholly vulnerable to legal action, whereas file-sharing services like Kazaa and iMesh are incorporated offshore and therefore inaccessible to US courts. Therefore, it is not as easy to file a law suit against the decentralized services as there is no one to sue. (Kazaa is based on software that was commissioned by two Scandinavian businessmen; the programmers are Estonian; and the right to license the program was acquired by an Australian-based company, Sharman Networks, which has no direct employees and is incorporated in Vanuatu, a tiny island in the South Pacific.

Under the 1998 Digital Millennium Copyright Act, a federal judge in Washington, DC, was able to rule in January 2003 that Verizon Communications, Inc., a provider of landline-based and wireless communications, was forced to identify an Internet subscriber accused of illegally making available 600 songs from well-known artists. Verizon subsequently appealed against this ruling and won, partly on the basis that an ISP is not responsible for data held on its client's computers.<sup>15</sup>

### Suing the users

Realizing that it may be too difficult to prove that the music file-sharing programs were committing copyright infringement, the RIAA decided to file suit against individuals who use file-sharing software and have hence announced that they would begin preparing hundreds of lawsuits against individuals, demanding \$150 000 per song downloaded.

In April 2003, the RIAA filed lawsuits against four students at three different American universities, accusing them of operating music file-sharing programs like Napster. The RIAA's aggressiveness is antagonizing not only university officials but one of their largest target audiences (students) as well. The President of Michigan

14 Ashish Singh, *Cutting Through the Digital Fog*, Bain & Co., 2003.

15 [www.eff.org/cases/Riaa\\_v\\_verizon/opinion-20031219.pdf](http://www.eff.org/cases/Riaa_v_verizon/opinion-20031219.pdf).

Technological University, one of the universities cited in the suit, stated in a letter to the RIAA:

Had you followed the previous methods established in notification of a violation [copyright infringement], we would have shut off the student and not allowed the problem to grow to the size and scope that it is today. I am very disappointed that the RIAA decided to take action in this manner.

Many file-sharing users tend to be students using high-speed campus computer networks, and many colleges believe that blocking P2P networks would be contradicting academic freedom. Record industry executives and online music companies are now working with colleges and universities to find ways in which to offer legitimate sources of free or deeply discounted music to students in order to stop the use of unauthorized file-sharing, although colleges and universities would then be obligated to block unauthorized downloads. Discussions are still in the early stages.

## Other means

The record industry has also pursued less conventional ways to combat music file-sharing by harassing music file-sharing systems and users alike by posting corrupt or empty files. The industry has actually looked at legal ways to ‘lock up’ any computer that uses the file-sharing software. So far, the Big 5 of the music industry have refused to partner with any of the file-sharing programs. Ever since 1999, Napster and its successors have made numerous attempts to reach some form of concord with the industry, including an ill-fated attempt by Napster to filter out illegal content and more recent efforts by Kazaa and Grokster to offer distribution deals to the industry.

Despite efforts thus far, the industry has behaved in what appears to be an extremely reticent manner, refusing to accept that file-sharing services have any form of future and refusing almost point-blank to deal with them.

The Big 5 have asked major recording artists, such as Eminem, Madonna, Elton John and Luciano Pavarotti, to speak out against music file-sharing and to deliver personal messages in the media. Some high-powered musicians have even testified at US Federal and State Government hearings on illegal file-sharing. On the other hand, some artists, including Courtney Love, Joni Mitchell, Jimmy Buffet and Janis Ian, have been outspoken as to how the music

industry has been taking advantage of artists all along and now the tide has turned. In ‘Love’s manifesto’,<sup>16</sup> Courtney Love sets out explicitly how she believes the music industry has profited from artists and how the artists have not received their due.

The same music executives who are recruiting these big stars to come out against file-sharing are also the same people who are desperately trying to figure out how to turn this around so that they too may profit from the Internet distribution systems. Adding to the soup, some of the Big 5 are also part of organizations that are selling computers with CD burners and other equipment for copying music (Sony is an excellent example of this).

