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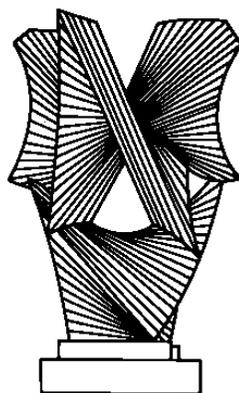
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The Digital Video Recorder: Unbundling Advertising and Content

Randal C. Picker*

Next time you turn on your television, actually watch the commercials and you will quickly see how poorly the economic model of TV is working. They put on a commercial for dog food, but you don't have a dog. You are happy to ogle the Coors Light twins—the current iteration of how drinking beer inevitably leads to better opportunities with the opposite sex—but you actually don't drink beer—apparently having missed the central message of the ads—so Coors is wasting its money. Many of the commercials are for product categories that you do not purchase, and others are for products, such as cars or computers, that you use constantly but purchase only sporadically. Most ads are targeted at no more than the broad side of the barn: Adults 18-49 or Women 25-54 or some other rough demographic segment.

We are at a point where this model can be altered dramatically. The digital video recorder (DVR)—the best-known names are TiVo and ReplayTV—takes home-taping of TV programs to a new level by dropping the tapes used by the VCR and instead recording to a hard disk. The continuing, dramatic drop in the cost of a gigabyte of storage makes it possible to switch from clunky tapes to smooth digital storage, plus the DVR comes with software to make it much easier to record your favorite shows—tell it to record *Friends* forever and it will. The DVR also promises that we never need watch another commercial, and some versions of ReplayTV make it possible to redistribute copied programs to other viewers.

It would be easy to dismiss the DVR as just an updated VCR and to assume that we should apply the same rules to both. But responses to drops in transactions costs can be highly non-linear. As Napster and its successors have made clear, tolerated offline practices—for music, physical sharing of tapes and CDs—might have dramatically different consequences when moved online at vastly lower transaction costs. The DVR is just one manifestation of the possibilities of adding intelligence and easy storage to a box in your living room. In so doing, we are changing the amount of control that can be exerted over the content on the TV screen. As the tech seers have predicted,¹ television is moving away from being a synchronous medium—you watch content delivered in real time—to one in which content is captured for viewing at a later time. The VCR hints at all of this, but the DVR should amount to a substantial change in transactions costs relative to the VCR.

But the DVR—and I will use this as a convenient short hand for a device with intelligence and storage that intermediates television delivery—is much more than just a souped-up VCR. Smart devices such as the DVR will allow us to unbundle content and advertising. Content that comes from broadcasters bundled in one form—the TV show itself, the station identifications, the ads selling Budweiser and the promos for a very special *Dawson's Creek*—can be reshaped and separated before the viewer sees it. The kill-the-commercials

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¹ See, e.g., Nicholas Negroponte, *being digital* 168-69 (Vintage, 1995).

feature of the DVR is just one approach to this and one that could matter: unbundling could put at risk the basic financing model for ad-supported TV. Jamie Kellner, then head of Turner Broadcasting Systems, infamously described the commercial-skipping feature of the DVR as “theft”: “[y]our contract with the network when you get the show is you’re going to watch the spots. Otherwise you couldn’t get the show on an ad-supported basis. Any time you skip a commercial . . . you’re actually stealing the programming.”² Kellner did say that it was OK to go to the bathroom during commercials—more precisely and more begrudgingly that “I guess there’s a certain amount of tolerance for going to the bathroom.”

But in truth, you need not adopt Kellner’s out-there views to acknowledge that a perfect ad-zapping technology would drastically alter the extent of free TV. We know the place of TV in the United States: other than sleep and work, Americans spend more time watching TV than doing anything else.³ TV is the main source of news and information, which magnifies its importance in a democracy. TV advertising is also a \$60 billion per year industry, which puts in squarely in the middle of the wheels of commerce.⁴ If the DVR really is the end of the TV commercial, rapid spread of DVRs will overturn the basic structure of broadcast TV as it has operated since its creation.

At least as important, unbundling of ads and content allows personalization of commercials and that in turn may change content itself. Personalization alone is a big deal. Personalization will make commercials much more valuable: we will stop getting ads for products we will never purchase or aren’t ready to purchase soon. We could move from a world in which one of ten commercials is of interest perhaps to a hit rate of nine out of ten. If you think that is unrealistic, think of advertising in specialty magazines—computers, cameras or cars. And in a competitive market, more effective commercials should mean fewer commercials: they don’t need to make you watch ten ads to get the one meaningful ad in front of you.

