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Entry into the Market for Online Distribution of Digital Content: Economic and Legal Ramifications

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Abstract

Consumer options for consuming creative content in digital form, such as music, movies, books, and television shows, have increased significantly with the development of the Internet. Entrants into the distribution stage of production have developed new business models to deliver digital content in general and copyrighted digital content in particular. The objective of this paper is to analyse the development of competition in the delivery of digital content to consumers. In particular, the focus is on new technologies that facilitate online dissemination of digital content to consumers through the use of peer-to-peer (P2P) networks and video hosting sites that have proliferated over the Internet since the late 1990s. The role of copyright as a potential competitive weapon by incumbent disseminators is joined in the analysis. P2P file sharing networks and video sharing web sites are viewed as entrants into the market for the dissemination of digital content to consumers. The incumbent technologies for distributing content have reacted aggressively to this new source of competition and have pursued legal, economic, and moral strategies to combat the use of authorised and unauthorised content by the distribution entrants. Perhaps the most important point to keep in mind is that online distribution, both authorised and unauthorised, is here to stay.

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1. Introduction

“Piracy is a business model. It exists to serve a need in the market – consumers who want TV content on demand. And piracy competes for consumers the same way we do: through quality, price, and availability.”¹

Consumer options for consuming creative content in digital form, such as music, movies, books, and television shows, have increased significantly with the development of the Internet. Entrants into the distribution stage of production have developed new business models to deliver digital content in general and copyrighted digital content in particular. The objective of this paper is to analyse the development of competition in the delivery of digital content to consumers. In particular, the focus is on new technologies that facilitate online dissemination of digital content to consumers through the use of peer-to-peer (P2P) networks and video hosting sites that have proliferated over the Internet since the late 1990s. The role of copyright as a potential competitive weapon by incumbent disseminators is joined in the analysis. P2P file sharing networks and video sharing web sites are viewed as entrants into the market for the dissemination of digital content to consumers. The incumbent technologies for distributing content have reacted aggressively to this new source of competition and have pursued legal, economic, and moral strategies to combat the use of authorised and unauthorised content by the distribution entrants. Perhaps the most important point to keep in mind is that online distribution, both authorised and unauthorised, is here to stay.

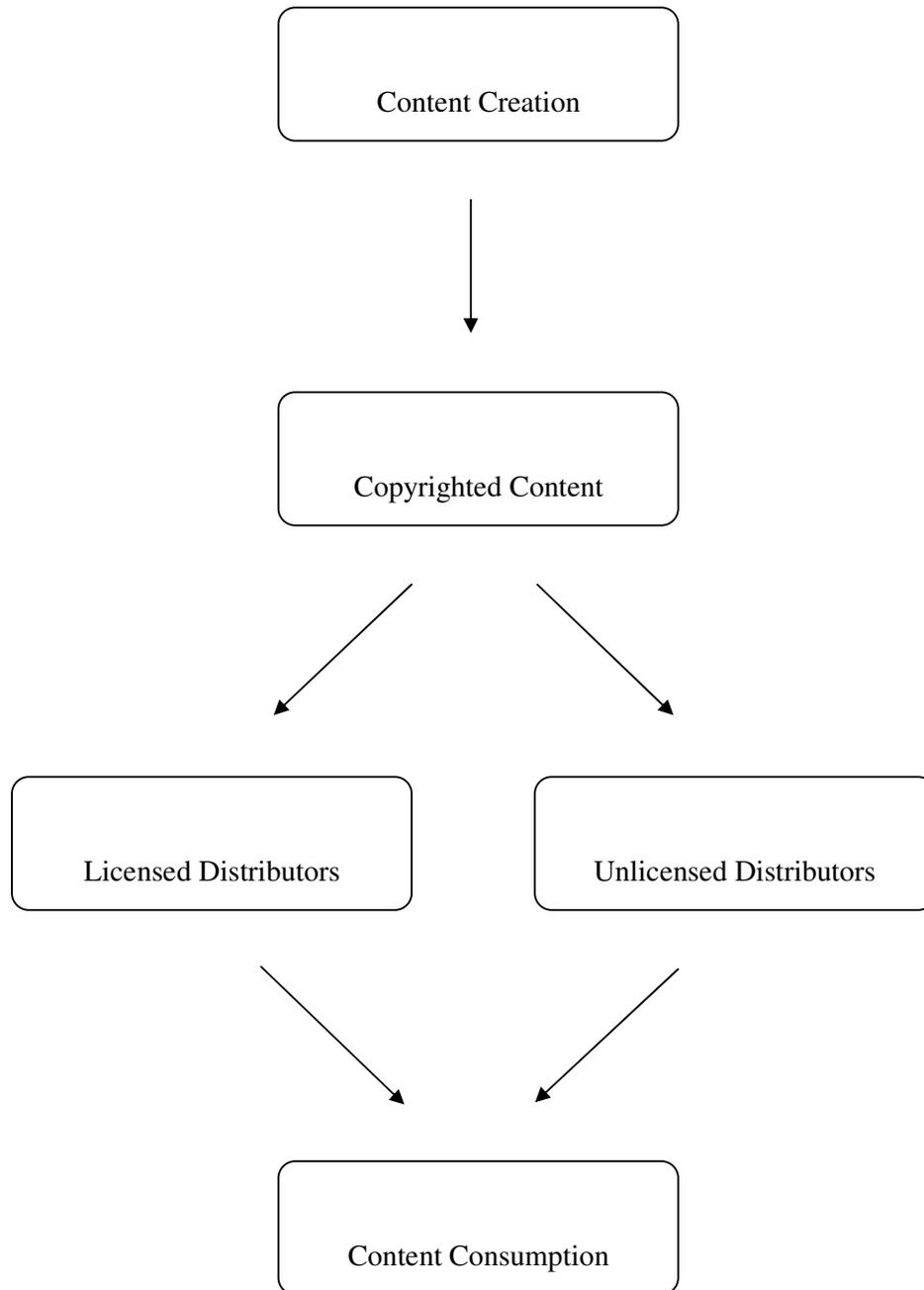
Section II presents background information depicting a stylised view of the value chain/production process and models the consumer’s choice problem by identifying characteristics of online distribution platforms that factor into the consumer’s decision making process when the consumer accesses digital content. Section III describes the varying technological designs that entrants utilised to distribute digital content to consumers. Section IV analyses legal strategies that copyright owners have pursued to address the threat of competition and poses four questions that software developers of new online distribution platforms need answered clearly and with predictability to spur technological advancement. The answers to the questions posed require an extended discussion of the legal and economic issues surrounding the entrants’ technology and business models. Section V offers a conclusion.

