The challenges that digital technologies pose for national and international regulation of intellectual property rights are receiving considerable attention these days from government commissions. In September 1995 the Clinton administration’s National Information Infrastructure Task Force Working Group on Intellectual Property Rights issued its White Paper on Intellectual Property and the National Information Infrastructure [4].

Two months before, the Commission of the European Communities issued its Green Paper on Copyright and Related Rights in the Information Society [2]. By early 1996, the Commission expects this document to ripen into a White Paper. (Green Paper is a draft; White Paper contains final proposals.) Similar documents have emerged from Canadian and Australian authorities, while Japanese efforts have focused on developing a plan for an efficient and workable international multimedia rights clearance system so that the promising multimedia industry will not be stillborn on account of exorbitant transaction costs in doing rights clearances. The World Intellectual Property Organization (WIPO) is also sponsoring a set of meetings to consider a possible supplementary agreement (a “protocol”) to the Berne Convention (the principal international treaty on copy-
right law) to deal with digital technology issues.

The purpose of this column is to explain the principal policy issues with which these documents are grappling, as well as some with which policymakers are not but should be grappling. The documents are generally not very easy for ordinary mortals to read. They tend to be rather long, complex, and replete with the specialized dialect that intellectual property professionals speak. They have been written largely by intellectual property lawyers for an intended audience largely consisting of intellectual property professionals. But since the policies discussed in these documents are policies that will affect all of us who use and produce information, it is necessary to understand them in relatively plain English.

This column will urge members of the technical community to become more involved in intellectual property policy-making, not only because government policies in this area affect their lives, but also to provide expertise to government officials who are largely ignorant about digital technologies. Left to their own devices (and heavy lobbying by the established copyright industries who feel threatened by digital technologies), government officials may inadvertently smother the new opportunities that information technologies are capable of opening up to enhance public access to knowledge and to foster new markets.

The U.S. White Paper
The White Paper on Intellectual Property and the NII is a successor policy document to the July 1994 Green Paper on Intellectual Property Rights and the NII [3], about which I made the following observation in an earlier column: “To put the point plainly, let me say that not since the King of England in the 16th century gave a group of printers exclusive rights to print books in exchange for the printers’ agreement not to print heretical or seditious material has a government copyright policy been so skewed in favor of publisher interests and so detrimental to the public interest” [5]. Although the administration’s White Paper is almost double the length of the Green Paper, the contents of the two documents are substantively very similar. The White Paper still maintains that all browsing of works in digital form is infringing because of the temporary copying that must occur in a computer’s memory to enable users to read documents (notwithstanding plain statements in the Congressional reports to the contrary). It still seeks to amend copyright law to make digital transmissions of copyrighted material an infringement of the copyright owner’s rights. It still takes an unduly restrictive view about user rights in the digital domain, such as the right of fair use and the right to redistribute to a friend one’s own copy of a work. The White Paper takes a stronger stance on holding online service providers strictly liable for infringement by users than the Green Paper did. The prospect of such strict liability may force online services to monitor everything that goes in and out of user accounts.

The White Paper seeks enactment of provisions that would make it illegal to supply devices or services capable of circumventing technological protection for copyrighted material. These provisions are overbroad and vague they may make unlawful acts widely believed to be lawful, such as decompilation to get access to interface information. Its recommended legislation would also make it a felony to tamper with copyright management information attached to a digital document. (Goodbye, anonymous remailer services!) Without acknowledging this intent, the White Paper seeks to overturn numerous appellate court rulings, including some by the U.S. Supreme Court. Although it asserts an intent to make only modest changes to existing law, it would effect a substantial shift in the balance of rights between publishers and the public. While a more detailed criticism of the White Paper appears elsewhere [6], it should suffice here to say that if the public can be brought to understand how substantial a change is being sought, the White Paper may get the quick funeral it deserves.

European Green Paper
The most striking difference between the European Green Paper on Copyright and Related Rights in the Information Society and the U.S. Green Paper published a year and a half ago is that the European Green Paper actually poses a large number of questions—instead of offering only answers, as the U.S. document did—about how copyright law should be applied to digital forms of copyrighted works. It also asks for the public’s suggestions about what answers should be given to these questions. Many of the questions, of course, overlap with issues addressed in U.S. documents, but some do not.