But more importantly, personalization will change the core role that content plays in intermediating between advertisers and audiences. Advertisers care enormously about their audiences. For advertising-supported content, the content creator is a middleman, an intermediary in the two-sided market made up of audiences and advertisers. In a world in which content and ads are bound together, my ads only get to individuals who are interested in the content that the ads are tied to. Grab the remote and flip through the specialized cable networks. The ads on the Food Network are quite different from those on the Fox Sports World channel. Content is shaped to attract viewers or readers with particular demographics, so that ads can be targeted to those viewers. The content created plays a dual role: it attracts a particular type of reader, and that in turn determines the type of advertising that can be sold. Creators shape content to best fit the intersection of advertisers and audience.

Intelligent devices that mediate content—smart TVs or standalone boxes such as the digital video recorder—have the capacity to alter completely this critical matching process played by content creators. If instead I can unbundle ads from the content—if I can tailor TV commercials to your personal characteristics—all that matters is that the viewer is there to watch the ad. For the advertiser, the content is not the point, the ads are. If TV test patterns emerged to succeed reality-based TV shows, advertisers wouldn’t care at all, so long as

² Interview of Jamie Kellner in Staci D. Kramer, *Content’s King*, Cable World 24, 32 (April 29, 2002).

³ Barbara Brock, *Life Without TV: Filling Those Four Hours with More Satisfying Leisure*, Parks & Recreation 68 (Nov 1, 2002). Brock also notes that Americans spend forty percent of their leisure time watching television.

⁴ Stephen Terence Gould, *Simple Power Patterns in Response to Advertising*, 42 J Advertising Rsrch 55 (2002).

viewers watched the commercials that “interrupted” the test patterns. That obviously oversimplifies: advertisers care about whether their ads are going to be well received and believe that program context matters for the warmth of the reception.⁵

We can imagine these choices in the most concrete terms possible. You pay for TV directly on your cable bill or you pay for it by having commercials interrupt the shows that you watch. So you turn on the TV to watch a show. Before you can watch, you are presented with a choice: pay a set fee to watch the show commercial free or get the show for free with commercials. Of course, they can’t make you watch the commercials—just as they can’t now—but, absent legal controls regarding the privacy of information about individuals, they will know exactly who you are and should be able to offer commercials for products that you might actually care about. As the same time, the DVR, acting as a broker, says to potential advertisers, “here are the personal characteristics of this viewer in Chicago, Illinois: how much will you pay to reach him?”

But this model only works if we can easily separate ad-supported viewers from fee-paying viewers (whether those viewers pay per view or through a monthly subscription fee). If we cannot—if viewers can “offer” to watch commercials and then use TiVo to delete them—then we may have to move to a one-size fits all model for TV, where all TV is paid for on a subscription basis. How the technology is organized will almost certainly help to determine whether viewers can commit to not deleting the ads. Decentralized, free-standing DVRs—the current model—will make commitment difficult. Centralizing the DVR technology in the pipes bringing the content into your home—putting the DVR technology in the cable box—may make the ad commitments more credible. The range of possible, supportable economic models turns directly on how the DVR technology is organized and those models matter directly for the kind of content that will be made available.

In many ways, the central question for advertising-supported content is who controls the bundle of content and ads? Until recently, consumers of content could just select from the bundles offered to them, but they had no direct ability to unbundle. Intermediaries—such as the cable company and more recently satellite providers—could have unbundled or rebundled content but were expressly barred from doing so by law. With the increasing intelligence of display devices, we now face across the board the issue of how content and advertising bundles are presented.

And as we turn more directly to law, to situate the DVR, compare it with the VCR and cable. We litigated how copyright law applied to the VCR in *Sony*,⁶ and stopped there; we have never passed legislation to control the VCR. The regulation of cable also started as a copyright problem, when cable was community access TV (CATV) and it did nothing more than grab broadcasts from the skies using large, shared antennas to forward TV broadcasts to subscribers. Like the VCR, we litigated—with the Supreme Court eventually ruling that CATV didn’t violate copyright law—but we also regulated TV intermediation, with a mix of copyright, statutory compulsory licenses, must-carry obligations and retransmission consent rules.

Given the importance of commercials in financing free broadcast TV, it is not surprising that the legal responses to both the VCR and cable as broadcast forwarder paid particular at-

⁵ C. Edwin Baker, *Advertising and a Democratic Press* at 62-64 (Princeton 1994).

⁶ *Sony Corporation of America v Universal City Studios, Inc*, 464 US 417 (1984).

tention to what happened to the commercials. As we turn to regulating the DVR, we will move down the same path, first considering how current law applies and then whether new laws are required. How the technology is organized turns out to be quite important. Standard legal instruments such as copyright or contract work only so well with widespread, decentralized use of a technology. Centralized technology is easier to control, either through contract; through common law doctrines such as contributory copyright infringement, the tack tried in *Sony*; or through direct regulation, as we have done with cable. The regulatory path for the DVR probably turns on whether it emerges as a decentralized technology ala the VCR or as part of the cable/DBS system. And, if the DVR technology is centralized, as many forecast, we may see a substantial asymmetry between broadcast and cable. The dispute over “must carry” will morph into a fight over “must store” or “must be smart” as over-the-air broadcasters will seek access to the storage and intelligence that will come to reside in the set-top box.