## Signing up universities

The rejuvenated Napster (now a division of Roxio) signed in December 2003 a deal with Pennsylvania State University, allowing the students access to the new Napster and most of its library, although the service makes heavy use of Windows embedded DRM technology. Precisely what the cost is to Penn State, or what the contract between the university and Roxio contains, or even whether such a deal is for publicity purposes or is repeatable, are all still in debate.

## Legal file-sharing services

The music industry has launched alternatives to the P2P networks, supporting legal online music services such as MusicNet, eMusic, Pressplay, Rhapsody, iTunes and Buymusic.com. MusicNet has been touted as the industry’s best response to music file-sharing. For \$9.95 a month, a user can download 100 songs streamed to them. Of course, these services are not as popular, not only because they are paying services but also because some of them offer monthly subscriptions rather than selling individual songs and albums. How is the music industry going to get the public to purchase something that they have been able to obtain for free?

## Online retail

Through their control of most of the popular catalogue, the music majors are busy trying a number of different ways to sell to online users, as described

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16 Courtney Love, ‘Courtney Love does the math,’ 14th June 2000, *Salon.com magazine* (San Francisco and New York), <http://dir.salon.com/tech/feature/2000/06/14/love/index.html>



later. With a tiny number of exceptions, these follow their current model, using a third party to interact with music buyers.

## DRM

A key element of a number of industry responses is the use of digital rights management (DRM) technology. A simple concept, good DRM is very difficult to get right, as Sony has found out with their ATRAC-3 system. Essentially, the technology allows the vendor of a piece of digital media to decide:

- how long the user can listen to the music for (e.g. one week);
- whether, and how many times, the track can be duplicated;
- what media the track may be duplicated to;
- whether the track can be translated into another format (e.g. from WMA to MP3).

At present, however, DRM systems are proving generally to be cumbersome and complicated. For example, if you download tracks from some music services, you are unable to install them on your MP3 player unless it is on a list of approved and tested equipment. Or perhaps you have two computers and wish to use the track on both: most DRM systems will not allow this, despite the fact that such use clearly falls within applicable copyright and reproduction laws in both the USA and Europe.<sup>17</sup>

## Other revenue sources

Traditionally, record labels have largely only earned money from the sale of recorded music. EMI Group was the first of the Big 5 to make an all-encompassing deal with Robbie Williams, the British pop star. EMI paid Robbie Williams around \$80 million to become a full partner in all of Williams's earning: publishing, touring, merchandising and record sales.

In a presentation on 3 May 2003, EMI Executive Vice President John Rose stated that EMI is actively looking for a strategy but they are still relying heavily on law enforcement rather than looking to partner with any of the file-sharing programs. Some of the strategies that he mentioned include the following:

- Tighter pre-release management.
- Keeping a tighter internal inventory so as to avoid leaks and letting songs and/or content reach the Internet too quickly.

- Becoming better informed about customers.
- Making it more difficult to rip and burn CDs by embedding the CDs with technology that limits the customer's ability to copy the music.

All of these ideas are well and good, but none of them is aggressive enough or will react fast enough to the changes occurring in the industry. Any technological encryption will probably be broken relatively quickly, which means spending more and more time and personnel to constantly re-invent ways in which to make CD copying more difficult.

The music industry realizes that it must change its business model. Besides Streamwaves' partnership with Kazaa, the music industry has been very reluctant to form any sort of partnership with the file-sharing companies. Mr Rose stated that they must now seek new revenue sources such as Internet and physical sales, DVD music videos, Internet radio, turning telephone ring tones into ring 'tunes', and digital downloads. EMI realizes that it must fully integrate digital distribution into its business model.

## Response from other parties

The advent of file-sharing appears to be affecting the industry far more than earlier incarnations of music-sharing, such as cassettes and eight-track tapes. Who are the other parties who are involved here?