2. Background and Consumer Choice Problem

Diagram 1 is an overview of the stages in the production and delivery of content. The production process/value chain in general includes the creation of content, negotiations between the content creator and the publisher of the content, the distribution of content for access to consumers, and the consumption of content by consumers.

¹ Comments of Anne Sweeney, president of Disney-ABC Television in Steven Daly’s article “Pirates of the Multiplex,” *Vanity Fair*, March 2007.

DIAGRAM 1. Stages of Production/Value Chain



Content creators include artists who write and record songs, write television shows, author books, and write movies. Historically, content creators aspired to earn a living from the work, although there is an increasing body of content that is now made freely available to the public. Content is then published by music companies, book publishers, movie studios or television production companies that put the content in forms consumers will find interesting. Frequently, the ownership of the copyright ends up in the possession of a firm who is also integrated into the distribution stage of production. The distribution stage provides the delivery service of content to consumers. It should be noted that access to copyrighted and non-copyrighted content is an essential input into the distribution stage of production.

Firms in the distribution stage differentiate their service over a set of characteristics/attributes that they hope is important to consumers when they decide how to gain access to their preferred content. Bakker identifies eight different aspects upon which paid download services (such as Apple's iTunes music store) and peer-to-peer file sharing services (such as LimeWire and Kazaa) compete to attract consumers.² Sag develops a benefit-cost model comparing the net benefits from unauthorised downloading to the net benefits from legally acquired music.³ In particular, Sag categorises benefits in terms of functional value, normative value, and law-abidingness value and costs in terms of monetary cost, search costs, expected costs from computer viruses, and expected cost of sanctions.

In general, alternative online delivery services for content, such as licensed services, unlicensed file sharing services, and video sharing services, offer consumers different bundles of characteristics from which to choose. Building on the Bakker and Sag models, the following set of characteristics are likely to be considered by a consumer when choosing between alternative distribution services:

1. Price
2. Selection of content
3. Quality
4. Speed of access
5. Security
6. Legal liability
7. Ease of use/portability
8. Search cost
9. Unbundled access to content
10. Sense of community
11. Extra features

It should be noted that each characteristic may not be relevant to a consumer for all forms (e.g., music versus television show) of content.

Bakker was interested in identifying the aspects/characteristics that were of most importance when a consumer chooses between paid legal download services and file-sharing services. His research revealed that the online distribution market is composed

² P Bakker, "File sharing – fight, ignore or compete. Paid download services vs. P2P-networks" (2005) 22 *Telematics and Informatics*, 41-55.

³ M Sag, "Twelve Year-Olds, Grandmothers, And Other Good Targets for the Recording Industry's File Sharing Litigation" (2006) 4 *Northwestern Journal of Technology and Intellectual Property* 2, 133-155.

of two distinct types of consumers, file sharers and paid downloaders. File sharing services are attractive to a younger, more computer savvy audience that displays both patience and persistence, whereas the paid download service attracts a more mature consumer. Thus, online distributors need to understand this market segmentation indicating two different types of consumers and develop appropriate business strategies to target each segment. The focus of Sag's model was to analyse the impact on consumer behavior from a litigation strategy that targeted marginal file sharers.

Felten sketched a theoretical model of consumer behavior in which he further disaggregated the market segment consisting of file sharers.⁴ Specifically, he decomposed file sharers into two types, free riders (young people with few moral qualms about file sharing) and samplers (older, more risk-averse, people who were morally conflicted about file sharing). This decomposition enabled Felten to explain disparate findings in empirical studies examining the impact of file sharing on music sales.

None of these models factors into the consumer decision making process the entry of video sharing web sites, such as YouTube and MySpace, which concentrate their efforts on building a sense of community among users of the service. These sites provide access to copyrighted (often unauthorised) content and, more importantly, user-generated content. The characteristics/attributes identified above provide a conceptual framework for analysing the competition between the content providers' sanctioned online providers of content and the new entrants in the form of peer-to-peer file sharing networks and video sharing web sites.

3. Architecture of Entrants' Networks into Online Distribution

A distinguishing characteristic of a P2P file sharing network is that content is not stored at a server within the network but rather on peer computers at the edges of the network. A user wishing to utilise a P2P file sharing network needs a software application program downloaded from a P2P software provider's web site that will enable the user to locate others users on the network, an ability to locate content available from the network edges, and a communications protocol to exchange files.

The emergence of Napster in May 1999 introduced the world to a hybrid version of a peer-to-peer file sharing network for distributing digital content, in Napster's case music MP3 files. Napster's network facilitated the sharing of (mostly unauthorised) music files in unprecedented magnitudes. Napster's architecture contained a central server that indexed the files that were available on peer computers from the network. The most noteworthy P2P innovation of the network was decentralisation in storage of shared files.⁵ Individual computers at the edges of the network hosted the sought after content. So when a user downloaded a file, the copy of that file was uploaded from a peer in the network, not a central server. Thus, Napster facilitated the exchange of music files by providing a central index of the content and arranging for the connection between the downloading and the uploading peer computers. This

⁴ E Felten, "A Grand Unified Theory of File Sharing," (2004) www.freedom-to-tinker.com.

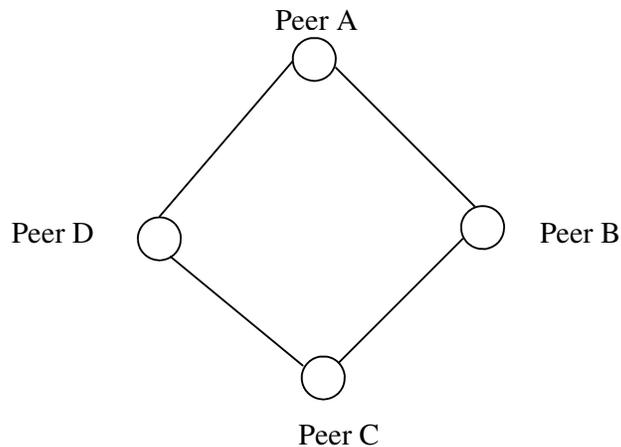
⁵ In this regard, Napster learned a lesson from the earlier MyMP3.com case where the losing defendant stored music files at a central server it owned and was found liable for direct copyright infringement. For details, see L Lessig, *The Future of Ideas* (2001), 127-129 and 192-194 and *UMG Recordings, Inc. v. MP3.com*, 92 F. Supp. 2d 349 (S.D. N.Y. 2000).

architecture, containing a centralised index, meant legally that Napster exercised “control” over the network and when copyright holders notified Napster that copyrighted content they owned was available on the network without their permission, they then possessed “actual knowledge” of infringing activity. Control and actual knowledge led the court to conclude that Napster was liable for indirect copyright infringement because its service facilitated direct infringement by its users. The “original” Napster eventually shut down operations in 2001 after attempting to install filtering mechanisms.