Also noteworthy is the different policy emphasis of the European Green Paper. Unlike the U.S. initiative that the Europeans perceive to be fixated on construction of pipes and wires of infrastructure, the Europeans pride themselves on developing policies that will build a new information society. Sadly, both documents seem to envision the information future as one the public will mainly have a role in as consumers. The European Green Paper notes that it is not yet clear how much people will be willing to spend for increased access to information products, as though that would be a good measure of the success of the information society. Another
The most controversial aspect of the Green Paper’s discussion of how to apply the exclusive rights of copyright to digital forms of copyrighted works lies in its proposal about video on demand.

at all) temporary reproductions of a work in computer memory ought to be regarded as within the reproduction right. Similar to the U.S. Green and White Papers, the European Green Paper considers whether a new digital dissemination or transmission right should be adopted. But the European Green Paper goes on to ask specific questions about how extensive a digital transmission right should be. For example, should it reach point-to-point transmissions only, or one-to-many transmissions? Copyright laws of many member states of the European Union (EU) include the grant of an exclusive right to communicate the work to the public, and the European Green Paper asks what “public” and “private” should mean in the digital domain. For instance, when a user sends something to another person or to several others on the same network, is that a public or private act?

The most controversial aspect of the Green Paper’s discussion of how to apply the exclusive rights of copyright to digital forms of copyrighted works lies in its proposal about video on demand. On this issue, the European Commission doesn’t pose a question; it supplies an answer. The answer it supplies is one that has American policymakers and copyright industries hopping mad. The European Green Paper proposes to treat digitally transmitted video-on-demand as a rental of a motion picture (or other audiovisual work)—sans cassette.

Conceiving of video-on-demand as a rental of a movie might seem downright silly—rental, after all, would seem to be an activity that applies to physical objects, not to digital copies. But the proposal is no more manipulative of the reproduction right as applied to temporary copies made in RAM, which is reflected in the White Paper. If the White Paper’s RAM theory is right, every computer through which an infringing message passes has made infringing reproductions of the work for which the computer’s owner must be held strictly liable, as must the unwitting recipient of the message, however innocent he or she may be.

Unlike the U.S. White Paper, the European Green Paper at least admits that the technology that permits digital copies of works to be “tattooed” so their use can automatically be monitored raises serious user privacy issues. The European Green Paper is also more explicit than the U.S. White Paper about regulatory issues arising from technological forms of protection for copyrighted works. It asks, for example, whether the use of digital tattoos should be voluntary or mandatory. It also asks whether there should be one standard set of digital tattoos for the entire global network. The Europeans are also considering whether to ban the sale of machines that won’t read a standard set of digital tattoos (because this would undermine a universal billing system). They may also ban machines not containing a technological system for protecting digital works against
**legally speaking**

private use copying if such a system is introduced in Europe on a harmonized basis.

**The Need for International Harmonization**

Although copyright laws around the world are similar in some important respects, a plethora of differences nonetheless exists in copyright traditions of various nations. Some countries protect sound recordings and television broadcasts by copyright law; some have adopted “neighboring rights” regimes to protect these products. Some countries protect information products by copyright law on a “sweat of the brow” (based on the expenditure of time, money, and energy) basis; some do not. Some countries have fair use doctrines; some do not. Some grant authors an extensive set of “moral rights” (rights that protect their reputation, including the right to be protected against excessive criticism); some do not. In the U.S., all copyrighted works are protected under the same durational rules, whereas in some countries, certain works are protected for one duration, while other works have a different duration. Within the EU, many differences exist among the copyright rules of member states, notwithstanding the many harmonizing initiatives the EU has undertaken in recent years.

Differences in national copyright traditions have generally been tolerable until now because national laws have largely regulated commerce in physical objects or physical performances which, after all, have to exist in a particular country before a dispute about them could arise. Commerce in bits, in contrast, has a more global and less territorial character, as the following example illustrates.

If someone in the U.S. digitizes a colorized version of old Buster Keaton movie—a movie which is in the public domain under U.S. law—and loads it on an Internet-connected computer in Bermuda, what law applies if someone in France or Germany accesses the colorized version on that server? The movie may not be in the public domain in Germany because that country may provide a longer duration of protection to movies than U.S. law does, and colorization of the movie may violate French moral rights law because it undermines the integrity of the original black-and-white version.

The U.S White Paper and the European Green Paper recognize international harmonization of copyright rules would be desirable to enable the global information economy to operate smoothly. The problem is that no country—the U.S. included—wants to harmonize on the fine details of copyright law on an international scale unless everyone else harmonizes on its legal tradition. The U.S. White Paper goes one step farther than this in seeking international harmonization on copyright rules at an even higher level than is actually available under an honest reading of U.S. law.

