

The Napster Revolution: Economic and Social Impacts of Peer-to-Peer Technology

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## **Introduction**

In the annals of internet history, 2000 will be known as the year of Napster. It was virtually impossible to escape news of the radical new software that was allowing users to trade music over the internet. What began as a simple project to develop file sharing software soon mushroomed into international controversy. The Napster community, often represented by its creator, Shawn Fanning was pitted against the interests of corporate America with former heavy metal rebels, Metallica leading the charge in the name of the Recording Industry Association of America (RIAA) and, according to them, musicians everywhere. As the battle for public opinion raged on, millions of users were downloading the Napster software and entering a virtual community based on mutual tastes in music. This paper will attempt to explain the conflict as the result of a clash between two distinct world views of the nature of intellectual property. It will explain the history of file sharing and the internet through analysis of historical works and personal experience as a user of networking technologies for over a decade and a half. I will also focus on the role of music as a commodity in advanced capitalist society. It is my contention that internet file sharing and the Napster phenomenon signals a significant shift the social definition of music as a commodity from one with a distinct exchange value on the market to one of pure use value to its listeners. This is the result of a larger social phenomenon which synthesizes a long standing tradition within the computer user community and a growing anti-capitalist social movement.

## **Background**

### *The History of the Development of the Personal Computer and Computer User Culture*

The development of the modern personal computer has, to a large extent, been the result of the work of multiple individuals. With the exception of Charles Babbage, there is no single

individual who could be credited with the development of the computer. Computer technology began as a series of collective efforts by teams of scientists working to develop machines which could perform complex calculations at high speeds. These teams of scientists relied heavily on informal networks within their profession as a means of exchanging information about the complex projects which they developed. These networks also relied on a new communications medium which allowed scientists to send information to one another via electronic networks which will be discussed later in this paper. As the technology developed, the large machines which relied on information written on cards became smaller and more easily accessible to individuals outside the scientific community. (Bellis, 2000)

By the 1970's, the notion of the personal computer began to take shape as hobbyists in garages and home offices began to put together smaller machines capable of performing ever more complex tasks. These hobbyists found themselves meeting together in local communities and exchanging information with others across the country. There was a great interest in developing software for the operation of personal computers built by individuals who were highly intrigued by the new technology. As this software was created, it was shared with others in the community. This social network fostered a sense of community among computer users and a common notion that their activities were not designed for private profit, but for the growth of new technology. However, as interest in the new machines being built grew, private hobbyists found themselves becoming entrepreneurs in the new computer age.(Bellis, 2000).

The notion of file sharing where users exchange computer software stems from this sense of community which developed among early computer enthusiasts. As new software was developed by individuals or groups, it was often shared with others so that they may help to develop it further or create new software on their own (Stallman, 1999). As the community of

users grew due to the increased availability of personal computers, so did the pattern of sharing information between users through user clubs and a new medium for electronic communication between users.

### *The History of the Internet as a Social Medium*

The internet as we know it was essentially the result of government funded research. Originally commissioned as a project for the Defense Advanced Research Projects Agency, the first “internet” project linked a computer at UCLA with a computer at Stanford University. The success of this project soon saw the development of network links to other universities and research laboratories. As the ability to network grew, so did the development of new networks which expanded beyond the original defense department experiment. By the mid-1980s the National Science Foundation had developed a network which still serves as the major backbone for today’s internet. Along with scientific developments, the cost of hardware and software necessary for networking computers saw a dramatic decrease during the 1980s and especially in the 1990s. These events led to the development of what may be considered the modern internet (Cerf, 2001; Leiner, Cerf, Clark, et al., 2001).

The pattern of file sharing among individual computer users increased dramatically with the development of the Bulletin Board System (BBS). By the mid-1980s, the cost of computer technology had allowed for individuals to purchase personal computers for the home. In addition, a method of communication between computer users had been developed which relied on modem technology to send information via telephone lines. Some early computer users set up electronic community spaces in the form of BBSes which allowed users to exchange information, personal correspondences, and electronic files. The limited storage capacity of the host computers and the

slow speed at which information could be relayed through telephone lines and early modems limited the types of files shared to simple graphic files and rudimentary software developed by the users to be shared with one another.

The growth of the internet in the early 1990s from a purely scientific and academic medium of communication expanded the community of users exchanging information on its networks. BBS users quickly flocked to the new medium as higher speed modems and internet service providers opened up a larger world of communication for the average computer user. Clever BBS operators found themselves scrambling to become internet service providers for fear of losing the community which they had helped develop to the larger worldwide web. As the internet expanded, so did the opportunity for file sharing.