## Artists

For some artists, the advent of the Internet has revitalized their careers and their finances. The most frequently quoted case is that of Janis Ian, who has famously published two articles providing what she describes as 'an alternative view'.<sup>18</sup>

The Internet has allowed artists to take more control, at lower expense, of their promotion and marketing, where they are allowed to do so by their contract, and for some this is a huge boon: they can gather more of the revenue from their products – whether this is a music download or a mail-order CD – than was possible previously. A look at the

<sup>17</sup> The most famous attempt at DRM was the SDMI (Secure Digital Music Initiative). The creators (in 2001) offered a US\$1-million prize to whoever could crack it: a group of Princeton researchers took 48 hours and were promptly sued into silence.

<sup>18</sup> [www.janisian.com](http://www.janisian.com).

available analyses of CD costs shows that record companies, distributors and record shops, whether online or on the high street, take a large part of the actual consumer cost of a CD (see Tables 6 and 7).

**Table 6** Revenue shares from an £11.61 (\$16.98) CD

Company overhead, distribution, shipping	£2.29	19.72%
Pressing album, printing booklet	£0.51	4.39%
Retailer mark-up	£4.26	36.69%
Advertising, retail discounts	£0.58	5.00%
Artist royalties	£1.36	11.71%
Marketing	£1.47	12.66%
Signing and producing record	£0.74	6.37%
Label profit	£0.40	3.45%
<b>Total</b>	<b>£11.61</b>	<b>100%</b>

Source: Billboard, CNN.

**Table 7** Estimated revenue breakdown for a \$0.99 music file download

Telecoms Company (Bandwidth)	\$0,02
Publishing	\$0,08
Retailer margin (e.g. MSN)	\$0,12
Service provider	\$0,21
Artist royalties	\$0,09
Marketing	\$0,20
Overhead/A&R	\$0,19
Corporate profit	\$0,08
<b>Total</b>	<b>\$0,99</b>

Source: *Financial Times*, 1 September 2003.

Importantly, artists from both ends are threatening the semi-hegemony enjoyed by the Big 5 record companies. Where people like Janis Ian are taking their own responsibility for selling a broad catalogue to a comparatively small audience, groups such as Simply Red are also taking responsibility for their own products; for example, the release of Simply Red's latest album is being handled entirely 'in-house' by the group, thus depriving their former label of millions of euros in potential revenue.

Of course, for any artist, the greatest fear is that of anonymity, and the Internet does not necessarily offer a cure for this. Shuman Ghosemajumder found that many artists who had submitted work to MP3.com had received almost no sales as a result, or had sales that were derisory in terms of their effort and expense. He also points out that in 1993, 90% of

UK artists generating income from copyright received less than £1000 for the year, with 31% receiving less than £25.

Although it is difficult to establish clearly how the Internet, along with the easy portability and downloading of music, is affecting some artists, it seems sure that the two sides who are using it successfully are either the most well-established, well-known groups, or the lesser-known but still long-established groups with a clear fan base.

### Service companies

It is extremely difficult to get any figures relating to the amounts of money that the industry spends on efforts to eradicate the online sharing of music. Particularly in developed markets, where this is perceived as a problem, there are a number of businesses that appear to be making healthy profits from working with music companies to create 'spoof' recordings, to flood P2P networks, to target users on the networks, and of course to try to drag sharers to court.<sup>19</sup>

### Consumer electronics companies

The uneasy relationship between the music industry and the companies who make the equipment on which people listen to their product is best epitomized by the marriage of Sony's music and consumer electronics divisions. Jealous of Apple's iPod, senior staff at Sony seem to have spent much of 2002 trying to work out how to keep their businesses ahead in both markets.<sup>20</sup> Sony's dilemma is encapsulated in devices like its USB-compatible MiniDisc: unlike many other devices designed to carry music around in a quickly erasable/rewriteable format, Sony's latest generation of MiniDisc players uses a cumbersome, unfriendly copy-protection system.

Other companies, such as Philips, Apple, Samsung, Nokia and Creative, have been happy to create a bewildering array of players for MP3 tracks, allowing consumers, in some cases, to carry around more than 7000 songs (30 Gb or more of data) on a small player.

<sup>19</sup> 'Spoofs' are corrupted or unusable files that record companies pay intermediaries to host. The purpose is to render music downloading a less pleasant, more frustrating experience. The most famous was the 'release' of tracks from Madonna's new album in mid 2002; rather than the actual tracks, the MP3 contained an endlessly repeated clip of Madonna saying: 'What the \*\*\*\* are you doing?'

