

Comment format:

ASCII text

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Emphasis indicated by surrounding terms with *asterisks*

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1. I, Leo L. Schwab, am a resident of Redwood City, CA. I am a software engineer of over 15 years professional experience and, as such, have direct experience with "copy protection" measures as employed to combat unsanctioned copying of computer software. I am also an owner and buyer of consumer electronics and computer equipment.

2. The FCC has been asked to resolve compatibility issues surrounding digital broadcast and cable television and consumer electronics equipment. My comments will focus primarily on the issue of "copy protection."

3. I urge the Commission to oppose mandating copy protection measures in consumer electronics equipment, for the following reasons:

Inherent Fragility

4. In general terms, copy protection measures operate by attempting to distinguish between "legitimate" copies (i.e. copies manufactured by the vendor) and unsanctioned copies (as typically made on a home computer). Because computers -- and indeed all digital equipment -- are designed to copy information perfectly, making this distinction is a difficult technical challenge.

5. Many methods have been employed to attempt to make this distinction, all of which have attendant advantages and drawbacks. However, no matter which specific method is employed, they all basically introduce artificial fragility and unreliability into the system. More clearly, by introducing copy protection measures into a product or system, that product or system is *by definition* rendered less reliable, since it now has a deliberately introduced capacity for failure. Some copies will work, whereas others will fail, having been identified as, "illegitimate."

6. There is not, nor can there be, a 100% reliable method of distinguishing between sanctioned and unsanctioned copies. As such, all existing copy protection methods can and do yield false results, causing legitimate store-bought copies of software to fail (and allowing unsanctioned copies to operate unhindered). The reasons for the false results may be manifold: damaged distribution media, incompatible hardware, incompatible operating system software, etc.

7. Working remotely (as do cable system operators when dealing with subscribers), it is impossible to determine if such failure is due to an "honest" flaw in the hardware or distribution media, or because the user is attempting to use an unsanctioned copy. Direct examination of the system and media is necessary to make such a determination.

8. Thus, employing copy protection measures in consumer electronics will render such equipment inherently less reliable, resulting in undue inconvenience and cost to the consumer and equipment manufacturer alike.

Lack of Compelling Need

9. Until the mid-1980's or so, consumers were tremendously inconvenienced by copy protection systems. This was due not only to their fragility, but also by their preventing users from copying their software from the vendor-supplied floppy disks to internal hard disks, which were gaining popularity at the time.

10. Consumer opinion on the issue was overwhelming and adamant. Bowing to market pressure, many vendors agreed to abandon copy protection measures. This was done with much trepidation because vendors feared that, without them, individuals would make unsanctioned copies in such overwhelming numbers that the potential market for the software would be diluted to the point where even recovering development costs would be impossible. To the best of my knowledge, there is not a single instance throughout the history of the computing industry where such fears have materialized.

11. Thus, there are no historical precedents or incidents justifying a need for copy protection measures. Further, there is no credible reason to believe the situation will be different for digital content delivered via broadcast or cable systems.

Undue Burden to Consumers

12. In my experience, copy protection measures, as applied to computer software, are expensive to develop, both in terms of engineering time and resources. It is reasonable to believe that the same will be true for measures applied to digital broadcast content. These costs must be recovered somewhere. If the Commission mandates copy protection measures in consumer electronics, the consumers will solely bear not only the direct costs of their development and manufacture, but the indirect costs associated with decreased reliability.

13. If copy protection were a feature being requested by consumers, then it would be reasonable to expect consumers to pay for it. But they are not requesting it. Indeed, they are demanding the precise opposite.

14. The only organizations professing a need for copy protection are television and movie studios, and cable system operators. It therefore seems reasonable that those organizations solely bear the costs of development and deployment, and leave end-user equipment unencumbered.

Squelching Future Innovations

15. My review of proposed copy protection methods involve the use of viewers or viewing software that are "approved" by a central licensing

authority under the control of film and television studios (this is currently the case with DVD playback devices, which have been licensed by the DVD Copy Control Authority). To obtain such approval, the viewing device typically may only have functionality deemed appropriate by the licensing authority, and nothing else. This functionality is typically limited to playback only, with pause, fast-forward, and rewind features (and even these are handicapped in certain circumstances). In the proposed protection schemes, any individual wishing to employ new or different functionality must first petition for and obtain approval from the licensing authority, or risk being sued.

16. One use to which an individual might put digital broadcast content is to incorporate it into their computer's "screen saver" facility. For example, images from a digital television signal could be received by a computer (possibly through a IEEE-1394 interface), mathematically transformed into a sphere, and bounced around the screen. Such use of broadcast television content is not (currently) unlawful. Indeed, it would strain credibility for content producers and broadcasters to argue such use was even unethical. As such, seeking approval from a licensing authority for such use would seem to throw an unnecessary roadblock in the path of developers conducting lawful research and development.

17. While my example is admittedly a trite one, I hope it serves to illustrate that there are non-obvious uses to which digital content may be put that are useful, interesting, beneficial to consumers, and non-infringing. Full exploration of such possibilities has yet to begin. Mandating copy protection would seriously cripple such explorations.

Not a Commission Function

18. At this point, I stray from my expertise into admittedly inexpert readings of the Commission's charter and contemporaneous intellectual property disputes. Nevertheless, I request the Commission bear with me.

19. I can find nothing in the Commission's charter that suggests it should be involved in interpreting intellectual property law. By mandating copy protection measures, the Commission will effectively serve as an interpreter of Fair Use doctrine. Fair Use is not applied in a blanket manner, but on a case-by-case basis by the Federal Courts. Moreover, the meaning of Fair Use is constantly changing as circumstances evolve and technology advances.

20. Should the Commission choose to mandate a form of blanket copy protection, it is easy to envision a future Federal Court decision declaring that consumers have Fair Use rights that extend beyond those provided by equipment containing the Commission-mandated protection measures. In practical terms, however, such a decision would be virtually moot, since the Commission's previous interpretation of Fair Use has been cast in stone (or, in this case, silicon). The Commission would then find itself in the unenviable position of having to implement the Court's order. Whatever form that took, it would be tremendously burdensome to the Commission, electronics manufacturers, and consumers.

21. Finally, my readings of intellectual property disputes show that -- if the Commission will permit the colloquialism -- the field of intellectual

property law is extremely hairy bananas. It is inordinately complex, frequently self-contradictory, and its interpretation is crucially dependent on the specific circumstances of a given case. I respectfully suggest this is a field of endeavor the Commission would wish to avoid. It would take Solomonic wisdom to design a technical specification that would serve the interests of copyright holders without impacting the ever-changing Fair Use rights of consumers.

Conclusion

22. In summary, I urge the Commission to oppose mandatory copy protection measures for consumer electronics equipment because:
- A) such measures inherently decrease product reliability;
 - B) the film and television industries have not demonstrated a compelling need for them;
 - C) consumers have stated unequivocally and consistently they don't want it;
 - D) it attempts to shift the cost of such systems away from the organizations insisting on it;
 - E) it would stifle innovation;
 - F) interpreting intellectual property law and Fair Use doctrine is not a function traditionally undertaken by the Commission.
23. I greatly appreciate this opportunity to provide comment, and sincerely thank the Commission for its time and attention.