Bruce Lehman and the copyright industries that support the White Paper’s agenda are hoping that fast adoption of the White Paper’s legislative package by the U.S. Congress will lead to fast acceptance of the same pro-publisher rules in an international treaty supplementing the Berne Convention. To make a good deal for U.S. copyright industries, they will accept one European-sponsored initiative that would protect database producers from unauthorized extractions of more than an insubstantial part of database contents for 15 years (an initiative that deserves more careful study before being adopted because of its potential to overprotect data to the detriment of science and education).

The White Paper argues against reciprocity rules in national copyright laws, such as that on which the Europeans rely for their characterization of video-on-demand as a rental. The White Paper also urges Europeans to harmonize on rules that would allow authors to waive their moral rights by contract.

In the absence of international harmonization of copyright rules, questions such as those raised here about the Buster Keaton movie will have to be resolved through application of existing choice of law rules, which tend to be based on country-of-origin principles. Although some have proposed a way to refine choice of law rules to make them more appropriate to digital disputes, in the long run, however, it will probably be necessary to harmonize more details of copyright law, even if at a somewhat lower level of rights than U.S. and EU high protectionists would prefer.

**Mirroring and Caching**

The remainder of this column will discuss some of the many issues about applying copyright in digital networked environments that the U.S. White Paper (along with the other governmental policy documents on digital copyright issues) has not, but should have, addressed.

An issue very much on the minds of online service providers today is whether they are in compliance with copyright law when their servers “mirror” or “cache” information in order to enhance customer access to information. (Mirroring involves replication of information available at commonly visited ftp sites. Caching involves retaining copies of Web pages that have previously been visited by customers of that service.)

The argument that mirroring and caching are and should be lawful relies heavily on the idea that people who put information up at ftp or unrestricted Web sites intend to make their information freely available. Since mirroring and caching facilitate user access to the information available at these sites, it arguably fulfills the purpose for which the information put up at these sites in the first place (as well as the larger...
public policy goal of enhancing public access to information.

Because copyright law automatically protects original works from the moment they are first fixed in some tangible medium, online service providers nevertheless have some reason to worry about litigation. The law gives owners of copyright in the documents stored at the ftp or Web site rights to control reproductions of their work in copies, if they choose to do so. Unless caching and mirroring are fair uses or can be said to be impliedly licensed by virtue of placement of the information at an ftp or Web site on an unrestricted basis, online services might be subject to a copyright lawsuit if ftp or Web site developers decided to challenge mirroring or caching.

There are at least two reasons why the ftp or Web site developers might initiate litigation over mirroring or caching. For one thing, some ftp or Web site developers may not like the idea of online services making copies of the ftp information for profit-making purposes. For another, mirroring and caching may deprive the site master of information about who has visited the site.

Online services are also quite worried about potential liability if they inadvertently fail to abide by ad hoc restrictions that are beginning to show up at some Web sites, such as those purporting to limit what a user can do with information posted there. Suppose, for example, that someone posts a notice on his or her Web site that he or she does not consent to posting of information from the site on Microsoft Network. If a user of Microsoft Network visits that site and Microsoft’s server automatically caches the site for a week or two just in case other MN users want to visit it, could the Web site owner successfully sue MN for copyright infringement (or anything else) because the express condition posted at the Web site was violated?

While common sense and some case law would suggest that many efforts to restrict uses of publicly accessible information could not be legally enforced, there are some copyright lawyers who would argue that any use of copyrighted material in digital form beyond that which has been licensed infringes copyright. In the face of this argument, common sense and a few cases can be rather cold comfort to lawyers for major online services who face questions like this on a daily basis.

Just as with the mirroring and caching issue, the White Paper doesn’t address the ad hoc restriction issue. Given how restrictive the White Paper is on virtually all the issues it does address, perhaps this is a blessing. Under a different and more balanced administration, however, a White Paper on copyright and the NII might well have proposed a new statutory privilege to enable online services to mirror and cache to facilitate greater public access to information. Or a Congressional report might have stated an intent to regard such activities as lawful.

In the absence of supportive government initiatives, online service providers are taking the matter into their own hands, proposing to solve the problem through a strategic blend of contractual and technological means. They propose that institutions supplying sites and services to ftp and Web site developers insist their customers agree not to restrict caching or mirroring except to the extent that these restrictions are capable of being “read” and implemented by servers on the network by means of standard technical protocols incorporated in the code constituting documents put up at the site. (This might, for example, be accomplished through an extension to the hypertext markup language establishing a standard set of html protocols for indicating an intent to permit or restrict caching and the like.) In this manner, the problem could be solved without litigation or legislative maneuvering.