I. Regulating Content Intermediaries

To help situate the DVR, consider four related situations, each of which addresses rules for the permissible behavior of a content intermediary: telephone directory covers in the 1920s; less obscurely, the litigation over the VCR in *Sony*; the dispute over ad-swapping on VCR tapes; and finally, the regulation of cable TV. For my purposes what I find interesting here is how we see recurring conflicts over advertising bundling and yet a wide variety of legal responses to those conflicts.

A. Telephone Directory Covers

In the early 1920s, Southwestern Bell Telephone distributed a telephone directory in St. Louis. The directory came with paid ads sprinkled throughout, and, most prominently, ads on the front, back and spine of the directory. The Chase Hotel in St. Louis entered into deal with the Dawson Manufacturing Co. in which Dawson would produce wrap-around covers for the telephone directories. Dawson would find advertisers for the spots on the covers, thereby covering up the ads that Southwestern Bell had placed on its cover. The Chase Hotel was the last mover in this situation. Quite literally, it acted as gatekeeper to the rooms at the hotel. It physically put telephone directories into the rooms at the hotel and thus was in a position to put a cover on the telephone directories. Chase could insert its own ads and substantially diminish the value of the ads arranged by Southwestern Bell.

We need to understand precisely what is at stake here. Southwestern Bell was going to create a directory even if it could not control the cover revenues. The telephone directory is a key way of getting people to use the telephone—it complements the phone system. This is not a situation in which we need to be concerned about the creation incentives for the work in question. It is also true that protecting Southwestern Bell from entry in the cover market would increase its revenues, but so would allowing it to charge more for phone service. The real focus is just about maximizing the value of the cover: we can only have one cover for the phone book and the only question is who gets to decide which cover is bound to—bundled with—the content on the inside.

In many ways, these are just cases about contracts and prices. Southwestern Bell and Chase were dealing with each other directly. Southwestern Bell might have been able to specify in its contract with Chase that Chase would not add covers to the directories. Of course, as the phone company, Southwestern’s contract terms may have been limited by regulations. If the contract or the underlying legal rule barred Chase from adding covers to

the directories, Chase would need to pay Southwestern Bell for the right to add covers. It might make sense to do that if Chase by adding covers Chase could tailor the cover ads to the demographics of the average Chase customer. In contrast, if any last mover could add covers to the directories, Southwestern Bell would need to cut deals with each regarding covers, unless Southwestern could just foreclose this possibility through contract or the tariffs setting forth the terms on which it provided services.

As I hope that suggests, we probably should assign the “property right” in the cover to Southwestern Bell. I use property right loosely, as the actual rule might be implemented through contract or regulation. The default assignment is based on the guess—and it is nothing more than that—that we will see relatively few situations in which last movers can profitably tailor ads to their local audience, and that we should therefore impose on these last movers the burden to negotiate around the property right. The cost of negotiating around the property right is a key reason for structuring property rights in the first instance. This is a situation in which Southwestern Bell was distributing roughly 140,000 copies of the telephone directory, while Chase was taking a few hundred.

In the case as litigated, the court found that Chase was engaging in unfair competition. This is an old doctrine, with uncertain boundaries, but here unfair competition law is being used as a way of assigning property rights. By finding Chase and the directory company to have competed unfairly in adding the directory covers, the court assigned the property right in the covers to Southwestern Bell.⁷ That in turn structured the negotiations over the covers. Last movers who wanted to tailor ads would have to buy that right from Southwestern Bell. And also note the way in which the legal doctrine matters: a pure contracts approach would work between Southwestern Bell and Chase, but if the directory cover company is really the moving force here, Southwestern Bell didn’t have a contract with Dawson.

B. The VCR

In *Sony Corporation of America v. Universal City Studios, Inc.*,⁸ Universal Studios and Disney sued Sony for contributory copyright infringement caused by consumer copying of TV programs using a VCR. Third-party liability for copyright infringement turns first on finding the primary party liable for copyright infringement and second on finding a basis for extending that liability to the third party. Here, of course, that would mean liability for a consumer using a VCR to tape programs.

In *Sony*, the Court announced its now famous (infamous?) test for evaluating third-party liability, namely that the sale of copying equipment did not constitute contributory infringement so long as the product was “merely [] capable of substantial noninfringing uses.”⁹ I have criticized this test elsewhere and won’t pursue that here.¹⁰ The Court also found that private non-commercial time-shifting—recording a TV show for later home use—was a fair use and hence didn’t constitute copyright infringement. Under the statute, a fair use finding

⁷ See *National Telephone Directory Co v Dawson Manufacturing Co*, 263 SW 483 (St Louis Ct App, 1924); cf *New England Telephone & Telegraph Co v National Merchandising Corp*, 141 NE 2d 702 (Sup Jud Ct Mass, 1957).