Software developers of peer-to-peer file sharing technology learned key design lessons from the Napster decision. Developers began to disaggregate the functions necessary (such as search for files and sources of downloaded files) for a P2P network. P2P file sharing networks were introduced that did not contain a central index of available content and developers relinquished control over the behavior of the peers in the network once a peer downloaded the client software, hoping to have the courts view the software as a product (like a VCR) and not a service capable of an ongoing relationship. Companies such as Kazaa, Grokster, and LimeWire emerged as successors to Napster in terms of facilitating the P2P sharing of content, mostly presumptively copyrighted. Diagram 2 shows alternate network designs.

DIAGRAM 2.⁶

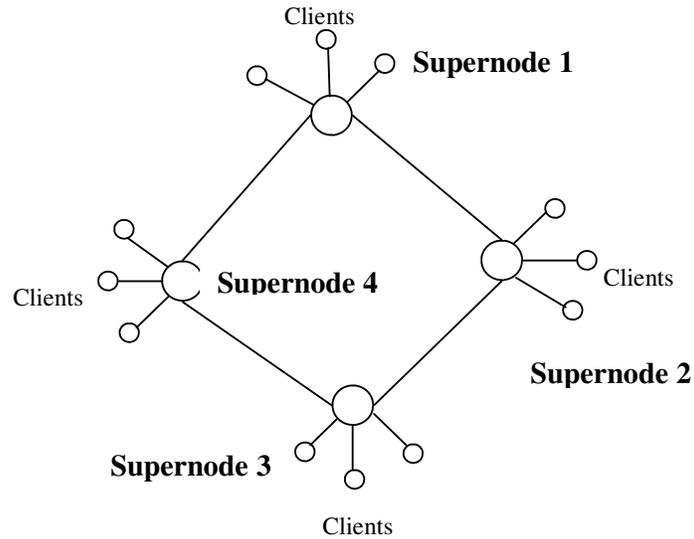
Pure Peer Network (early Gnutella)



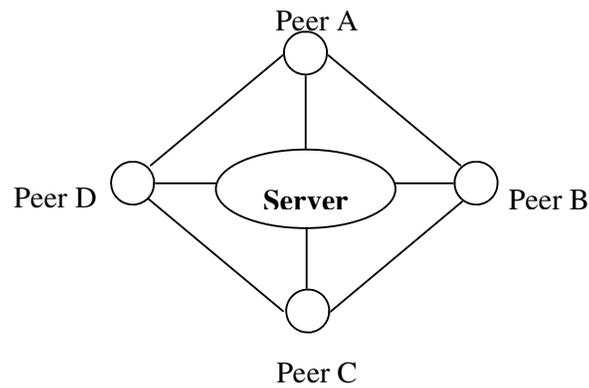
Hierarchical Peer Network (Kazaa, Grokster, Lime Wire)

⁶ These diagrams are based on Figures 1 and 2 in Timothy Wu, “When Code Isn’t Law,” (2003), 89 *Virginia Law Review* 4, 139, 141.

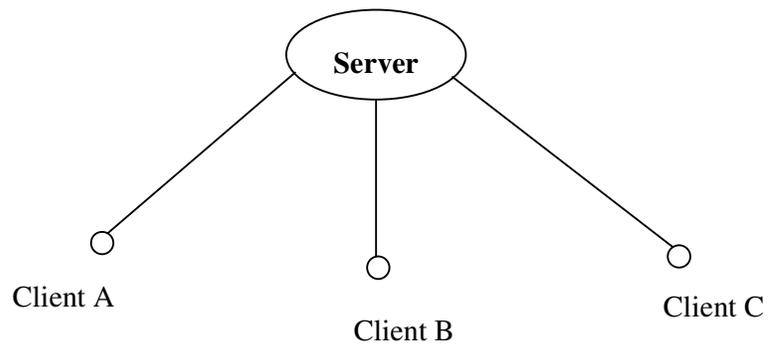
Hierarchical Peer Network (Kazaa, Grokster, Lime Wire)



Centrally Coordinated Peer Network (Napster)



Client Server Network (YouTube, MyMP3.com)



An example of a pure P2P file sharing network was the original design of Gnutella (released March 2000) in which the search function and content storage were totally decentralised, meaning that each function was conducted at the individual peer level. This design suffered from several technical weaknesses that have diminished its role as a competitive distribution platform.

The client server network, utilised by emerging video sharing web sites such as YouTube and Grouper and licensed distributors such as iTunes, is at the opposite end of the spectrum in terms of control for peer interaction only occurs with a central server and the server hosts the content and provides search functionality. Thus, there are no P2P aspects to this design.⁷ The centralised control of all functions is an operational strength of the design. Somewhere between the two polar designs is the original Napster's centrally coordinated peer design with centralised search functionality but peer storage of content. Also, in the middle of the spectrum is Kazaa and Grokster's file sharing networks that feature a hierarchical peer design. The search functionality is carried out, not centrally, but rather at peer supernode computers and files are hosted and exchanged through supernodes among peers. There are benefits and costs to each design but the focus of the paper is how legal decisions influence the design of network architectures that are emerging as competitors in the online distribution market. Wu characterises the behavior of developers who design application software with this overriding architectural objective as "...designing code to avoid copyright infringement."⁸

In 2001, copyright owners sued the P2P file sharing companies Grokster and StreamCast Networks (makers of the Morpheus software) that utilise a hierarchical peer design and won a significant legal decision in the June 2005 Supreme Court's *Grokster* decision. The Supreme Court did not evaluate in its main opinion the merits of the hierarchical peer design but instead imported from patent law the theory of active inducement, applied it to the facts of the case, and found reason to remand the case back to district court. The decision means that for future copyright cases of this nature, first the court will examine the intent behind the development of a new technology before it proceeds to determine whether a dual use technology that facilitates both infringing and non-infringing uses is legal. The *Grokster* decision hinged on the "bad" behavior of the companies rather than on the architectural design of the software they distributed.

In September 2006, a set of copyright owners sued in the southern district court of New York the P2P file sharing company LimeWire that offers client software that utilises the revised Gnutella network hierarchical design with a decentralised search index. Thus, the court may get another chance to analyse LimeWire's file sharing technology design using the *Sony* decision of 1984 and its "capable of substantial non-infringing use" rule.

