

Comments from

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Question 1)

There are a wide variety of technical means to controlling copying. It is more useful to categorize them by their effect than it is to detail their mechanisms. The available controls can be used for identification purposes:

- Identify an authorized original copy
- Identify an authorized copy
- Identify an un-authorized copy
- Identify an un-modified copy
- Identify a modified copy

Technical means also exist to implement restrictions:

- Use limited to a particular machine or serial number
- Use restricted to N uses, N uses at any one time, use only during a specified time period
- Use restricted to persons possessing a “token”, either physical or logical (in the sense of a password).
- Use restricted to use in conjunction with a particular make and model of equipment.

These various purposes are not exclusive, and often a single technical means is used to accomplish several of these purposes.

Question 2)

Yes. The above capabilities differ substantially and it is important to take these differences into consideration.

Question 3)

The ability to identify a copy has become critical for verification of product identity in network environments. The entire process of cooperative software development, such as the Open Software efforts, and academic information sharing over the network depend on the identification controls. , commercial sale and distribution of software over the network depend upon this ability.

Vendors have also implemented a variety of make and model restrictions. The makers of DVD's claim that the availability of high quality digital movies is contingent upon their ability to restrict the use of these movies to being in conjunction with the equipment made by selected equipment vendors.

Question 4, 5)

The decision to restrict the availability of movies on DVD to only person's who own and operate equipment made by selected vendors has limited availability of such movies. Someone who has lawfully purchased a DVD holding such a movie remains unable to view that DVD. They are not allowed to use DVD playing equipment made by any vendor. They can only play the DVD on equipment that has been selected by the copyright holder.

Question 6)

The video tape (VCR) technologies that are the alternative to DVD's are substantially lower in quality and features. Multi-lingual facilities, closed-captioning for the deaf, indexing, and other facilities are lost.

Question 7)

Various software packages exist that are only available with identification technology. The use of digital signatures and checksums of various sorts is very widespread.

Question 8,9)

The use of restrictions can potentially limit archival and preservation. To date, the most severe of these are the works that have been restricted to use with particular makes and models of equipment. This forces the archivist to archive not only the media, but all the various makes and models of equipment that are needed to play the media. Further, since the technical means are usually kept secret, the archivist is prevented from preserving the information needed to repair or re-create this equipment over time.

This problem is similar to the problems presently affecting archival of old magnetic tape media. It is extremely difficult to maintain the old 200bpi 7-track magnetic tape equipment for computers. Fortunately, these works can be transferred to other archival media. The new technical means being employed for encryption and controlling access remove the alternative of transfer to another media.

Question 10,11)

no comment

Question 12)

The use of access restrictions has interfered with examination of products for quality and safety review, examination of technology, etc. The most extreme example of this is the use of copy protection mechanisms to interfere with the dis-assembly and study of hostile software such as computer viruses. The present practice of dissecting computer viruses would be a violation of copyright protection, although it is highly unlikely that any virus author would publicly complain. Several fraudulent computer software products (e.g. one that claimed to "compress" memory to increase usable computer memory) were disassembled despite protection mechanisms. Their fraudulent behavior was revealed by this disassembly. At the time, such disassembly was clearly legal.

Question 13)

The use of identification techniques has enhanced such fair use activities as academic research. The ability to ensure that copies are known to be true copies of the original has simplified many research activities.

The use of restrictions to selected makes and models has prevented fair use activity by anyone who wishes to use a different kind of equipment. The most recent and well publicized example of this is the efforts to play DVD movies on equipment that is not made by the vendors selected by the publisher.

Question 14,15)

See question 13.

Question 16,17)

I believe that the use of restrictions to selected make and model should not be protected. Such restrictions are not the proper purpose of the copyright. Any such restrictions should be part of separately negotiated contractual agreements. If a copy can be legally obtained without such a separate contractual agreement, then bypassing the restrictions to selected make and model should be exempted.

Question 18)

Some of the protections, particularly those related to identification, can be very difficult to circumvent. Many of the presently employed mechanisms are effectively unbreakable. There are poorly implemented identification protections that are more easily broken.

The restrictions of use are more easily circumvented. For example, the CSS system employed by DVD movie makers was recently broken by a small team in a few months. Cryptographic analysis of it and other schemes have shown most to be poorly implemented, and thus relatively easy to break. This is not a fundamental truth. Properly implemented restrictions of use are feasible.

Question 19)

It has affected availability of products, such as software products sold electronically. It is very hard to determine to what extent (if any) this additional competition has affected prices.

Question 20)

The sale of software by electronic delivery has been made possible by copy protection systems. The widespread collaborative sharing of software and data has been enhanced by the ability to identify copies.

Question 21, 22)

no comment

Question 23)

I believe it is more important to consider the nature of the protection function than the nature of the work. Identification protections have been generally valuable. Make and model restrictions have been generally destructive.

Question 24)

No

Question 25, 26)

Yes. The use of identification protection has greatly increased electronic distribution of various works.