⁸ 464 US 417 (1984).

⁹ Id at 442.

¹⁰ See Randal C. Picker, *Copyright as Entry Policy: The Case of Digital Distribution*, *The Antitrust Law Bulletin*, Summer-Fall 2002.

turns on an analysis of a number of subsidiary factors, but, for present purposes, focus on the “effect of the use upon the potential market for or value of the copyrighted work.”¹¹

The content creators argued that home-taping would reduce the market value of their works by making commercials less effective. Like the dispute between Southwestern Bell and the Chase Hotel, content creators were concerned that the last mover—here the home viewer—would avoid the commercials bundled with the content. Careful tapers might not record commercials at all, while other viewers might fast-forward over ads when replaying a program. But these arguments didn’t carry the day. On the evidence presented in the district court, 92% of the shows were recorded with commercials.¹² That number seems surprisingly low when you consider the mechanics of “avoiding” the commercials: watch the show live, pause recording when the commercials start and resume recording when the commercials were over. As to pure playback, 25% of watchers fast-forwarded through the ads.¹³ And, of course, these numbers don’t capture the marginal effect of the VCR on ad watching: did these hard-core ad avoiders watch ads before the VCR?

The result in *Sony* meant that VCR manufacturers were free to move forward without the need for making any payments to content creators. Money, of course, is exactly what the content creators wanted: as the majority opinion notes, the copyright holders would have been willing to accept a compulsory license of their works for copying in exchange for a royalty on VCR sales.¹⁴ Unlike the telephone directory example where Southwestern Bell and the Chase Hotel could negotiate directly, it would have been impossible to undertake individualized negotiations with end users regarding commercial deletion. A practical compensation mechanism would need to be tied to VCR sales or to sales of blank tapes. In Europe, many countries introduced a combination of equipment and blank medium levies to create funds to compensate copyright holders. In fact, Germany introduced such a program as early as 1965.¹⁵

C. VCR Tapes

Paramount broke new ground in March, 1987 when it released the video for *Top Gun*: the video included a Diet Pepsi commercial that played before the movie.¹⁶ It didn’t take long for a new entrant to emerge: commercial add-on companies. These companies would take a video tape distributed by Paramount, and add commercials to the tapes at the beginning. In some cases, the added commercials were written on blank lead-in tape, in other cases the new commercial overwrote the copyright notice or even the Pepsi commercials that Paramount included with the tapes. The add-on companies operated in the middle between advertisers and the video rental retailers.

This created a mess for Paramount. Obviously, if the add-on company overwrote the original ad, Paramount couldn’t very well sell that tape space to Pepsi. It would be as if I tried to sell you a billboard and you knew full well that someone else could plaster their ad

¹¹ 17 USC § 107.

¹² *Sony*, 464 US at 453.

¹³ *Id.*

¹⁴ *Id.* at 441 n 21.

¹⁵ See Tarja Koskinen-Olsson, *Reprography and the Private Copy*, www.kopioisto.fi/tiedotus/Reprogrphy.htm (visited Aug 27, 2003).

¹⁶ Bruce Horowitz, *Marketing: Pepsi Earns Wings in Home Video*, LA Times §4 at 9 (Feb 24, 1987).

over it immediately. Even without the direct overwrite, Paramount had a problem, as its contract with Pepsi specified that Paramount would not include ads on the tapes for competing products, a form of exclusivity common in advertising. The add-on companies were adding commercials that competed with the Pepsi commercials.

The add-on company is another example of a last mover. It acted as a gatekeeper and sat in the middle between the tape distributor and the video rental store. Paramount sued one of the add-on firms, Video Broadcasting Systems, alleging, among other things, two theories of copyright liability, first that VBS had mutilated its work and second that VBS had created a derivative work, something that only the copyright holder Paramount would be allowed to do.¹⁷ The mutilation claim has its roots in the droit moral, the “moral right ... of the artist to have his work attributed to him in the form in which he created it.”¹⁸ It should come as no surprise that the court in *Paramount* found it difficult to take seriously how that lofty notion might apply to swapping an ad for a local pizza joint for a Diet Pepsi commercial on the *Top Gun* video tape.