In response to the *Napster* and *Grokster* legal decisions, P2P file sharing software developers have continued to adapt P2P code. Choi examines how P2P file sharing

⁷ Another difference between the P2P and client server models lies in the origin of the content distributed. Typically, P2P networks such as Lime Wire distribute content without authorization or permission that is the intellectual property of others while a client server network such as YouTube mostly distributes content created or transformed by the users of such sites. I wish to acknowledge an anonymous referee for this distinction.

⁸ Wu, note 6.

developers continue to decentralise the functions of P2P networks.⁹ Specifically, Choi characterises the tactics of file sharing software developers to disaggregate the search and delivery functionalities to insulate the networks from legal challenge as a “guerrilla movement” against copyright owners. For example, BitTorrent file sharing software provides an efficient way (swarming) to share (especially large such as video) files among peer computers and discourages free-riders through a tit-for-tat element of the protocol but at a time and patience cost for users.¹⁰ A downloader must first find a web site that lists “torrent” files. A “torrent” file contains metadata that contains information about the location of a computer that hosts the particular file and the location of a “tracker” server that is concurrently coordinating exchanges of the file. The downloader then clicks on the requested file to enter the exchange process. Search engines such as Isohunt, Torrentspy, Torrentbox, and Pirate Bay provide directions to files that are shared across the network.

The disaggregation of the search and file transfer functions make the process of file sharing for users more complex and costly in terms of time but to date less susceptible to legal challenge. Although copyright owners have shut down some of these tracking/index sites, Choi argues persuasively that, “While trackers can be shut down and removed from the Internet, this process is about as tedious as shutting down individual direct infringers.”¹¹ That is, the comparative cost advantage of pursuing intermediaries as indirect infringers compared to direct infringers diminishes as the networks become increasingly decentralised.¹² Thus, the cost effectiveness of continuing lawsuits alleging indirect liability is in doubt. On the other hand, the more involved search process increases the relative cost of utilising an unauthorised P2P file sharing program to an end user. This may persuade consumers to turn to legal download services for content.

Video sharing web sites such as YouTube use a centralised server client network and have emerged as significant competitors in the distribution stage of production of content, copyrighted and user-created. Users upload content for aggregation on the web site and the site provides a search function for users. YouTube is different from existing distribution channels for it is designed to accommodate a more participatory role by end users in modifying and enhancing existing content as well as creating new content. End users are not expected to be mere passive consumers of static content. Sites such as YouTube hope to utilise Section 512, contained in the Digital Millennium Copyright Act of 1998, for insulation from legal liability.¹³ Section 512 seemingly provides a safe harbor for web sites that store materials on behalf of users as long as they follow a set of legal and technical requirements for removing infringing material when notified by the copyright owner. Nevertheless, in many cases, these sites end up hosting infringing material. YouTube has actively sought

⁹ B H Choi, “The Grokster Dead-End” (2006), 19 *Harvard Journal of Law & Technology* 2, 393-411.

¹⁰ BitTorrent is well-known for its wide selection of creative commons and public domain content.

¹¹ Choi, note 8, at 403.

¹² W Landes and D Lichtman, “Indirect Liability for Copyright Infringement: Napster and Beyond” (2003), 17 *Journal of Economic Perspectives* 2, 113-124. The authors identify four economic factors that make pursuing contributory liability against indirect infringers more attractive than pursuing direct infringers.

¹³ Public Law 105-304, 112 Stat. 2860 (1998) (codified at 17 U.S.C. Section 512).

licensing deals with copyright owners to reduce the likelihood of lawsuits even though it presumptively qualifies for the safe harbor.

Diagram 3 identifies representative competitors for three alternatives network designs that provide online distribution of content:

Diagram 3. Representative Competitors

Licensed/Authorized Online Distributors	Unlicensed/Unauthorized P2P File Sharing Distributors	Video Sharing Websites
iTunes eMusic Yahoo Music Rhapsody Zune MovieLink CinemaNow Vongo Guba (new) Napster iMesh Peer Impact Shared Media Mashboxx	 Bit Torrent LimeWire (currently sued and countersued) Grokster (shut down) eDonkey (shut down) WinMX (shut down) i2hub (shut down) Napster (shut down) Aimster (shut down)	YouTube MySpace MSN AOL Yahoo blip.tv Veoh Joost Grouper Bolt TVV Revver

Sources: (i) Center for Democracy and Technology, *Post-Grokster Secondary Liability Developments*, January 2007.

(ii) Andrew Currah, "Hollywood versus the Internet: the media and entertainment industries in a digital and networked economy" (2006) 6 *Journal of Economic Geography*, 449.

(iii) Various issues of the *Wall Street Journal*.

The arrow next to BitTorrent indicates that the company who developed the open-source communications protocol that is widely used by P2P clients to share files is now soliciting licensed copyright deals to transform itself into an authorized online distribution medium.

The diagram indicates an increasingly competitive environment in the distribution of online content. Generally, as competition increases, consumers benefit from lower prices, increased output, and a more rapid pace of technological change. To stem the tide of entry into distribution, the extant content distributors are pursuing an aggressive legal strategy with multiple tactics. On one hand, in the view of copyright owners, the goal of such a legal strategy is to prevent unlicensed competitors from utilising intellectual property without permission or authorisation. On the other hand, such a strategy tends to increase the uncertainty on the part of technology developers as to the legality of innovative methods of online distribution and, thus, may tend to reduce innovation in the market.¹⁴ In order to examine potential sources of uncertainty, an analysis of the legal and economic environments facing technological innovators is necessary.

4. Legal and Economic Environment

4.1 Indirect Liability Strategies

Online entrants offer services that are utilised by customers who engage in both non-infringing and infringing activities. Direct copyright infringement may occur when a customer reproduces, distributes, publicly displays, creates derivative work, or publicly performs copyrighted content without the authorisation or permission of the copyright owner. Indirect copyright infringement may occur when the developer of a product/service/device utilised by a customer facilitates the unauthorised direct infringement of copyrighted content. To build a successful business, researchers and developers of new dual use technologies rely on established legal rules for assurance that their product is immune from indirect liability. That is, in order to provide a legal environment conducive to innovation, it must be clear under what circumstances a developer is responsible for the direct infringement acts of its customers. The following four questions provide a framework to understand the settled ground rules for competition as well as the unresolved issues for which uncertainty still exists.

QUESTION 1: Is the product/service capable of substantial non-infringing uses?

