

Copyright and Digital Technology

“The only way to discover the limits of the possible is to go beyond them into the impossible.”

—Arthur C. Clarke, “Technology and the Future”

“Technology is dominated by those who manage what they do not understand.”

—Murphy’s Law

“No manufacturer would ship his or her goods on a highway if his trucks were routinely hijacked.”

—U.S. Senator Orrin Hatch

I. Introduction

Over the past several years, copyright has received more public attention than ever before due primarily to file sharing lawsuits. Unfortunately, much of the media coverage has been biased and inaccurate, helping to create a public view of copyright as a tool of the entertainment industries to maintain control of music and other creative works. Although it has sometimes been used as such, it was not intended for such purposes and has more often fulfilled its intended purpose of providing incentives to authors to create new works of art while assuring the public of access to those works.

Adversaries of copyright law tend to oversimplify the issues that copyright law seeks to resolve. Using slogans such as “information wants to be free” and “the genie is out of the bottle” and relying on misplaced ideas of “free speech,” “fair use,” and “file sharing,” these people avoid the difficult balance that copyright law attempts to strike between providing access to creative works while providing authors with incentives to create such works. Instead, they attempt to convince the courts, the legislature, and the public that they should be allowed

to use creative works without permission from or compensation to the owners of these works.

Some people believe that we have reached the end of the copyright era and that intellectual property should be free to all in the Internet age. According to John Perry Barlow, a former lyricist for the Grateful Dead and current copyright critic:

Intellectual property law cannot be patched, retrofitted, or expanded to contain digitized expression any more than real estate law might be revised to cover the allocation of broadcasting spectrum (which, in fact, rather resembles what is being attempted here). We will need to develop an entirely new set of methods as befits this entirely new set of circumstances.¹

Barlow's analogy ignores the fact that copyright has always been an evolving body of law. Just because expression can be stored in digitized form does not mean that copyright has outlived its usefulness. If all laws were thrown out when any new set of circumstances challenged their application, society would be in a constant state of chaos. Certainly, there are new circumstances to which copyright law must adapt, but copyright has been adapting for over two centuries, and to think that any new technology, no matter how innovative it may be, automatically eliminates its necessity or applicability seems a bit shortsighted.

The Internet is a relatively new—although admittedly very innovative—medium to which existing laws such as copyright must be applied. Music in digital form that is copied and distributed using computers and the Internet is generally protected by the same provisions of copyright law that apply to music in more traditional formats such as compact discs. The Copyright Act specifically recognizes that technological advances will alter the mediums in which works are fixed in tangible form, and the Copyright Act was specifically intended to include works fixed in digital form in such media as computer files, compact discs, etc.² There have also been some amendments to copyright law dealing specifically with digital music. According to a judge in a case involving MP3.com:

Defendant's copyright infringement was clear, and the mere fact that it was clothed in the exotic webbing of the Internet does not disguise its illegality.

In recent years there have been many amendments to the United States Copyright Act proposed, although very few have been enacted. Copyright owners try to convince Congress that greater protection is required, while new industries that use copyrighted works attempt to limit copyright law's application and obtain exemptions favorable to them. Some copyright scholars are also worried that some recent amendments have gone too far and unfairly limit the rights of individuals to build upon existing works, thereby stifling rather than promoting creativity. In the author's opinion, passing legislation in response to every technological change is likely to be a self-defeating prophecy. Although some amendments to copyright law will be required, too much legislation (especially as the result of lobbying by affected industries) results in the creation of complicated, impractical laws, many of which will become obsolete as technology continues to evolve.

II. New Technologies

Technological developments have always provided a challenge to copyright law. In fact, copyright law initially developed as a response to the invention of the printing press. Innovations in technology have led to new ways to reproduce and distribute copyrighted works and have consistently expanded the boundaries of copyright.

New technologies provide both threats and opportunities for copyright owners. Initially, the threats must be dealt with, but in the long run, copyright owners have benefited greatly from technological advances. After the invention of the photocopy machine, the print publishing industry worried that its business would be ruined by people photocopying rather than buying print publications. However, many books, newspapers, magazines, and other print publications continue to be sold. Similarly, the motion picture industry originally believed that the VCR would destroy the movie business. In fact, people continue to pay to watch movies in theaters, and selling videocassettes and DVDs to rental stores and consumers has provided motion picture companies with a revenue stream that now surpasses their theatrical receipts.