The derivative work claim was no more successful. Copyright law assigns exclusive control over “derivative” works to the owner of the original copyright.¹⁹ So J.K. Rowling has exclusive control over sequels to the first Harry Potter book. Should we think of the revised tape—the new commercial plus *Top Gun*—as a new work and as a derivative work of *Top Gun*? It is doubtful that the tape would make it: adding a commercial at the beginning shouldn’t be seen as sufficiently original so as to make the commercial plus movie a new copyrighted work. If so, we should not think that any new copyrightable work has been created and therefore the exclusive derivative work right of Paramount also wasn’t violated.²⁰ After VBS worked with the tape, *Top Gun* emerged unchanged: Tom Cruise still flew airplanes and chased Kelly McGillis. Note that the focus on originality as simply a doctrinal matter elides the more troublesome question of precisely what *should* determine the scope of the derivative work right and what guidance we should give to judges in implementing that principle.

Like Southwestern Bell, Paramount also asserted an unfair competition claim, but that idea doesn’t have much of a role to play when detailed contracts are possible. VBS had obviously entered into a deal with the local retailers to add the local commercials. With Paramount just selling the tapes without further provisions, copyright’s first-sale doctrine²¹ offered comfort to VBS and the retailers. But, as technology changed, the studios and the retailers entered into new contractual arrangements. Originally, studios just sold tapes to the retailers. A retailer would need to guess how many tapes to buy: buy too many and the retailer got stuck with dead tapes sitting on the shelves, but buy too few and customers would be frustrated, as would of course the studio with the hot movie.

This is just a standard issue in inventory management, but as technology made it possible to create credible information about actual tape rentals by the video stores, the business deal

¹⁷ *Paramount Pictures Corp v Video Broadcasting Systems, Inc*, 724 F Supp 808 (D Kan 1989).

¹⁸ *Gilliam v American Broadcasting Companies*, 538 F 2d 14, 24 (2nd Cir 1976).

¹⁹ 17 USC § 106(2).

²⁰ There is some question as to whether a work has to be appropriately original to qualify as a derivative work, but the better reasoned cases conclude that it must. See *Gracen v The Bradford Exchange*, 698 F 2d 300, 304-05 (7th Cir 1983).

²¹ 17 USC § 109.

between studios and retail stores shifted from sale to access.²² A studio now can put a bunch of copies of a new movie into the video store and collect a per-rental fee. The inventory problem shrinks considerably, as the retailer no longer experiences the uncertainty of demand for a particular tape. And this new contract between the studios and the retailers means that the question of local ad insertion could easily be addressed as just another term of the larger contract.

D. Cable

What we now know as cable TV started as “community access television” (CATV). Think of these as shared antennae systems with local distribution over a network of landlines. You and I live in the middle of nowhere and thus get lousy free broadcast TV reception, or none at all. We could each build a very large antenna to get better reception, but such an antenna could easily be shared by a number of users. CATV faced many legal uncertainties, but two were critical. First, did the antenna owner owe anything to the broadcast stations for the use of the broadcast signal? Second, did the antenna owner owe anything to the copyright owners for the use of their content?

These are basic property right and communications law questions. Answers in favor of broadcasters or copyright owners obviously would have made entry substantially more difficult, as, at a minimum, CATV entrants would have needed to negotiate for rights with many broadcasters and content owners. Early case law favored the copyright owners, but two key Supreme Court decisions established that cable operators were more like viewers than broadcasters and therefore did not perform the works that they carried.²³ That regime lasted less than two years, as the Copyright Act of 1976 reset the rules for so-called secondary transmissions, treating some unauthorized transmissions as a copyright infringement but coupling that with a statutory mandatory licensing scheme.²⁴

Under the license, cable firms pay a statutory fee for the use of some broadcasts; use without paying the fee is a copyright violation. The statutory license comes subject to the requirement that the cable company must preserve the content of the original transmission, including the advertising during, before and after the program. The hearings leading to the 1976 Copyright Act make clear that there was a substantial dispute about the extent to which cable could add value to advertising in forwarding the over-the-air broadcast programs.²⁵ Congress ultimately came down on the side of broadcasters in requiring the cable companies to pass through the advertising intact.

But nothing in the statutory license affirmatively required the cable companies to distribute broadcast content. A separate set of rules, known as the must-carry rules, addressed this issue. The FCC first imposed must-carry obligations in the 1960s through regulations, but those regulations were eventually overturned in 1985 and again in 1987 by the D.C. Circuit as unconstitutional under the First Amendment.²⁶ Congress reimposed must-carry in the 1992

²² Julie Holland Mortimer, *The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry*, unpublished paper, at 1 (Nov 1, 2000).

²³ *Teleprompter Corp v Columbia Broadcasting System, Inc*, 415 US 394 (1974); *Fortnightly Corp v United Artists Television, Inc*, 392 US 390, 400-01 (1968).

²⁴ See 17 USC § 501; 17 USC § 111.

²⁵ See, e.g., June 17, 1975 Letter of Jim Terrell, Chairman Independent Television Stations, Inc. to Rep. Robert W. Kastenmeier reprinted in *Omnibus Copyright Revision Legislative History*, Vol. 16, p. 2032.