One of the earliest activities conducted over the internet was sending electronic mail. The original ARPANET between UCLA and Stanford was tested by sending a message from one computer to another (Leiner, Cerf, Clark, et al., 2001). As a staple of internet users from its inception, email was the perfect medium for file sharing. Senders could easily attach larger documents to the body of an electronic message which the receiver could then view or run on her/his own computer. Email quickly became a primary mode of exchanging images and short digital films as technology developed which could compress the original size of the file into a format which may easily be transmitted through high speed modems or faster network connections (CIPREII, 2000). Internet users were also able to log into a computer on the network and transfer files marked as available from that computer to their own through File Transfer Protocol (FTP) applications. Unlike the BBS which relies on single connections to a central computer via a modem, the internet allows multiple users to be connected to the network. This creates the opportunity for users to communicate with one another in real-time through

internet relay chat (IRC) or chat rooms on private internet service providers. Both forms of internet chatting technology allowed individual users to share files with one another through the common network that they shared. These elements of the internet in the early to mid-1990s allowed for file sharing to become a commonplace activity on the net.

The greatest development in file sharing technology was the creation of peer-to-peer chatting with the ability to share files between individual users. Individual chats were the outgrowth of IRC and chat rooms; specifically, America Online's Instant Messenger (AIM) feature. IRC contained a function where users in a channel (IRC terminology for a chat room) or on the network in general could communicate with one another in private. AIM allowed users on the America Online (AOL) network to communicate with one another in a similar manner (Levine, 1996). When AOL allowed users not on their service to access the network and chat with both AOL and other users. An important feature of the AIM client was the ability of users to exchange files with one another. These forms of private communication facilitated the ability to for individuals to directly exchange files.

File sharing experienced a true revolution in 1999 when Shawn Fanning developed a software that combined the peer-to-peer connection and file sharing of AIM into a single application which served as a medium of exchange for music files in the mp3 format. The Napster software borrows from AIM the ability for a user to log into a central server where she/he can share mp3 files with other users logged onto the server as well. The file sharing; however, occurs in a peer-to-peer connection between the users' computers. Therefore, unlike FTP, the file sharing is between the individual users rather than a central server where files are stored. The Napster servers acted as a meeting place for individuals to come together to share music files. The revolution of file sharing was almost immediate as others developed software which

expanded peer-to-peer technology beyond Napster's central servers. Based on the principles of programmers sharing code, the new software created peer-to-peer connections between individual users without relying on a central server (Greenfeld, 2000). The implications of these developments in peer-to-peer technology will be discussed in the conclusion of this paper.

The creation of Napster and other file sharing applications led to a unique change in the manner in which music was exchanged. During the last half of the 20<sup>th</sup> century music became a commodity which was exchanged for the profit of large corporate entities. By trading music files over the internet for free, Napster worked to subvert this system of economic exchange.

### *Music as a Commodity*

In *A Contribution to the Critique of Political Economy*, Karl Marx defines commodities as having use-value and exchange-value. "Use value as an aspect of the commodity coincides with the physically palpable existence of the commodity" (Marx, 1850). In the case of music, use-value may be seen as its enjoyment by an audience. The exchange value is defined simply as "a definite economic relationship" (Marx, 1850). The exchange value of music is far more complicated than its use value as modern capitalism has incorporated many stages in the production circuit of music as a commodity. However, if one were to reduce music to its final exchange value, one may wish to simply define it as the ability of a capitalist class to exchange a final recorded product of music (currently in the form of cds and cassette tapes) for money in order to realize a profit. The Napster phenomenon presented the first major challenge to the exchange value of music.

As capitalism develops, it increasingly seeks out new markets and new commodities to market (Marx, 1848). The commodification of music has been a slow process beginning with

street performers selling their skills to whoever would pay to listen, progressing to composers and musicians who were contracted by aristocrats to compose and perform music for them, culminating in modern recording technology which allows a work of music to be mass produced and mass marketed (Attali, 1985). It is this mass production of music that characterizes the modern exchange of music as a commodity. Reduced to its exchange value, music has a distinct social relationship to its creators and listeners. This relationship is defined by the industry which markets and distributes music. The music industry creates a sense of alienation between the producer and her/his work as well as between the listener and the performer (Adorno, 1976).