Suppose a developer creates a product, such as a photocopier, MP3 player, computer, or digital video recorder that can be used by its customers for both non-infringing and infringing uses. One key legal issue is whether or not the developer is indirectly liable for the acts of direct infringement by its customers. Indirect liability, in general, asks whether the developer created a product to intentionally encourage or induce direct infringement and profited from that direct infringement. The Supreme Court addressed this issue in 1984. The *Sony* rule, created as a result of a lawsuit between Sony and Universal City Studios involving the analog videocassette recorder (the Sony Betamax), concluded that “the sale of copying equipment, like the sale of other articles of commerce, does not constitute contributory infringement if the product is widely used for legitimate, unobjectionable purposes. Indeed, it need merely be

¹⁴ The author is not aware of any empirical analysis that has investigated the direct relationship between copyright owners’ aggressive legal strategies and their impact on innovation efforts of technology developers.

capable of substantial non-infringing uses.”¹⁵ Thus, a developer of a technology that a customer may use to infringe directly on copyright must be confident that the product is also capable of substantial non-infringing uses. If this is demonstrated, the product is free from liability even though the developer knows or has reason to know that the product can be used for infringing purposes. If it is not capable of substantial non-infringing uses such as in the case of cable descramblers, it is likely that the developer of the product will be subject to liability for indirect infringement and thus in the long run its business model is not likely to be economically viable. The extension of this rule from an analog device such as a videocassette recorder or a copying machine to digital services offered by Napster or peer-to-peer software providers such as Grokster, Lime Wire, or BitTorrent, and perhaps to video sharing sites such as YouTube, has proven both interesting and controversial.

There still exists uncertainty with how words in the *Sony* rule should be or will be interpreted. Is there a need to quantify the meaning of “substantial” and should or will a future court set a benchmark for the ratio of non-infringing uses to infringing uses? It appears based on the opinions in the *Sony* and *Grokster*¹⁶ cases that a product must have at a minimum ten per cent of its uses non-infringing to be safe from indirect liability. The plain meaning of the word “capable” suggests that one should count current uses and potential future uses, although one circuit court argued that one should only include probable uses.¹⁷ Which party in litigation bears the burden to demonstrate whether the product is or is not capable of substantial non-infringing uses? Finally, and an issue to be explored in more detail below, should the developer of the technology be responsible to have considered alternative cost effective designs of the product that would have ex ante reduced or eliminated infringing uses?

QUESTION 2: Does the design of the service enable the developer to have actual knowledge of infringement and control to eliminate or reduce economically the infringing uses of the product/service?

Peer-to-peer software developers learned several key lessons from the litigation over Napster’s design. Napster’s architecture decentralised the storage of files but maintained a site and facilities that included a central server that indexed music files that were available to be shared by its customers. This design subjected Napster to charges of facilitating direct infringement by its customers. Copyright owners successfully sued Napster for indirect infringement and the decision rested on the ability of Napster to eliminate the infringing uses of its service when it received actual knowledge of direct infringement activity by its customers. The court concluded that Napster could and should redesign its service to block the exchange of any infringing music files while continuing to allow permissible uses.¹⁸ The centrally coordinated peer network employed by Napster gave it control over the acts of direct infringement by its customers and copyright owners gave Napster notice of the infringing acts of its

¹⁵ *Sony Corp. of America, Inc. v. Universal City Studios, Inc.* 464 U. S. 417 (1984).

¹⁶ *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.* 125 Supreme Court 2764 (2005).

¹⁷ *In re: Aimster Copyright Litigation* 334 F. 3d 643 (7th Circuit 2003) for Judge Posner’s reasoning for such a narrow interpretation.

¹⁸ *A&M Records, Inc. v. Napster, Inc.* 284 F. 3d 1091 (9th Circuit 2002). The court mandate to block all infringing files ultimately led to the demise of Napster.

customers at a time when Napster could do something about it. Thus, peer-to-peer developers learned to create software that could not easily be redesigned to give control over customers or actual knowledge of infringing activity. In short, the lesson learned was to design code to relinquish control over peer-to-peer software and thus, how consumers used the software.

This led to the introduction of the hierarchical peer design. Based on the rules learned in response to the first two questions, developers were led to believe that, if they developed a service that was capable of substantial non-infringing uses, utilised a design that decentralised the search function, stored files at peer computers, and had no ability to reduce or eliminate direct infringing acts, then the service would be immune from indirect liability. Moreover, if the developer's company ceased business, customers could still use the software to share files. But, in a surprising decision to the legal and technology communities in 2005, the Supreme Court created a new theory of indirect copyright liability.

QUESTION 3: Did the developer of the service engage in behavior to actively induce copyright infringement?

The significance of the *Grokster* decision is that the behavior of the developer may be subject to indirect liability under an active inducement theory. Specifically, a developer's actions and motives are scrutinised for signs of "clear expression or other affirmative steps taken to foster infringement." If the developer's firm is found liable for inducement infringement, then a service's design and capability for substantial non-infringing uses are irrelevant. This means that a developer cannot design its dual use service to eliminate control and actual knowledge as *Grokster* did and at the same time take active steps to solicit customers based on the potential for the service to infringe copyright. The court identified three possible elements of intent to infringe:

- i. advertise the ability of the service to infringe on copyright,
- ii. fail to proactively filter out infringing uses,
- iii. rely on a business plan that is directly linked to the volume of infringing activity.

According to the Court, element ii or iii alone is not sufficient to establish intent to infringe.

There are several outstanding issues concerning interpretation of the rule on active inducement. First, in the case of *Grokster*, the Court found evidence of all three elements of inducement and concluded that there was "bad behavior" by the defendants. It is not clear whether all three elements must be present or perhaps only two of them or element i alone for "bad behavior" and thus intent to infringe liability. It is unknown the range of behaviors (e.g., anti-spoofing features, use of encryption, private viewing groups) that could be considered evidence of inducement.¹⁹ Hopefully, according to one prominent legal scholar, courts will apply high standards

¹⁹ Professor Felten argues that the use of anti-spoofing technologies by peer-to-peer software companies has substantial non-infringing uses and thus could qualify for the *Sony* safe harbor. See E Felten, "RIAA Saber-Rattling against Antispoofing Technologies?" (2005), www.freedom-to-tinker.com.

to demonstrate inducement liability.²⁰ Second, elements ii and iii are not necessarily independent. If a developer planned on building a business model based predominantly on facilitating infringement, the developer would not likely filter the service. Thus, the conclusion that each element ii and iii alone is insufficient for inferring intent to infringe is based on an incomplete analysis. Third, there is no quantification standard of what it means to rely on infringement as a major revenue source in a business model. Most services will experience an increase in revenue from increased use of the service regardless of whether it is from non-infringing use or infringing use. Fourth, the *Grokster* rule emphasises affirmative steps suggesting that proactive filtering efforts are unnecessary for immunisation. However, copyright owners may try to expand the scope of the rule to infer intent from design by arguing that a failure to filter proactively is an indication of intent to infringe. Each of these unresolved issues creates uncertainty on the part of developers regarding what are the ground rules for an innovator in terms of permissible designs and business models.