²⁶ *Quincy Cable TV, Inc v FCC*, 768 F 2d 1434 (DC Cir 1985); *Century Communications Corp v FCC*, 835 F 2d 292

Cable Act and the new version was again challenged as a violation of the First Amendment.²⁷ Those rules went to the Supreme Court twice before the court ultimately approved them.²⁸ Under the current must-carry rules, the cable operator must broadcast the entire schedule of the local over-the-air station, including all of the commercials.²⁹ The cable company is directly prevented from acting as a typical last mover—the Chase Hotel, you and me using our VCRs and the commercial add-on firms—who otherwise would seek to delete the commercials.

The 1992 Cable Act actually put in place a more complex regime, as it supplemented the must-carry rules with a new process for “retransmission consent.”³⁰ Every three years, local broadcasters are given the opportunity to choose between exercising their must-carry rights—under which they get carriage by the cable operator but no money—or choosing to negotiate access with the cable operator and possibly seeking payment to consent to the retransmission of the broadcast signal by the cable operator. The retransmission consent rule created a stronger property right in the broadcast signal than existed under the 1976 Copyright Act, which had embraced a more circumscribed set of rights in broadcast signals by allowing mandatory licensing of those signals. By conferring a property right in the signal, the 1992 Cable Act pushed towards using contracts to regulate how cable companies would intermediate local broadcast signals.

II. Evaluating the Digital Video Recorder

We have just seen five ways in which law matters for content intermediaries: (1) unfair competition law can set property rights in how content can be used; (2) copyright law can be directed at the intermediation device itself as we saw in *Sony*; (3) copyright can also be directed at the result of the intermediation, as we saw with the *Top Gun* video tape; (4) contracts can control the use of content, as they currently do for VHS rentals; and (5) Congress can legislate and its agents can regulate, as we have seen with cable but didn’t see, contrary to much of the rest of the world, for the VCR. What will happen to the DVR?

We should start with some quick statistics. The FCC puts the number of TV households in the US as of June, 2002 at 105.4 million.³¹ Roughly 85% of those subscribe to a program service such as cable or satellite.³² About 90% of TV households have a VCR.³³ Figures on DVR penetration are less precise. The FCC estimates the number at 1,000,000. Media reports put the number at 2.4 million, with TiVo itself reporting roughly 700,000 customers.³⁴ DBS suppliers have been especially active in moving to integrate DVR technology into their products and cable companies are moving to add DVRs to the cable set-top box. Industry analysts are forecasting robust growth in the digital video recorder market, with perhaps roughly 28.6 million households in the United States, or 25.7 percent of all households, having a DVR by

(DC Cir 1987), on reconsideration, 837 F 2d 517 (1988).

²⁷ Cable Television Consumer Protection and Competition Act of 1992, P.L. 102-385, §§ 3, 4 (“1992 Cable Act”).

²⁸ *Turner Broadcasting System, Inc v FCC*, 512 US 622 (1994); *Turner Broadcasting System, Inc v FCC*, 520 US 180 (1997).

²⁹ 47 USC § 534; 47 CFR 76.62.

³⁰ See 1992 Cable Act supra note 27 § 6.

³¹ 17 FCC Rcd 26901, 26911.

³² *Id* at 26903.

³³ *Id* at 26907.

³⁴ Seth Schiesel, *Cable or Satellite? Please Stay Tuned*, NY Times at E1 (July 31, 2003).

2008.³⁵ The vast majority of these are expected to units in set-top boxes rather than stand-alone units.

But with a current adoption rate of barely 2%, we are at the early stages of this technology (or maybe it just isn't going anywhere). And purchase of a DVR doesn't equal use. It is hard to be certain about the facts, but some reports suggest that TiVo households do 40% of their prime-time viewing through TiVo, and that TiVo watchers skip 70% of the commercials.³⁶ You can probably multiply with the best of them, so we are currently at a figure for "lost" commercials of 2% x 40% x 70%, which translates into slightly more than 1/2% of all commercials. But if we moved quickly to 90% penetration—the current figure for VCRs—or 85% penetration—the figure for TV delivery other than over-the-air—we have a much more significant issue.