<sup>20</sup> Frank Rose, 'The civil war inside Sony', *Wired*, February 2003.

Recent initiatives have supposedly brought together many of the key players, in an attempt to agree secure standards for such devices.<sup>21</sup> However, this activity has not stopped the design of more and more sophisticated and user-friendly MP3 players. In fact, as pointed out in Rose's article, the relative sizes of these two industries suggest that the leverage of music companies is limited: although they control the content creation, the availability of software to 'rip' anything produced by the industry secures consumer electronics companies from any accusation of open complicity in file-sharing. (Ripping, in this context, means the duplication of a digital stream, and commonly refers to the uploading of a CD's contents to a hard drive, hence Apple's advertising campaign in late 2000 featuring the catchphrase 'Rip, Mix, Burn': tracks could be 'ripped' or copied, mixed (i.e. gathered in the order chosen by the user) and 'burnt' (transferred) to a new (blank) CD.)

### Online music retailers

The music industry has certainly not stood still in its response to people sharing music online. A number of efforts have been made to attract people to the purchase of music online, with varying degrees of success, and there have been a number of reviews of the different services. To make comparison easier, we examine two of the newer online businesses to look at the options being explored by the industry.

### The iTunes music store

Launched in May 2003, the iTunes music store is a composite part of Apple's iTunes software. Available to all Macintosh users (less than 10% of the worldwide PC community), iTunes is a program for managing music and audio files on a Macintosh.

Apple has managed to get a number of major record companies on board, leading to a fairly broad content availability (of around 200 000 titles in July 2003). This content is easily accessed through a simple interface that is based heavily on the album-cover images (see Exhibit 1). To use the music store, one simply connects, clicks on the tracks one wishes to purchase, and either downloads them immediately (at 99 cents each) using a 1-Click<sup>22</sup> payment interface, or stores them in a 'basket' for group purchase later on.<sup>23</sup>

21 '17 leading companies form a working group to simplify sharing of digital content', Philips press release, June 2003.

22 An online payment interface that allows consumers to purchase items with a single click once they have set up their credentials on that website.

23 In November 2003, Steve Jobs, Apple's CEO, cast doubt on the economics of this price point, claiming that with over ten million downloads, Apple had failed to turn a profit on the service, with 'almost every cent going to the music companies'. Even so, Wal-Mart's offer of tracks at 88¢ each set a new base price in late December 2003.

Exhibit 1 The iTunes music store



Source: Download via [www.apple.com/itunes](http://www.apple.com/itunes), May 2003

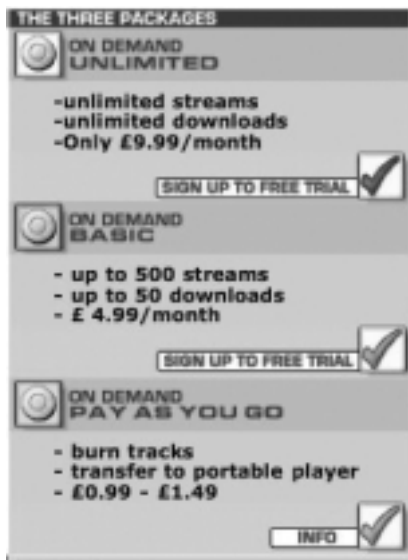
Music is downloaded as 128kbps AAC<sup>24</sup> format files and is almost infinitely transferable, whether to another computer or to an MP3 player or writeable CD. This was an issue with some respondents to CNet's review of the music store, who pointed out that for a track to be CD quality, it should be recorded at bit rates of at least 192kbps. The other main issue is, of course, the fact that the service is available only to Apple users. Nevertheless, in December 2003 Apple reported that 25 million tracks had been downloaded from the store since its inception.

### BTOpenWorld's dotmusic on demand

dotmusic ([www.dotmusic.com/ondemand](http://www.dotmusic.com/ondemand)) is a relatively new player built for the European market (iTunes is currently available only in the USA). It is wedded to Microsoft's WMA<sup>25</sup> music format. This goes to the extent of requiring users to have Windows, Internet Explorer and Windows Media Player all installed before they can use the service.