The music industry has also been no stranger to technological advances. Since Thomas Edison invented the gramophone in 1877, advances in recording technology have challenged copyright law and forced it to adapt. The gramophone was followed by inventions like the phonograph, eight-track, analog cassette, compact disc, digital audiotape, and MP3. In the early years of radio, many felt that it would destroy the record business and several decades later worried that video would supplant radio. Generally, each new invention has been an improvement over its predecessors and has changed the way people listen to music.

It is important to note that none of the new technologies mentioned above have destroyed their respective industries. In fact, some such as the VCR and the compact disc have actually rejuvenated their industries, bringing in huge new sources of revenues. However, the concern of the various entertainment industries when a major new technology is introduced is not totally misplaced. The mistake is that the concern should be over the use of technology rather than technology itself. No technology is inherently bad. Instead, it is the illegal and unethical use of technology by individuals that poses the real threat to copyrighted works.

The evolution of copyright law has not always been smooth, but it has managed to work reasonably well overall. Copyright law was designed to be fairly flexible. In fact, some provisions of copyright law may seem to be too broad. This is often because these provisions were designed to apply not only to existing technologies, but also to technologies that had not yet been invented. Even so, it has been necessary to revise and update certain provisions of the law from time to time in order to accommodate technological advances.

In the early part of the twenty-first century, the greatest challenge to copyright and the music industry is the combination of two related technologies: digital technology and the Internet. These technologies have changed the way people listen to music. Through these technologies, copyrighted works are much more easily accessible than in the past. This also means that copyrighted works can be much more easily infringed than in the past. Although the media often like to portray the copyright industry as anti-technology, disputes involving

copyright and technology are really just disputes between businesses. When new technologies are invented, businesses develop that intend to profit from the use of these technologies. Almost invariably, businesses based on new technologies believe they should not have to pay copyright owners of the content they use or make available. On the other hand, businesses based on ownership of copyrights (music, movies, books, computer software, videogames) tend to believe that their rights apply regardless of new types of uses that innovative new technologies make possible.

A. DIGITAL TECHNOLOGY

Digital technology involves converting information such as sounds into mathematical bits that are represented by a series of 0s and 1s. With analog recording, each successive copy results in a decrease in sound quality. The main advantage of digital audio technology is that there is virtually no loss of sound quality regardless of how many generations of copies are made. Additionally, digitization provides an easy and inexpensive way to reproduce and distribute an unlimited number of copies.

B. THE INTERNET

The Internet is a worldwide network of various types of computers and servers. It allows computers and their users to share data and communicate with each other. Users access the Internet in various ways: through digital cable modems, DSL lines, analog dial-up lines, and robust network connections like T3 lines.

III. How Music Is Used on the Internet

In order to understand how copyright law applies to the Internet, it is necessary to examine how the copyright owner's exclusive rights are commonly exercised in the Internet medium. There are two main ways music is distributed over the Internet: digital downloading and streaming. Both of these technologies allow music to be transmitted over the Internet to users' computers.

A. STREAMING

Streaming technology allows for the continuous transmission of music over the Internet in real time so that listeners hear the music as it is transmitted to them from a website. Streaming can be thought of as the equivalent of Internet radio. No permanent copy of the music transmitted is made on the listener's computer because the audio is merely "streaming" through the computer on its way to speakers connected to the computer. Many radio stations transmit their broadcasts over the Internet through websites, a process known as "webcasting." In order to play the webcasted music, you need software that can often be downloaded for free. One disadvantage of streaming is that the listener must be online to hear the music. Additionally, the music is usually of lesser sound quality than downloaded files because it has to be heavily compressed in order to flow through typical modems, although as broadband Internet connections increase, this will be less of an issue. Many record companies use streaming technology to allow consumers to preview recordings and videos. There are also online subscription services that offer large amounts of music that can be accessed online and listened to at any time, but not downloaded.

B. DOWNLOADING

Digital downloading allows people to make (or download) copies of digital music files from the Internet. Downloaded files can be stored on a computer hard drive

or other storage device and played on demand. In order to play a downloaded file, you need to have a software program that can read the particular file type; such programs can usually be downloaded for free. In order to play the downloaded file away from the computer, you need a hardware device like an iPod that can play that particular type of file.