It is likely that future indirect liability lawsuits will include an intent to infringe component. Thus, it is likely that the active inducement theory will increase the costs of litigation.²¹ All of a developer's internal and external correspondences will be analysed for signs of promoting infringement. Wu suggests that it will be more difficult for defendants to win on summary judgment and thus face the increased costs and uncertainty of a trial.²² It also might encourage developers to pay off copyright owners for peace thus making it more difficult for small innovators to survive.

Summarising, if a developer whose behavior provides no clear evidence of intent to induce infringement and who produces a product that is capable of substantial non-infringing uses, then the developer should be free of indirect liability based on a combination of the *Sony* and *Grokster* rules. This may be the case that applies to the pending lawsuit against the most popular peer-to-peer company LimeWire that is widely thought to be used for direct infringement.²³ It is also true that LimeWire has failed to take any steps to filter the files shared on its network but it does employ a design that is decentralised like *Grokster*, thus foreclosing actual knowledge of infringement and lack of control over its customers. In August 2006, copyright owners sued LimeWire for various counts of indirect infringement.²⁴ LimeWire has

²⁰ This is the recommendation of P Samuelson, "Did MGM Really Win the *Grokster* Case?" (2005), 48 *Communications of the ACM* 10, 24.

²¹ C Pope, "Unfinished Business: Are Today's P2P Networks Liable for Copyright Infringement?" (2005) 22 *Duke Law & Technology Review*, paragraph 31, and T Wu, "The Copyright Paradox-Understanding *Grokster*" (2006) *Supreme Court Review*. Available at SSRN: <http://ssrn.com/abstract=828784>.

²² *id.* Also, Sam Yagan, President of MetaMachine, Inc. (developer of eDonkey) made a similar prediction in his Senate testimony. See, S Yagan, Testimony to the United States Senate Committee on the Judiciary, September 28, 2005. Also, Judge Posner argues that going to trial is a risky proposition for new entrants such that "...subjecting providers of file sharing software to the threat of trial places them at substantial risk, which may drive many of them from the market." See, R Posner, "Grokster, File Sharing, and Contributory Infringement" (2005) www.becker-posner-blog.com.

²³ According to a March 2007 report by Digital Music News based on data compiled by the research firms BigChampagne and PCPitstop, LimeWire is installed on over 18% of all Windows personal computers.

²⁴ Kent Schoen analyzed the Lime Wire case according to the *Grokster* test and concluded that the decision in the case is ambiguous. He faults the Supreme Court in its *Grokster* decision for failing to enhance predictability for similar peer-to-peer technologies. See, K Schoen, "*Metro-Goldwyn-Mayer v.*

also countersued the plaintiffs for anticompetitive activities in the online distribution of music market.²⁵

A remaining scenario involves a developer who provides a service with no obvious intent to infringe, that is capable of substantial non-infringing uses, but who may possess actual knowledge of specific acts of direct infringement.²⁶ The *Grokster* opinion left this scenario unanswered. However, the legality of this scenario is relevant to determining the viability of emerging competitors in the online distribution market.

QUESTION 4: What are the ground rules for indirect liability of a video sharing web site?

Viacom's \$1 billion lawsuit against YouTube may be decided based on legislatively created Section 512 rules contained in the Copyright Act and/or judicial created rules outlined above.²⁷ YouTube utilises a centralised server client architecture suggesting that it possesses the right and ability to control the actions of its customers. Viacom sued YouTube for three counts of direct infringement and three counts of indirect infringement (one each for inducement, contributory, and vicarious liability) while YouTube is likely to seek immunisation based on Section 512 (c), although the law is undeveloped as to whether Section 512 can provide a safe harbor for direct infringement liability. Viacom seeks damages from YouTube and, more significantly, a redesign of the technology to proactively limit or reduce the placement of infringing content on the web site. It appears that copyright owners view YouTube today as a piracy business similar to Napster and Grokster, that is, an online competitor that has built its business model on facilitating or turning a blind eye to its customers' access to significant amounts of infringing copyrighted content. But, with the proper redesign, YouTube could transform itself into a legitimate distribution platform for copyrighted content as well as user-generated content.

The developers of the YouTube video sharing technology created a service that its customers can use for both non-infringing and infringing purposes. Given the relatively large volume of user-created content uploaded to the web site, it would appear that the service is capable of substantial non-infringing uses and thus should pass a reasonable interpretation of the *Sony* test for a new dual use technology.²⁸

Grokster: Unpredictability in Digital Copyright Law" (2006), 5 *Northwestern Journal of Technology and Intellectual Property* 1, 156-175.

²⁵ *Arista Records LLC. v. Lime Wire*, Civil Action No. 06 CV. 5939 (GEL) (filed S. D. N. Y. 2006).

²⁶ B Wikner, "Copyfights to Come: The Ninth Circuit's Contributory Copyright Infringement Analysis and the Inverse *Grokster* Dilemma" (2006), 46 *Santa Clara Law Review*, 921-956: Available at SSRN: <http://ssrn.com/abstract=932981>. Wikner memorably refers to this scenario as the "inverse *Grokster*" scenario.

²⁷ *Viacom International Inc., v. YouTube, Inc.*, Complaint for Declaratory and Injunctive Relief and Damages, March 13, 2007 (filed S.D.N.Y. 2007). It should be noted that to date Viacom has chosen not to sue individuals that have uploaded what they consider to be infringing content.

²⁸ According to a recent newspaper article, YouTube hosts about an equal number of amateur and professionally created video clips. See, for details, S Diaz, "Facing copyright suit and new rivals, YouTube stands at crossroads", *The Washington Post*, March 24, 2007.