Users of the service have a number of options when joining, from paying for individual tracks (ranging from 99p to £1.49) to a full subscription (at £9.99 a month), which includes unlimited streams and unlimited downloads (see Exhibit 2). The dotmusic streaming service includes a number of radio stations (whose content is changed every fortnight)

### Exhibit 2 dotmusic pricing options



Source: [www.dotmusic.com/ondemand](http://www.dotmusic.com/ondemand), May 2003.

and also all of the music available on the website. (Since streams tend to be at much lower bit rates than downloads, they are good for previewing whole tracks or albums, or simply listening to something online. The quality is not usually acceptable, however, for a reusable format, i.e. burning on CD.)

The site claims to contain around 170 000 tracks (in May 2003) and is operated on behalf of British Telecom by OD2, which also operates Freeserve's<sup>26</sup> music service on many of the similar basics (WMA, similar track selection, subscription service, etc.).

### eMusic

A subsidiary of Vivendi Universal (the parent company of Universal music) and founded in 1998, eMusic had 70 000 subscribers by December 2003. The eMusic service offers unlimited downloads for a monthly subscription, using 128-kbps MP3 files as the standard music format. As the website says:

Since it was founded in 1998, eMusic has been a pioneer in the digital distribution of music. In July of 1998, eMusic became the first commercial site to begin selling singles and albums in the popular MP3 format. In the Fall of 2000, eMusic became the first company to launch a downloadable music subscription service.<sup>27</sup>

The site had around 70 000 subscribers for its 250 000 songs in December 2003, but it did manage to generate some negative publicity in May of that year, when it advised some customers that downloading several thousand tracks over a single month was not considered to be 'fair use'.

For many commentators, eMusic's service is the future for a large part of the music industry, offering users effectively unlimited music for a constant revenue stream. Perhaps the poor support of the service by music companies demonstrates their fear that music consumers are moving further from their marketing reach and that consumers will become further accustomed to getting more music for the same outlay.

24 kbps; kilobits per second; a measure reflecting the amount of sound data captured – the higher the figure, the greater the fidelity to the original recording. AAC: Advanced Audio Coding, or MPEG 2 layer 3.

25 WMA, Windows Media Audio, Microsoft's proprietary music compression format, which contains a number of DRM features.

26 [www.freeserve.com/entertainment/music](http://www.freeserve.com/entertainment/music).

27 [www.emusic.com](http://www.emusic.com)

**Exhibit 3** CNet's 2002 comparison of online music purchasing services

	BurnItFirst	eMusic	FullAudio Music Now	Pressplay	Listen.com Rhapsody 1.5	RealOne MusicPass
<b>Free trial</b>	Yes, but 30-second previews only	Yes; 30 days, 50 downloads	Yes; 30 days, 100 downloads	Yes; 3 days, unlimited streams and downloads	Yes; 7 days	No; 14-day SuperPass trial includes video content but not music
<b>Number and price of plans</b>	One plan: \$9.95/month	Two plans: \$9.95 (12-month commitment) and \$14.95 (3-month commitment)	Two plans: \$7.49 and \$14.99	Three plans; \$9.95 or \$17.95 per month, \$180 per year	Four plans: \$4.95 to \$9.95	One plan: \$9.95/month (plan with video content also available)
<b>Number of songs streamed in each plan</b>	No full streams, but unlimited number of 30-second streamed previews	No full streams, but unlimited number of 30-second streamed previews	No full streams, but unlimited number of 30-second streamed previews	Unlimited	Unlimited	100
<b>Number of downloads in each plan</b>	20	Unlimited	50/100	Unlimited (downloads that expire with membership); 0/10/120 (permanent downloads)	None	100
<b>Downloaded songs accessible after membership</b>	Yes	Yes	No	Yes, 10 per month with middle plan, 120 per year with highest plan	N/A	No
<b>Can burn songs to CD</b>	Yes, three times each	Yes	No	Yes, permanent downloads only	No	No
<b>Can transfer tunes to a portable player</b>	Yes, some players	Yes	No	Yes, permanent downloads only	No	No
<b>Songs are copyright-protected</b>	Yes	No	Yes	Yes, (the unlimited downloads expire)	N/A	No
<b>Quick whole-album downloads</b>	Yes	Yes	No	Yes	N/A	No
<b>Approximate number of tracks in catalog</b>	2,100	220,000	50,000	100,000	135,000	75,000

Source: www.cnet.com, May 2003.