When uncompressed audio files are copied to a computer hard drive, they take up a lot of the computer's memory. Consequently, audio files must be compressed in some manner in order to transmit and store them effectively. Compression involves taking digital data such as a recording and representing it with a smaller number of data or bits. Compression algorithms delete redundant parts of a digital file as well as parts of the file that are inaudible to the human ear. The result is a smaller or compressed file, which reduces the amount of bandwidth necessary to transmit a file over the Internet and the amount of space needed to store a file on a computer. MPEG Layer 3 (MP3) is a compression format that reduces the size of digital audio files by a ratio of 11 to 1 without much loss of sound quality.³ Whereas a typical four-minute music file in uncompressed format takes up about 40 megabytes of hard drive space, the same recording in MP3 format takes up only 3.5 megabytes. The MP3 compression format has been around for more than a decade now. It is not owned by anyone and has become one of the most commonly used compression formats for music files. Newer compression formats, such as Windows Media (used by Microsoft's Windows Media Player), AAC (used by iTunes), and Ogg Vorbis, accomplish virtually the same thing as MP3 files, often with better sound quality at small data rates.

MP3 files can be downloaded from many websites to the downloader's computer. You can then play the MP3 file using software known as an MP3 player. You can also create MP3 files from compact discs. To do so, you must use a software program called a "ripper" that extracts music tracks from the compact disc while it is loaded in the computer's CD or DVD drive. The extracted tracks can then be saved on the computer's hard drive and converted to a compressed format. Most of the modern software programs that play music files, such as iTunes, Windows Media Player, and RealPlayer, accomplish ripping, converting, and indexing of compressed files in one step.

* Once you have a music file stored on your computer in MP3 format, you can play the music using your computer (equipped with a sound card and speakers) or record or "burn" it onto compact discs. You can make an infinite number of copies, which if made from a lawfully acquired file and used solely for your own personal use is perfectly legal. However, you cannot legally give away, sell, or upload copies to websites without the copyright owners' permission.

There is nothing inherently illegal about MP3 or other compression formats. However, they are often used illegally. Uploading and downloading an MP3 file containing a copyrighted work is legal when the copyright owner gives the uploader or downloader permission to do so. However, if you upload or download an MP3 file containing a copyrighted work without the copyright owner's permission, you will generally be infringing upon the copyright owner's exclusive rights.⁴

The use of MP3 software for the distribution of music has generated considerable fear in the music industry. Many individuals have ripped MP3 files of their entire CD collections, and the trading of illegal MP3 files over the Internet using file sharing software has become rampant. Worsening the problem, more and more consumers are buying compact disc recorders, and many are using them to

burn CDs of illegally acquired music files. Due to the compressed nature of music files, many more audio tracks can be recorded onto a single CD than the typical 10-12 tracks on commercially released CDs. You can find illegal CDs available for sale all over the world, many of which contain MP3 files.

Example 14.1: I spent three months in 2003 doing research on copyright and piracy in the Philippines, which is one of many countries with a high physical piracy rate. You can find pirated CDs as well as movies and computer software in virtually all major shopping areas. Most of the illegal CDs contain MP3 files that have either been burned from CDs or downloaded illegally. Rather than merely including all of the songs on a legitimate recording, many of these pirated CDs contain all of the songs recorded by an artist. For instance, you can buy a CD containing all recordings of artists such as the Beatles, Elton John, and the Eagles for about \$1.50. While it is admittedly tempting to buy CDs at prices so much lower than those of legitimate CDs, it's important to keep in mind that the people and organizations selling the pirated copies don't have to incur any of the costs that legitimate businesses do (e.g., production, marketing, etc.) and do not pay royalties to the recording artists, songwriters, producers, music publishers, or anyone else who has contributed to the creation of the recordings.

IV. How Does Copyright Apply to the Internet?

One of the main problems for businesses attempting to legally offer music over the Internet is the complexity involved in licensing music. This can be a complicated process because most uses will involve two separate copyrighted works—a musical composition and a sound recording—which are normally owned by different parties. Additionally, there are different rights and limitations on those rights applicable to musical works and sound recordings.

A. THE REPRODUCTION RIGHT

Copyright owners of musical works and sound recordings have the exclusive right to reproduce or make copies of their works. The reproduction right is exercised continuously by Internet users, often without users even being aware of it. Whenever someone receives an e-mail or visits a website, a copy of the computer file accessed is made on the computer user's hard drive. Reproduction occurs when a work is entered into a computer for more than a temporary period. For instance, a reproduction occurs in each of the following situations:⁵

- ▶ A work is copied to a computer file, whether on the computer's hard drive, a floppy disk, CD-ROM, or other storage medium. This includes "ripping" an MP3 file from a compact disc.
- ▶ A digitized file is uploaded from a computer to a website.
- ▶ A digitized file is downloaded from a website.
- ▶ One person's computer is used to access a file on another computer such as through the use of file-sharing software.
- ▶ A file is transferred from one computer on a network to another.