By reducing treating music as a commodity solely to be exchanged for profit, the music industry begins a process of alienating the musician from her/his work. The foremost relationship between the musician and the music industry is defined by the sale of music to corporations which reproduce the music and sell it to an audience. The copyright to this music is more often than not owned by the corporation which reproduces and distributes the music rather than its original producer. The classic justification of this process would be that this ensures a profitable return on the investment made by the corporation in recording, reproducing, and distributing the music while still compensating the artist(s) who produced it (Attali, 1985; CIPREII, 2000). However, by buying the music from the performer, the corporation has also alienated the performer from her/his music.

Because music is owned by a corporation and not the composer and/or performer of the music, the composer/performer loses control over the music itself. In the case of the composer, she/he essentially receives a rent on the music from the corporation which ultimately controls her/his composition (Attali, 1985). The performer is alienated further in that she/he is left in the odd position of playing music that may have been created by her/him but is the property of

someone else. Not only is the music appropriated by the performer, but it is then sold back by the corporation in order for the performer to make a living. The rent paid by the artist on music is taken out of any possible remuneration for sales of the music originally recorded. In this sense, the musician is not only alienated from her/his work, but is also exploited by the music company which controls distribution of; and therefore, access to music.

A vast amount of resources are necessary in order to mass distribute music. One must have contact with numerous retail outlets which can sell the music, a vast network of radio stations to promote the music, and a complex system of transportation to deliver music to locations where it may be sold or promoted. It is a daunting task for any musician or group of musicians to take on single-handedly. Therefore, it is no wonder that corporate enterprises have succeeded in performing these tasks. Unfortunately, the control over distribution and marketing of music has also served to alienate the artist from her/his music insofar as it has limited the artist's control over how and where music is distributed and marketed. It is not uncommon for a performer to acquiesce to the demands of the corporation which produces and distributes her/his music in order to increase sales (Adorno, 1976; Attali, 1985). Musicians are often asked to adopt a certain appearance, attitude, or even musical style or lyrical content based on the demands of the corporation which markets her/his music. At this point music is no longer of value to even the artist as it is purely reduced to an item which is produced for profit.

Corporate control of music not only alienates the musician from her/his music, but the audience as well. The popularity of modern music is often determined by calculated marketing moves on the part of corporations which reproduce the music. The notion of a "hit parade" is an ideal example of such marketing. The "hit parade" reflects "an expression of sales figures...and a prediction of future success" (Attali, 1985). The relationship between use-value of music as

embodied in popularity and its exchange-value as reflected in profits made by music sales becomes tautological: as a particular recording sells, it becomes more popular and as it becomes more popular, a particular recording sells more. The music fan is reduced to merely being a consumer following consumer trends in this cycle of marketed popularity. The social construction of musical popularity is not confined simply to the economic realm of exchange as mass marketing in the form of radio airplay serves to buttress the effects of construction “hit records.” Music which is played on the radio is generally ensured high sales due to exposure to the consumer (Adorno, 1976; Attali, 1985). Appreciation of music is reduced to consumption of whatever is mass marketed best. The audience has little control in its own musical tastes as they are a product of the market rather than individual choice (Adorno, 1976; Slobin, 1993). Through their marketing apparatuses, corporations are able to construct people’s musical preferences which ultimately alienates them from their own desires.

There has always been a resistance to mass marketing of music, but this resistance has generally been found on the peripheries of mainstream culture. A variety of subcultures have organized themselves based on either their appreciation of the use-value of music manifested in a preference for a specific genre of music or artist. These subcultures behave in a manner which resists the corporate control of music. Musical genres such as punk rock have developed systems of distribution and marketing outside of the corporate system which often privilege trading music in a manner which reduces exchange-value and highlights use-value. The subculture of music bootleg traders has a similar role vis-à-vis the music industry by focusing on individual artists rather than a specific genre.

Punk rock established itself as an oppositional subculture in relation to mainstream society. With the exception of a media curiosity in the late 1970s and early 1980s, as well as a

recent attempt at mass marketing; it has existed just below the cultural radar. The subculture has thrived through an underground network of fans and performers working for the mutual benefit of the subculture. Unlike, mainstream music which is defined by its popularity in the market, punk rock popularity is often defined by use-value in the form of fan appreciation for the music. Mass marketing is often interpreted as a sign that one has “sold-out” of the subculture. In order to facilitate this appreciation based on use-value, punk accepted certain communal principles based on the philosophy of anarchism. Exchange value of music is directly subverted by the belief that profit is anti-thetical to the subculture. Often musical recordings are sold for the cost of production and distribution or at a loss. This ensures that the producer of the music is not interested in the exchange-value of the product, but is seeking to promote its use-value within the subculture. It is not uncommon for artists to have full control over the recording, reproduction, and distribution of their work. This amount of control allows for distribution systems to develop based on direct barter rather than sale of recordings (O’Hara, 1995). While Marx is quick to point out that “[d]irect barter...signifies the beginning of the transformation of use-values into commodities” (1850), I would argue that the bartering of equal commodities in equal quantity does not signify the development of an exchange value for said commodity. In this manner the punk rock subculture maintains the use-value of its music while creating the commodity form of reproduction.