In light of the original purpose of video sharing sites, YouTube should be viewed as a legitimate business and not as a business intended to facilitate predominantly copyright infringement as many viewed Napster, Grokster, and their ilk. Thus, invoking the *Grokster* rule, there appears to be little evidence of “clear expression or other affirmative steps” taken by YouTube with the intent to facilitate direct infringement by its customers. YouTube appears to meet the criteria of a good-faith innovator.²⁹ It has not promoted its service to target an audience predominantly interested in infringing behavior and its business model is not based on generating revenue tied to massive infringement. Although, it does not proactively filter uploaded content (other than for pornographic and hateful material), this, by itself, according to the *Grokster* opinion, is not sufficient to suggest an act of active inducement. Therefore, it is reasonable to conclude that YouTube acts in good faith with no intent to induce direct infringement. But, the interrelationship between the design of the service and the burden of responsibility for filtering is a continuing critical issue for innovators.³⁰

Copyright owners would like it to be the responsibility of video sharing sites (and peer-to-peer networks as well) to police sites proactively for infringing content. At first glance, this would seem to be consistent with the approach taken in the Napster litigation. The courts found that, given the design of its network, Napster had control over how its customers used its service and if copyright owners properly notified Napster of the presence of infringing files on its index, it was deemed responsible for blocking access to those files. It is important to recall that Napster was required to respond to notification of infringing files and not to proactively screen its index before such notification. In the case of YouTube, it is unambiguous that when properly notified of the presence of infringing content on its web site, the content is expeditiously taken down in accordance with the procedures outlined in the Section 512 of the Copyright Act. Thus, the position that the web site must proactively police the site for infringing content would alter the existing burden of responsibility in the rules that technology developers must follow.³¹ A complicating factor in the analysis is the assertion that YouTube does proactively filter content if it has negotiated a licensing agreement with a copyright owner.³² Thus, it may be possible to conduct such preemptive filtering but it does not appear to be required by law to do so. Hopefully, developers will continue to be free to invent new distribution platforms without worrying about whether the innovation negatively impacts the business models used by existing distribution channels. Requiring developers to consider ex ante alternative designs of their technology based on fear of litigation ex post opens up the door to second guessing by courts and complicates the innovative process by seemingly requiring the presence of lawyers on the research and development teams.

²⁹ This conclusion is contradicted by Professor Lichtman, a member of the Viacom team of lawyers, who suggests that YouTube engages in willful infringement. He argues that YouTube should bear the burden of responsibility to create a cost-effective automated filter to cleanse the site ex ante of copyrighted work. See D Lichtman, “The Case Against YouTube,” *Los Angeles Times*, March 3, 2007.

³⁰ This analysis of the YouTube case does not purport to be a full economic and legal analysis but rather is intended to apply the rules developed by judicial decisions regarding indirect liability developed in the paper to this specific lawsuit.

³¹ To stay within the contours of section 512, video sharing sites need to have a mechanism in place to block repeat infringers from utilizing the site.

³² G Fabrikant and S Hansell, “Viacom Tells YouTube: Hands Off,” *NYTimes.com*, February 3, 2007.

In turn, uncertainty about the ground rules is likely to decrease the amount of online innovation and solidify the position of entrenched incumbents.

The design of new video sharing sites appears to be following the decentralisation pattern of peer-to-peer networks. YouTube bundles together the hosting of the uploaded video files on its own servers and an index to locate those files. But, entrants such as YouTVpc.com unbundled its service for it is only a video linking site whereas content is stored at remote sites such as Dailymotion in France and Ouou.com in China.³³ Copyright owners have initiated legal action against linking sites but have discovered that sites have re-entered the linking market after being shutdown.

In sum, the following rules provide a relatively certain environment for innovators of dual use technologies that should promote competition and the progress of science and the useful arts:

1. Create a dual use technology that is capable of substantial non-infringing uses for this technology should create significantly increased value for society.
2. Create a technology with good intent to satisfy a market associated with a non-infringing purpose.
3. If the developer of a technology is notified by copyright owners of specific instances of infringement when and if the developer can intervene to prevent that infringement, the developer's design should be adjusted to reduce or eliminate the infringing uses without interfering with the non-infringing uses if it can be accomplished in a cost-effective manner. This process implies that it is the responsibility of copyright owners to monitor networks and sites.
4. A developer of a new technology is not under any obligation to design a product/service ex ante in a particular way to accommodate the desires of incumbent competitors.³⁴ Rather, the design should be consistent with the existing legislative and judicial rules as they are understood. A new technology that merely redistributes existing value should not be subject to liability for that reason alone.

4.2 Direct Liability Strategies

Starting in 2003, copyright owners pursued a strategy of suing individuals who used free peer-to-peer services alleging direct infringement of the reproduction and presumptively distribution rights.³⁵ Legal action against individuals is not confined to the United States. The International Federation for the Phonographic Industry has brought legal action against more than 3,800 individuals in sixteen countries besides the United States.³⁶ Copyright owners face a daunting task for it is estimated that

³³ K J Delaney, "Threat for Big Media: Guerrilla Video Sites," *The Wall Street Journal Online*, April 17, 2007.

³⁴ Wu, note 18, suggests that if a developer ex ante designs the product with a built-in filtering mechanism, then it may be eligible for what he refers to as a *Grokster* safe harbor.

³⁵ It is predicted that if the 2006 bimonthly rate (about 750 lawsuits every two months) of filing individual lawsuits by the Recording Association of America continues, there will be close to 50,000 sued individuals by the year 2010. See Matthew Sag; *supra* note 3, footnote 1 and Figure 1.

³⁶ E J Sinrod, "File sharing crackdown rages worldwide," *c/net News.Com*, November 23, 2005.

about 15 million United States households used unlicensed peer-to-peer networks in 2006 to download a song.³⁷ In any file sharing transaction, there is an uploading peer computer (supply side) and a downloading peer computer (demand side).³⁸ Three economic effects could result when a consumer downloads content from peer-to-peer networks:

- (1) Downloaded content substitutes for purchases that the consumer otherwise would have been willing to make at market prices (substitution effect),
- (2) Downloaded content represents consumption of content that the consumer possesses a willingness to pay that is less than the market price but above the marginal cost of distribution (consumer welfare effect), or
- (3) Downloaded content represents sampling of content that may eventually lead to a willingness to pay for the content at market prices as a result of experiencing the content (sampling effect).

Reason (1) is damaging in the short run to the copyright owners' profitability and should be the focus of a litigation strategy if the goal of the campaign is to recapture lost sales. In addition, in the long run, this drop in revenue may diminish the incentive to create new content. Reason (2) represents increased consumer welfare with no resulting loss of revenue to content owners since consumers value the product at less than the market price but above the zero marginal cost of distribution.³⁹ Thus, downloading that meets this condition results in an increase in consumer welfare for it causes a reduction in deadweight loss. Reason (3) represents potentially increased revenue for copyright owners and increased utility for consumers.⁴⁰

A goal to reduce infringement in general is aimed at reducing downloading for all three reasons while a more focused goal to maximize profits would target litigation efforts against consumers predominantly using peer-to-peer networks for reason (1). Pursuing the latter goal of reducing the substitution effect means that litigation efforts would attempt to raise the expected cost of using peer-to-peer networks or video sharing web sites for those marginal consumers most likely to have a willingness to pay market prices. After building a consumer choice model for file sharing and analysing the music industry's litigation strategy that focused its litigation resources on high volume uploaders, Sag offers the following demand side recommendation: "It makes much more sense for the recording industry to target more marginal file sharers

³⁷ A Mindlin, "Peer-to-Peer Downloaders Gorge on Songs," *NYTimes.com*, April 2, 2007. This estimate appears to exclude the considerably amount of downloading activity on college campuses and non-music downloading in households.