If you operate a website that allows digital downloads of files containing copyrighted sound recordings and musical compositions, you need to obtain licenses from the copyright owners or their agents. Licenses to reproduce copyrighted

sound recordings are obtained directly from the record company or artist that owns the sound recording. In some instances, relatively unknown artists may be willing to license the right to reproduce their sound recordings for free to promote themselves and build a fan base. Record companies and well known artists, on the other hand, are less likely to be willing to license the right to download their recordings for free because this generally limits their ability to make money by selling recordings.

In addition to the license for a sound recording, a mechanical license is also required for any copyrighted musical compositions contained on a sound recording. Artists cannot grant this right unless they also happen to be the songwriter and copyright owner of the musical compositions. Licenses to reproduce musical compositions can be obtained either from the songwriter or music publisher that owns the copyright or from a licensing agent authorized by the copyright owner (such as the Harry Fox Agency, which represents many music publishers in the United States).

B. THE PUBLIC PERFORMANCE RIGHT

A copyright owner has the exclusive right to publicly perform a copyrighted work, directly or through a means of communication or transmission. The transmission of music over the Internet can constitute a public performance. When you listen to music over the Internet, the music is certainly being performed, but it may not seem that the performance is a "public" one. However, the fact that a performance occurs at different times for different users does not prevent it from being a public performance. Similarly, when you download a music file, the public performance right may be implicated. This is true even if you do not listen to the music immediately after it is downloaded because copyright law only requires that the performance is transmitted.

Licensing of the public performance right for musical compositions is handled predominantly by performing rights organizations (such as ASCAP, BMI, and SESAC in the United States). All three of these organizations offer licenses that authorize performances of musical compositions over the Internet. It is also important to realize that under the Digital Performance Right in Sound Recordings Act of 1995 (see Chapter 7), sound recordings transmitted over the Internet are also subject to a performance right. Licensing of the performance right for sound recordings is handled by an organization called SoundExchange.

C. THE REPRODUCTION/PERFORMANCE CONTROVERSY

Before the digital distribution of music over the Internet, the difference between a reproduction and a performance of music was usually clear. Unfortunately, music transmitted over the Internet does not always fit within these distinct categories. Often, both rights are potentially involved.

Resolving this controversy has not been easy, in great part due to the turf war between reproduction rights licensing agents and performance rights agents, neither of which wants to give up a potentially lucrative source of commissionable royalty income. The transmission of music over the Internet makes the act of copying automatic because the digital representation of the music is copied into the computer's Random Access Memory (RAM) so that it can be played. Consequently, reproduction rights agents like the Harry Fox Agency believe that virtually all transmissions of music involve a reproduction. At the same time, the performance rights agents (ASCAP, BMI, and SESAC) believe that all transmissions also constitute public performances. The result is that a website wanting to make music available by digital transmission over the Internet may need to

obtain several licenses for the right to transmit musical compositions, as well as separate licenses to transmit sound recordings.

Example 14.2: A website that allows users to download from a choice of many copyrighted musical compositions and sound recordings would have to obtain at least the following licenses: mechanical licenses for the reproduction of musical compositions from the Harry Fox Agency or individual publishers; blanket performance licenses from ASCAP, BMI, and SESAC; and licenses for the reproduction and performance of the sound recordings from SoundExchange.

One potential solution to this problem would be to amend the definitions of reproduction and performance in the Copyright Act to classify certain types of transmissions as reproductions and others as performances. Transmissions that result in a permanent copy could be classified as reproductions; transmissions that are listened to while being made and do not result in a permanent copy could be classified as performances. A second solution would be to reach some type of compromise allowing website operators to obtain a single license covering both the reproduction and performance rights for musical compositions. For instance, copyright owners could appoint a licensing agent to grant the rights of reproduction and public performance for a single fee, thereby simplifying the online licensing process. At this point, such a compromise seems unlikely due to the vested interests of existing licensing agents. Ultimately, however, what is important is that copyright owners are adequately compensated for the use of their works rather than how those uses are classified or who collects for them.