The subculture of music bootleg or unauthorized music trading follows a similar exchange pattern to that of punk rock. Despite the fact that there is a significant underground market for illegal recordings of popular artists, the bootleg subculture is one oriented around fan appreciation rather than profit. Much like punk recordings, bootlegs are often traded by fans of a particular artist or genre. One of the most glaring examples of this is found among fans of the Grateful

Dead who often share recordings of the band with one another based solely on their appreciation of the band's music. The popularity of bootlegging the bands shows grew to such an extent that the artists authorized their fans to produce live recordings to be traded among the subculture. Even though official sanction of bootleg recording by artists is rare, it is common for fans to trade bootleg music between one another. A vast network of bootleg traders is organized around individuals who pass along lists of music which they have available for trade with other fans. It is my contention that because these trades are oriented toward exposing fans to rare recordings of a particular musician and because they are often egalitarian exchanges that the bootleg subculture serves as a means for exchanging music for its use value rather than as a commodity.

#### *Napster and the Subversion of Music as a Commodity*

The rise of Napster signals the intersection of the social phenomenon previously discussed. By merging the computer user culture of sharing information with the subculture of bootleg trading, the software developed the potential to subvert the notion that music is a commodity to be exchanged for profit. Specifically, the application allowed for both individual control and the formation of a community which may serve as a model for further subversion of exchange values of commodities. Napster revolutionized control of music by taking away the music industry's monopoly over distribution. Suddenly, artists and fans were able to share music with the community established by logging onto the networks established by Napster and users around the world. In doing so, they negated any value that music might have to the corporations that control its reproduction and distribution.

Many artists saw Napster as a blessing because it allowed them a vast distribution system for their work without having to rely on the major music labels. Anyone with access to a

computer was able to distribute or trade his/her work for work by other artists. Any musical group with even a marginal fan base could be found traded on the Napster system. In some cases, the music available was posted to the internet by the bands themselves (Greenfeld, 2000). By taking control of distribution, artists no longer need to rely on corporate control to disseminate their music, nor to build an audience. The audience could be created from the bottom up rather than relying on mass marketing to create popularity.

Like the underground networks that proliferate within the punk rock and bootlegging subcultures, computer users share information informally with one another. The Napster software included two important functions which facilitated these exchanges. The first was a chat option where a user could chat with any user who was downloading or uploading music from her/him. This allows users to exchange information about music they enjoy and to build a community within the confines of using the software. It replicates the chatting options discussed earlier in this paper. The second function is more subtle. Users were able to view all of the available music files held by another user through a "hotlist" function. If a user found someone who shared her/his taste in music, that user could scan all of the other person's available music to find other artists which may be of interest to her/him. Unlike purchasing a cd by a new musical performer which could result in the loss of money, the negative consequences of downloading a song one doesn't like from Napster are a loss of time and disk space which can be reclaimed by deleting the file.

The Napster software created a situation where the music industry could be rendered obsolete. Musicians had the option of opting out of working within the music business as usual by distributing their music online. Artists are no longer necessarily relegated to obscurity because they do not have the total support of a major corporation. Fans are also no longer required to

look to the “hit parade” for new music. Once fans pick up on the music, they could easily distribute it to one another via file sharing networks. This places control of music in the hands of the artists and the fans rather than marketing experts and corporate executives. By relying purely on the use-value of music as something to be enjoyed, musicians and fans are no longer obligated to perform a monetary exchange for music. This potential for autonomy and control as well as the subversion of exchange-value as a bulwark of capitalism forced a backlash from the Recording Industry Association of America (RIAA) (Greenfeld, 2000).

### *The Corporate Backlash*

In response to the growing popularity of internet music sharing via Napster and the potential threat the software posed to the music industry, the RIAA along with former rebel rockers Metallica filed lawsuits against the company producing the software in the spring of 2000. The lawsuits alleged that Napster was responsible for illegal sharing of copyrighted materials. The motivation behind the suit was that by sharing music via the internet, music fans were no longer paying for cds and were costing the industry and artists millions of dollars in profits and royalties. What the music industry failed to understand was that music fans are often not interested in the economics of the music industry, but in the appreciation of music itself.