The switch from tape to hard disk brings with it natural possibilities, including superior programmability, the ability to "stop" live TV shows and then continue watching them without missing a beat and also the ability to skip commercials entirely. Updates to the DVR make it possible to record a show and share it with friends, assuming, of course, that they also have the same DVR, though ReplayTV has dropped this feature going forward.³⁷ Commercial skipping and sending shows to friends attracted the attention of content producers, sufficient attention that in November, 2001, a bunch of the content biggies—including Paramount, Disney, NBC, Showtime, ABC, CBS and Viacom—sued SONICBlue, the producer of ReplayTV, alleging copyright violations.³⁸ On June 6, 2002, the Electronic Frontier Foundation countersued bringing a declaratory judgment action on behalf of ReplayTV owners.³⁹ Given *Sony*, the plaintiffs will need to distinguish the analog VCR or litigate to the Supreme Court with the hopes of overturning the Court's original 5-4 decision. Again, I am quite skeptical about *Sony*, but won't address that here.⁴⁰

A. Redistribution Incentives and the Organization of Technology

The mere existence of the lawsuit gives some sense of the tax that uncertain copyright doctrines place on entry in distribution and the interaction of those doctrines with design decisions. SONICblue made an interesting choice in adding the "Send Show" feature to the ReplayTV 4000. The company undoubtedly was trying to create a network of ReplayTV owners with the hope that the possibility of sharing shows with others would induce users to prefer ReplayTV to TiVo. But adding this feature put this DVR squarely in the midst of the Napster controversy and seemed likely to attract unwanted attention, as indeed it did, when the lawsuit was filed. (No lawsuit has been filed against the competing TiVo system, which lacks the sharing feature.) And it turned out this effort was wasted: SONICblue eventually filed for

³⁵ See The Carmel Group, *DVR Competitive Market Report*, www.carmelgroup.com/home/index.php?expertise=dvr (visited Sept 9, 2003).

³⁶ Steve McClellan, *TiVo's Ad-Friendly Claim Doesn't Sway Top Researchers*, *Broadcasting & Cable* at 12 (July 7, 2003).

³⁷ Eric A. Taub, *ReplayTV's New Owners Drop Features That Riled Hollywood*, *NY Times* at C3 (July 21, 2003).

³⁸ The amended complaint is available at www.eff.org/IP/Video/Paramount_v_ReplayTV/20011121_paramount_amd_complaint.pdf (visited Sept 10, 2003).

³⁹ Electronic Frontier Foundation, *ReplayTV Users: "We Are Not Thieves,"* www.eff.org/IP/Video/Newmark_v_Turner/20020606_eff_pr.html (visited Aug 22, 2003).

⁴⁰ See Picker *supra* note 10.

bankruptcy and sold its DVR technology, and the new owner has dropped the redistribution feature.

And it was unlikely anyway that redistribution feature would survive as DVR technology rolls out in large numbers. The fact that the DVR will likely be distributed in the main through cable set-top boxes has a number of consequences. This will further strengthen the bottleneck position of cable operators and DBS providers. The broad switch from over-the-air reception of television signals to mediated delivery of those signals either by coaxial cable providers or satellite providers has meant a loss of direct contact with customers for broadcasters. Plus the switch from stand-alone DVRs to the DVR as an added functionality to a set-top box will almost certainly resolve the redistribution conflict.

Cable operators will be very sensitive to the revenues consequences of allowing customers to redistribute content. Redistribution might have direct consequences for pay-per-view programming or video on demand, but very well might have less obvious consequences on subscriptions for pay channels. This should make clear that the way in which technology is controlled and owned has important consequences for the development of the technology. The redistribution capability plays out quite differently when the DVR is a stand-alone device. For better or worse, the cable operators will take account, in a way that a free-standing DVR maker would not, the potential lost cable revenues from allowing end-users to redistribute shows.

B. Commercial Deletion and the Commercial Dilemma

If this is right, the conflict over advertising will be the core of the dispute. We see here another example of the way in which the move from analog to digital technology alters transaction costs and puts pressure on the preexisting business model. The DVR lowers the cost of deleting commercials relative to a standard VCR or even relative to an analog dual-head VCR. The plaintiffs in the ReplayTV suit are quite plausibly right in thinking that if we all had free-standing DVRs, the current financing model for free broadcast TV would be toast. That model is one that lives and dies on commercials, and absent making us want to watch commercials—as many advertisers clearly do—no watching of commercials means no free TV.

This makes clear that it is certainly possible that there is a shared interest in making it difficult to delete commercials. Indeed, deleting/watching commercials may very well be a classic prisoners' dilemma: I want *you* to watch and not me, but I can't influence your behavior, so with the DVR, neither of us watches, and free TV vanishes. If we measured the copyright fair use right against the prior baseline established by *Sony*—under which home-recording was allowed and fast-forwarding through commercials went uncontrolled—SONICblue should prevail on the copyright claims tied to commercial skipping, as DVR commercial skipping is just a nicer version of these prior “rights.” That said, if we really take fair use analysis as open-ended economic analysis, the prisoner's dilemma problem of commercials and free TV suggests that we will not necessarily reach the best the joint outcome if we allow individuals to make choices on their own. Only something more collective (or more centralized) would get us to preserving the commercials.