The United States Copyright Office has weighed in on the reproduction/performance controversy, taking the position that it is likely that the reproduction of a temporary or “buffer” copy in the course of streaming is a fair use that would not require an additional payment to the copyright owner.⁶ The Copyright Office’s reasoning is based on the fact that buffer copies exist only for a short period of time and consist of only small portions of a work. However, the Copyright Office’s position has no legal effect, and so far, Congress has not attempted to address this issue.

D. THE DISTRIBUTION RIGHT

Another complication brought about by the transmission of music over the Internet involves the copyright owner’s exclusive right to distribute a copyrighted work. Under the first sale doctrine, once someone has legally acquired a copy or phonorecord containing a copyrighted work (e.g., a compact disc, cassette, etc.), they can sell or otherwise distribute that copy or phonorecord without the copyright owner’s consent.⁷ The first sale doctrine applies to the material object containing a copyrighted work and is limited to that material object. For example, someone who has lawfully acquired a compact disc is free to distribute that compact disc to someone else. However, the compact disc owner is not free to make and distribute copies of the copyrighted works contained on that compact disc.

In the online environment, the concept of distribution becomes a bit fuzzy. When a copyrighted work such as a sound recording is transmitted over the Internet, it seems like a distribution has taken place. However, this is not technically true because such a transmission does not involve the transfer of a material object. Instead, the owner of the copy or phonorecord transmitted still possesses that copy or phonorecord, and the recipient has received a copy of the original. Instead of a distribution, what has taken place is really a reproduction of the original work that results in a new copy being created. Because a reproduction rather

than a distribution has taken place, the first sale doctrine does not apply (because the first sale doctrine is limited solely to the distribution right). The new copy resulting from a digital transmission would therefore be an infringement unless made with the copyright owner's permission.

Some critics have argued that the first sale doctrine should be extended to reproduction to the extent necessary to allow the digital transmission of a work by the owner of a legally made copy of the work as long as the owner of the copy destroys his or her copy after making the transmission. The Copyright Office has recommended that Congress refrain from expanding the first sale doctrine, basing its recommendation on the inherent differences between physical copies and digitally transmitted copies. Physical copies of works (especially those in analog formats) degrade over time, making used copies less desirable than new ones. However, digitally transmitted copies do not degrade over time regardless of how much they are used. Additionally, with an Internet connection, digital copies can be transmitted almost instantaneously to an infinite number of people worldwide. The Copyright Office Report states that:

The need to transport physical copies of works, which acts as a natural brake on the effect of resales on the copyright owner's market, no longer exists in the realm of digital transmissions. The ability of such "used" copies to compete for market share with new copies is thus far greater in the digital world.⁸

V. The Digital Millennium Copyright Act

The Digital Millennium Copyright Act (DMCA) is an amendment to the 1976 Copyright Act that was signed into law in 1998. The DMCA's enactment was prompted by advances in technology and the exponential growth of the Internet as a communications medium. Before its passage, a considerable amount of lobbying took place; consequently, many of its provisions reflect legislative compromises. The end result is a very detailed and complicated piece of legislation. The three most important issues addressed by the DMCA relevant to the music industry are anti-piracy provisions, limitation on liability for online service providers, and rules for webcasters (discussed in Chapter 7).

A. ANTI-PIRACY PROVISIONS

(1) *Anti-Circumvention*

Due to the threat of widespread infringement of works in digital format over computer networks, copyright owners have begun to use several technological devices to make their works more difficult to infringe. For instance, a digital computer file can be transmitted in encrypted form, requiring someone who receives the file to have a software code to be able to read or listen to the file. However, no protection technology is infallible, and there are people (commonly referred to as hackers) who will attempt to deactivate technologies used by copyright owners. The DMCA makes it illegal to manufacture, import, distribute, or provide products or services that are primarily designed or produced for the purpose of circumventing technological measures used by copyright owners to protect their works. Circumvention of technological measures means descrambling a scrambled work, decrypting an encrypted work, or otherwise bypassing, removing, deactivating, or impairing technological measures without the authority of the copyright owner.

One major criticism of the DMCA is that it makes some conduct that does not constitute copyright infringement illegal. For instance, a person who circumvents copyright protection technology for a lawful purpose like making a fair use of the work is still violating the DMCA.