### Other services

Exhibit 3 shows the results of a CNet review carried out in 2002, and compares some of the biggest services then available. As is clear from this exhibit and from the other services described above, there is a huge range of options in terms of the way that one can download and listen to music online.

Looking carefully at the different services available, it is clear that while the industry has learnt a lot from the operation of other online businesses, they are still seeking a model that customers 'like' – so far, downloadable music as a business has no Amazon.com trailblazing the way it deals with customers. Almost all of the services looked at are seeking a way to make customers more 'sticky', and many seem to be almost experimental, considering the different ways in which customers can interact. It was found that customers can get their music in a number of different ways:

- Streaming<sup>28</sup> audio, based on song or playlist selection.
- Streaming audio based on radio channels created by the services (e.g. MusicMatch MX).
- Downloadable tracks that are non-transferable and that expire with a period of time or with membership.
- Downloadable tracks that are transferable in specific fashions to specific devices.
- Downloadable tracks that have no DRM system and are infinitely transferable (i.e. to CD, MP3 player, etc.).

### Others

The music industry provides a heady combination of big business and high emotion: consumers respond to purchasing music in a different way to purchasing washing machines. Largely as a result, there is no shortage of advice available to the industry, ranging from Orin Hatch's quickly withdrawn proposal at the beginning of this paper to advocates of free goods supporting the complete destruction of the music business as we know it.

Some of the more (and less) possible suggestions being proposed, aside from those discussed above, include:

- Licensing P2P companies and paying the proceeds to artists.
- Requiring compulsory DRM installation on equipment.
- Banning P2P networks.

### Next steps

With the two sides of the debate so polarized, a solution seems a long way away. Record companies seem loath to abandon what they see as decades of growth based on their existing distribution and business models, and the P2P companies – along with their users – are continuing to refuse to share the revenue with what they consider to be the overbearing and stifling Big 5.<sup>29</sup>

Certainly in the USA, it is clear that action in the courts will continue apace, and recently the IFPI announced that it was planning to begin similar actions in Europe. It is clear that such action has an effect – however temporary – on the downloading of music. However, the negative effect that this action is causing for the industry, as well as the prospect that P2P services will be around for the indefinite future (in 2001, Intel's Andy Grove described P2P as 'the future of computing'), calls for a far more permanent and customer-friendly solution.

Consumers may have more and more leisure euros to spend, but the music's share of that cash has been falling. The two divergent but inter-connected questions that observers worldwide are trying to decide are the following:

- How do you carry on giving consumers the music they want while paying the people who actually make it?
- Where would the P2P businesses go from here?

<sup>28</sup> Streaming refers to a constant digital stream between the service provider and the customer, operating in a very similar fashion to a radio station. Sound quality tends to be lower, but streams are effectively available on demand.

<sup>29</sup> One mailing list included the following anecdote: 'Wayne Rosso yelled to a room packed with people anxious to be involved in legitimate online music distribution at the iHollywood Conference – 'I'm not going to pay you guys a damn thing!' (referring to a conference held in December 2003).

## DISCUSSION QUESTIONS

- 1** How could the music industry have responded differently to the rise of Napster?
- 2** What should peer-to-peer (P2P) networks do to grow their business?
- 3** Could the various protagonists have 'seen it coming'? Were there any warning signs that might have helped them to respond?
- 4** What is the music industry's biggest problem – is P2P a disease or a symptom?
- 5** What can other industries learn from the major music companies' response to online file-sharing?
- 6** What can we learn from the response of parties other than the music companies and the P2P file-sharing facilitators?