This makes clear why there might be a collective interest in limiting the ability of individuals to eliminate commercials. Eliminating commercials is an attempt to escape the tax that those commercials represent. In a world of ubiquitous removal technology, we move

television commercial viewing from opt out to opt in. With decentralized TiVo, the technology creates the possibility of a mandatory shift from an advertising-based medium to a fee-based medium. Moving the intelligence away from the edges of the network to the center preserves the possibility that users can commit to not deleting the commercials. With centralized provision of DVR services from a cable or DBS provider, a TV watcher would just pay one fee for ad-free content and a different fee for content with ads.

C. Ad Personalization and Changes to Content

But we should expect more than just successful pass through of some commercials to viewers. That does no more than continue the current state of ad-supported television. The possible attractiveness of inserting an intelligent intermediary between the over-the-air broadcaster and the television viewer should be apparent. Such an intermediary could deliver commercials to viewers that are tailored for those viewers. In the current regime, commercials are matched with viewers in a relatively clunky fashion. As an advertiser, I know that a particular kind of viewer watches *Friends*. I deliver commercials based upon those aggregate views, but if it turns out that the odd grandmother watches the show to better relate to her grandchildren, we have probably delivered the wrong ads to her. Far better—far more valuable—to have the intermediary know that Grandma is watching and match commercials to her. This is not to say, of course, that Grandma or any other viewer actually welcomes the advertising but that a viewer finds the interruption less costly when useful information is presented.

As I noted in the introduction, ad personalization should make commercials much more effective and might be expected to reduce the number of commercials broadcast. The extent to which that will occur depends on precisely how much information the DVR sees and uses and there is little doubt that concerns over the privacy of information will be a key issue for ad personalization and a natural action point for lawmakers.

But successful ad personalization will also change content itself. To see this, consider a simple example. One show can be broadcast: a hockey game or a game show. Viewer A will watch only hockey, while viewers B and C will watch only the game show. Only one commercial can be broadcast on the show (viewers don't care about one commercial, but find any more infinitely painful). Three advertisers compete for the single slot. The beer company would pay \$5 to reach A and nothing to reach B or C. The coffee seller would pay \$3 to reach B and nothing to reach A or C. The tea maker would pay \$3 to reach C and nothing to reach A or B.

In an ad-supported environment, which show will be broadcast with what commercial? Hockey with the beer commercial. We can only run one commercial and the most valuable commercial is the beer commercial. Now suppose that we can tailor commercials: how will this alter the outcome? The TV station will now broadcast the game show and will show the coffee commercial to B and the tea commercial to C. Total ad revenue will be \$6.

Ad personalization has the capacity to change TV content, as the simple example should make clear. I haven't said anything about whether this is good or bad, just that it is possible. Also note that we can now support more TV programs. If the cost of producing the game show and the hockey game was \$5.50, without ad personalization we wouldn't get either show, but with ad personalization, we can pay for the game show.

III. Conclusion

We are now positioned to guess at how we will regulate DVR technology. The emergence of the DVR as a free-standing device has put us on the wrong track. As a free-standing device, we will replay the *Sony* litigation and have another fight over copyright. As a 5-4 pre-digital era decision early in the days of ubiquitous copy technology, it makes sense to rethink *Sony* and see whether we want to end up in the same spot. I don't think so, but that isn't my issue here. Instead, as the DVR technology is incorporated into the devices we already use to deliver intermediated TV—cable and DBS set-top boxes—we will regulate DVR technology incrementally as part of the larger regulation of cable and satellite broadcasting.

In that framework, the key idea has been pass-through: in varying degrees, the TV intermediary is required to pass-through the content of the over-the-air broadcaster, with the commercials intact. The copyright statutory licensing scheme implemented one version of pass through, the must-carry rules a slightly different version, and pass through can be required as a matter of contract under retransmission consent. The key doctrinal question will be whether these pass-through rules limit the ability of TV intermediaries to incorporate DVR technologies. Is the cable company complying with its must-carry obligation to broadcast the full content of the local station, including the commercials, if viewers can use the set-top box to delete those commercials?

I haven't attempted to answer that doctrinal question here. The answer to that question will establish the property right to the delivery of the commercials and will establish the baseline against which negotiations will take place for broadcasters who elect the retransmission consent process. But to some extent, I think that the answer to the doctrinal question is only so important, as it applies only to ad-supported broadcast channels. Competition from ad-supported cable channels will matter. For ad-supported cable, the cable operators will rely on contract to move towards ad personalization. The cable company contracts upwards with content creators and downwards with customers and through this nexus of contracts and control over technology can establish terms of use directly, making copyright largely irrelevant. If this model turns out to be a much better way of delivering ads, we will see a substantial advantage for ad-supported cable over broadcast TV. For broadcasters, the issue will not be about fighting to get their ads to viewers intact but rather one of getting access, possibly through the retransmission consent process, to the ad personalization technology possible with the insertion of intelligence and storage into the set-top box.

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