Example 14.3: A court held that the distribution of software that enables users to defeat copy protection technology encoded into DVD movies violates the anti-circumvention provisions of the DMCA.⁹ Movies released in DVD format are protected by encryption software called the Contents Scramble System (CSS), which can only be decrypted and viewed on a DVD player that has a licensed CSS key (DeCSS). Computers using the Windows and Macintosh operating systems that come with DVD players have the DeCSS key built in, but computers using the free Linux operating system do not have the decryption key and cannot view DVD movies. The defendant posted the DeCSS software on his website, where it could be downloaded by Linux users. The movie studios allege that DeCSS is a piracy tool and that without the anti-circumvention protection afforded by the DMCA, copyright owners would be reluctant to make encrypted works available. The defendant claims that DeCSS is merely a way to help Linux users watch DVD movies they already own, contending that DeCSS has legitimate uses. The court agreed with the movie studios, issuing an order banning the defendant from posting, linking to, or otherwise trafficking in the DeCSS code.

(2) Protection of Copyright Management Information

In addition to prohibiting circumvention of technological measures, the DMCA also provides for protection of copyright management information. Copyright management information is information embedded into a digital file that identifies the work such as the author, the copyright owner, the performer, and the terms and conditions for the use of the work. Copyright management information can be embedded so that it remains in a file regardless of where the file is transmitted, allowing the copyright owner to detect unauthorized uses and track royalty payments.

The DMCA prohibits the falsification, alteration, or removal of copyright management information or trafficking in copies of works that are linked with copyright management information that has been falsified, altered, or removed, if the offending party knew or should have known that its actions would facilitate infringement.¹⁰

B. ONLINE SERVICE PROVIDER LIABILITY

One of the problems in applying copyright law to the Internet involves determining who is responsible for infringements. People who, without permission, upload copyrighted music to the Internet or download it from the Internet are direct infringers. However, copyright owners face several problems in enforcing their copyrights against such individuals. First, it can be difficult to determine the identity of individual infringers in some circumstances. Second, it is often not economically practical to sue individuals for copyright infringement because copyright owners would have to sue thousands or millions of people, often for relatively small amounts of money. Third, copyright owners are often afraid of the negative publicity that will result from suing individual consumers.

Fortunately for copyright owners, in addition to direct infringers, the law also imposes liability on third parties who aid in infringement (contributory infringement) or financially benefit from infringement (vicarious liability). This allows copyright owners to sue websites and online service providers for infringements by individuals who use their services to commit infringements. Prior to the enactment of the DMCA, several courts had indicated that online

service providers may be contributorily liable for copyright infringement by website operators.¹¹ The fear of liability resulted in heavy lobbying by service providers, which led to the enactment of Title II of the DMCA.

The DMCA creates limitations on the liability of online service providers for copyright infringement. An online service provider is defined as “a provider of online services or network access, or the operator of facilities therefore.”¹² The DMCA does not completely immunize online service providers from liability. Instead, it limits the remedies available against online service providers in certain circumstances and provides for a procedure to aid in limiting online infringement.

The DMCA specifies four types of conduct for which an online service provider is not subject to damages or other monetary relief. In order to fit any of the four categories, a service provider must satisfy two general conditions: (1) It must adopt and reasonably implement a policy of terminating the accounts of subscribers who are repeat infringers; and (2) It must accommodate and not interfere with technical measures that copyright owners use to identify or protect copyrighted works, such as watermarks and encryption. In addition, there are specific conditions applicable to each of the four categories of conduct.

(1) Transitory Communications

Section 512(a) limits the liability of service providers for copyright infringements of third parties (i.e., their users). In other words, this section limits the liability of service providers that act merely as data conduits, transmitting digital information from one point on a network to another at the request of users. A service provider must satisfy the following conditions to qualify for this limitation: (1) The transmission must be initiated by a person other than the service provider; (2) The transmission must be carried out by an automatic technical process without selection of material by the service provider; (3) The service provider must not determine the recipients of the material; (4) Any intermediate copies must not be accessible to anyone other than anticipated recipients and must not be retained for longer than necessary; and (5) The material must be transmitted with no modification to its content.

(2) System Caching

Section 512(b) limits the liability of service providers for system caching. System caching refers to the process by which a service provider retains a temporary copy of frequently accessed Internet material for a limited time so that subsequent requests for the material can be fulfilled by transmitting the retained copy instead of retrieving the material again from the original source. This reduces the waiting time on subsequent requests for the same material. This limitation is subject to the following conditions:

- ▶ The content of the retained material must not be modified.
- ▶ The service provider must comply with rules about updating material and replacing retained copies of material with material from the original location, when specified in accordance with accepted industry standards.
- ▶ The service provider must not interfere with technology that returns hit information to the person who posted the material.