Value-Added Service Providers

Another set of issues not addressed in the White Paper is what rights second-comers should have (or not have) to develop products or services that add value to existing information resources. This is a critically important issue for the emerging global information economy because value-added services are so much easier to provide as to digital information than as to print information. Digital forms of information, especially when available in networked environments, permit the disaggregation of information processing functions. With printed books, a final product that is distributed in the market may have been produced by a collaborative effort involving a series of actors. Only one or two of them, generally the author and the publishing house, receive any public recognition of their contributions. In digital form, however, one firm may maintain a repository of raw information; someone else may index it; a third may abstract it; yet another may tag it; still another may offer one form of organization for it, while a fellow service may organize the information differently for a different audience or market.

Copyright law gives authors of modestly creative data compilations exclusive rights to control reproductions of the compilation as a whole. However, data in the compilation has generally been regarded as unprotected by copyright law, so that second-comers can generally reselect and rearrange the data without worrying about being liable for copyright infringement. Although copyright law also gives authors exclusive rights to prepare derivative works, the case law has generally looked to see if the allegedly infringing work incorporated expression from the first work, and if not, no infringement would result.

A case highly relevant to the rights of second-coming value-added service providers is Galoob vs. Nintendo (a case which is not
discussed or even cited in the White Paper). Nintendo challenged the sale of Galoob’s Game Genie as copyright infringement on the theory that use of the Game Genie to alter the play of Nintendo games brought about an infringing derivative work. The appellate court expressed some doubt about Nintendo’s derivative work theory (since no part of the Nintendo code was reproduced in the Galoob product), but went on to say that even if the altered play was a derivative work, use of the Game Genie was fair use because it enhanced user enjoyment of the game and each firm had been paid for the contribution they made to user enjoyment.

This ruling seems to augur well for those who would wish to add value to digital information resources maintained by others. However, the Galoob decision was somewhat unclear about the derivative work issue. Because the statutory definition of derivative work is very vague, some will argue that interactive add-on software infringes this right because it involves some recasting of the work that the copyright owner should be able to control. Some old case law, including one finding infringement based on the sale of blank answer sheets for use in conjunction with a copyrighted test, might be invoked to stop firms wanting to commercialize value-added products or services. A White Paper that was serious about paving the way for the new global information economy would have addressed this and other issues affecting newly emerging industries, such as the lawfulness of linking works available on the Web.

Also below the White Paper’s radar screen are concerns raised by freelance authors affiliated with the National Writers Union about their ability to sustain themselves in an environment in which major publishers, such as the New York Times, have been demanding a total surrender of worldwide rights in exchange for one lump payment instead of buying only one-time North American serial rights.

Digital technology can create new opportunities to collect revenues for downstream uses of works; however, publishers appear to want to those revenues to themselves, rather than sharing them with authors.

The White Paper’s lack of attention to concerns of newly emerging industries, of authors, and of the public reinforces the suspicion that the document aims to serve one constituency: the major copyright firms—chiefly motion picture producers—on whose campaign contributions the Clinton administration will rely to fund the President’s re-election campaign.

**Conclusion**

Very little technical sophistication can be found in the various Green and White Papers on copyright and the information superhighway that have recently been issued by governmental commissions. The Computer Science and Telecommunications Board of the National Research Council seems to recognize the importance of providing some technical expertise to intellectual property policymakers in identifying intellectual property rights in networked environments as an intended focus of an upcoming project. They are correct in believing there are many issues about which people in the technical community can make substantial contributions that affect intellectual property policy-making.

The fruitfulness of exchanges between technical people and intellectual property professionals was well illustrated at the Knowright ’95 conference in Vienna in August 1995, where technologists and copyright professionals met to explore how to achieve technically sensible and balanced policy positions on intellectual property policy in a manner that greatly benefited from the melding of different experiences [1].

Good intellectual property policy-making for the age of global digital networks cannot be made without a deep understanding of current and foreseeable technological developments. Governments would do well to open up their deliberative processes about intellectual property policy-making to more input from the technical community. It is more important to adopt well-considered and technologically appropriate proposals for changes to intellectual property law than to act quickly to enact proposals that will benefit a narrow set of special interests. People in the technical community can and should make an effort to be involved in this policy-making process. The information future you save may be your own.

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