³⁸ BitTorrent is more complicated for it rewards downloading computers with faster speeds if they simultaneously upload files.

³⁹ A recent empirical study of college student behavior provides evidence regarding the magnitude of substitution and consumer welfare effects, revealing that the latter effect was larger than the former effect. See, R Rob and J Waldfogel, "Piracy on the High C's: Music Downloading, Sales Displacement, and Social Welfare in a Sample of College Students" (2006), 49 *The Journal of Law & Economics*, 29-62.

⁴⁰ A study focused on pirated software found that this form of unauthorized sampling increases the sales of authorized versions of software. See, J O de Castro, D B Balkin, and D A Shepherd, "Knock-Off or Knockout?" (2007) *Business Strategy Review*, (Spring 2007) 28-32. It is likely that some consumers download content for more than one reason. The analysis in the article is directed toward those consumers that download content predominantly for reason 1.

because they are more likely to be persuaded to stop file sharing and start buying music.” Hence, this recommendation is reflected in the title of his article designating such presumably marginal file sharers as twelve year-olds and grandmothers.⁴¹

Focusing on a supply side strategy, Bhattacharjee, Gopal, Lertwachara, and Marsden provided empirical evidence on the effect of the music industry’s legal actions on individual file sharing behavior in the time period 2003-04.⁴² The hypotheses in the study are that an event that is perceived to increase the threat of legal action against individual file sharers is expected to reduce the number of music files shared and to reduce the frequency of time that an individual is online.

The authors followed 2,056 users of the Kazaa P2P file sharing program and examined their behavior before and after the following events: (1) announcement of intention to pursue legal action (6/26/2003), (2) lawsuits filed against 261 individuals (9/8/2003), (3) court ruling against the legal process the music industry used (12/19/2003), and (4) additional lawsuits filed using the more complex legal process (1/21/2004). The focus of the legal action was directed toward the supply side of the market and in particular on those who share large amounts (referred to as substantial sharers) of copyrighted music. The good news for the record industry is that the empirical analysis finds general support for the two hypotheses. Individuals reduced sharing activity and substantial sharers decreased the number of files shared (to below the threshold/threat level, 800 or 1,000 files shared) in response to the three negative events for file sharers. The bad news is that there still existed a large supply of copyrighted files. The authors conclusion is that, “At the present time, what we can say is that the previously substantial sharers are still tending to still actively share (albeit fewer files), and downloading options still abound for those seeking to download.”⁴³ In sum, a reasonable conclusion is that the supply side strategy is generally ineffective for it probably disproportionately directs litigation resources on individuals unlikely to switch to paid licensed online services and it does not significantly reduce the ability of downloading consumers to find content, especially popular content.

Currently, copyright owners are focusing direct litigation attention on university and college students who they consider as major users of unauthorised peer-to-peer networks and who use these services as substitution for purchasing copyrighted content. The new approach is first to send pre-lawsuit letters to colleges and universities who in turn are expected to notify students that copyright owners have identified them as engaging in direct infringement. The copyright owners offer college students discounts on settlements before proceeding to the second step of a copyright suit. In addition, if universities fail to employ voluntarily technology to filter their students’ data packets, then they might lose their safe harbor as an Internet

⁴¹ Sag, *supra* note 3.

⁴² S Bhattacharjee, R D Gopal, K Lertwachara, and J R Marsden, “Impact of Legal Threats on Online Music Sharing Activity: An Analysis of Music Industry Legal Actions” (2006) XLIX *Journal of Law and Economics*, 91-114.

⁴³ *id.* at 111.

Service Provider under Section 512 because copyright owners threatened to go to Congress to narrow the safe harbor.⁴⁴

An advantage of direct suits compared to indirect suits is that they attack only presumptively infringing use and do not have the potential to reduce or eliminate non-infringing uses at the same time. But such suits come at a considerable cost estimated to be about \$250,000 for a low-stakes case.⁴⁵ Perhaps more of a long term concern to copyright owners is that the risk of legal action against file sharers does not seem to be changing the attitude of college students toward file sharing. It is estimated that, although aware of the issue, 67% of college students are not concerned with the ramifications of illegal downloading.⁴⁶

5. Conclusion

Consumers of digital content are experiencing increasing options for accessing content online. Some of these options are licensed/authorised by copyright owners while others are unlicensed/unauthorised. Unlicensed peer-to-peer networks and video sharing sites are likely to continue to be significant challengers to the copyright owners' preferred/sanctioned methods of centralised distribution for the online distribution of all forms of digital content. The increasing decentralisation and growth of peer-to-peer networks and video sharing web sites demonstrate that these distribution platforms are resilient to copyright owners' legal challenges and attempts to pollute shared file networks.

Legal decisions centering on the rights of copyright owners influence the path and nature of technological innovation in online distribution. Software developers react to legal rules by attempting to redesign online networks to insulate themselves from the costs of indirect liability litigation. At the same time, legal decisions influence the nature and extent of competition in the provision of online distribution of digital content. In general, legal decisions have resulted in technological innovation in network design becoming increasingly decentralised. However, recent court decisions leave unanswered key questions as to the legality and responsibilities of certain network designs. The Viacom-YouTube litigation promises to address some of these questions.

Copyright owners will continue to assess the benefits and costs of alternative legal strategies to protect their intellectual property. As the probability of judicial wins on the indirect liability front diminishes, it is likely that direct infringement suits targeted against individuals that are willing to pay market prices for digital content but instead substitute non-paying delivery services will become more attractive.

⁴⁴ A Curtis, "Policy Makers call for University Internet Filters," www.publicknowledge.org, March 8, 2007.

⁴⁵ M Lemley and R A Reese, "Reducing Digital Copyright Infringement without Restricting Innovation" (2004), 56 *Stanford Law Review*, footnote 121. The authors argue for the desirability of pursuing direct liability cases over indirect cases for they conclude, in part, that only indirect cases impose significant social costs in terms of reduced incentives for innovation.

⁴⁶ C Hynes, "Survey: 67% of students don't care about illegal downloading," *The Daily Collegian*, April 4, 2007.