- ▶ The provider must limit users' access to the material in accordance with conditions on access (e.g., password protection or access fees) imposed by the person who posted the material.
- ▶ Any material posted without the copyright owner's authorization must be removed or blocked promptly once the service provider has been notified of its existence.

(3) Hosting at the Direction of Users

Section 512(c) limits the liability of service providers for infringing material on websites hosted on their systems. To be eligible for this limitation, the following conditions must be satisfied:

- ▶ The service provider must not have actual knowledge of infringing activity, must not be aware of facts or circumstances from which infringing activity is apparent, or upon gaining knowledge or awareness, must respond expeditiously to take the material down or block access to it.
- ▶ If the service provider has the right and ability to control the infringing activity, it must not receive a financial benefit directly attributable to the infringing activity.
- ▶ Upon receiving proper notification of any claimed infringement, the service provider must promptly take down or block access to the material. The service provider is responsible for filing a designation of an agent to receive notifications of claimed infringement with the Copyright Office and must make contact information available through its websites in an accessible location.

The DMCA creates a notice and takedown procedure, allowing a copyright owner to submit a notice of claimed infringement to the service provider's designated agent. If the service provider promptly removes or blocks access to the material identified in the notice after receiving it, the service provider will be exempt from monetary liability. The service provider will also be protected against liability to any person due to its having taken down the material, provided that it notifies the subscriber that it has removed or disabled access to the material. The subscriber can then file a counter notice including a statement that the material was removed or disabled through mistake or misidentification. It is then up to the copyright owner to file an action seeking a court order against the subscriber. If the copyright owner neglects to do so, the service provider must put the material back up within 10-14 business days after receiving the counter notice.

(4) Information Location Tools

Section 512(d) limits the liability of service providers that link users to websites (through hyperlinks, directories, search engines, etc.) containing infringing material. The conditions for this exemption are the same as those required for the § 512(c) exemption specified above.

VI. Conclusion

The ability to distribute copyrighted works in digital form over the Internet provides exciting opportunities but also poses serious challenges. Copyrighted music and other works can be made available to people all over the world in ways that weren't even imagined a decade ago. The same technologies also make it possible to infringe copyrights on a scale never imagined before. Such massive infringement is a serious problem, not only for authors and copyright owners, but for the public at large because businesses will be hesitant to invest in the production, distribution, and marketing of copyrighted works if infringement becomes too widespread.

A balance must be reached between the rights of copyright owners and the users of new technologies that allow for the use of copyrighted works. While the law should provide protection for copyrighted works, it should also allow for the development of new, innovative technologies. If used legally and ethically, technology can provide consumers with a wide variety of ways to enjoy music and other artistic works, while also allowing creators and owners of copyrighted works to be compensated for their creativity and investment.

Endnotes

1. "The Economy of Ideas," *Wired*, Mar. 1994, at 84, 85.
2. See H.R. Rep. No. 1476, 94th Cong., 2d Sess. 47 at 52 (1976).
3. Some audiophiles would disagree as to the loss of sound quality when music is compressed in MP3 format. However, to most casual listeners, the reduction in sound quality is minor and possibly unnoticeable.
4. I use the word "generally" because, in limited circumstances, uploading or downloading a copyrighted work without the copyright owner's consent may not constitute copyright infringement if the defense of fair use is applicable. See Chapter 12 for a discussion of fair use.
5. See FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS (1978) at 40.
6. Digital Millennium Copyright Act of 1998, Section 104 Report, August 2001, pp. 132-148, available online at http://www.loc.gov/copyright/reports/studies/dmca/dmca_study.html.
7. 17 U.S.C. §109.
8. Digital Millennium Copyright Act of 1998, Section 104 Report, August 2001, pp. 82-83.
9. *Universal City Studios Inc. v. Reimerdes*, 82 F. Supp. 2d 211 (S.D.N.Y. 2000).
10. 17 U.S.C. §1202.
11. See *Religious Technology Center v. NetCom Online Communications Services, Inc.*, 907 F.Supp. 1361 (N.D. Cal. 1995); *Marobie-FL, Inc. v. Nat. Assn. of Fire Equipment Distributors*, 983 F. Supp. 1167 (N.D. Ill. 1997).
12. 17 U.S.C. § 512(k)(1)(B).