

Separation of Content From Conduit
in Broadcast Services

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... the core of the common carrier concept, namely that a vendor with monopoly advantage in the market must provide access to customers without discrimination, remains often applicable to basic electronic carriers, as it was in the past to the mails.

Ithiel de Sola Pool
Technologies of Freedom, page 240

Introduction

What rules will govern access to the video distribution capabilities of broadband ISDN (BISDN)? While Pool's 1983 book, *Technologies of Freedom*, is still the best single discussion of the question of access to broadband ISDN, this paper considers alternative institutional arrangements for the delivery of video programming over a telephone company BISDN and examines how these alternative arrangements fit with our current regulatory structures and how well they meet marketplace needs.

Three Models of Programming Delivery

Clearly, BISDN will give telephone companies the capability of delivering video programming to the home. What is not clear at this time is the set of the rules which will govern this delivery. There are three models of programming delivery that could be considered and each has its own different strengths and weaknesses. These models are:

- o owner/operator (traditional cable television model)
- o lease-back (the current model for telephone company participation in video to the home)
- o kiosk/gateway (used today for audiotex and videotext, but not for video)

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For each of these models, we will consider the incentives of the parties involved and explain how the model interacts with those incentives.

Owner/Operator -- This traditional model of programming delivery is the one followed by most cable systems. The cable viewer pays a one-time hook-up fee, a monthly fee to access a given number of cable channels and depending on the viewer's preferences, an additional monthly fee to access premium cable programming (e.g., Home Box Office, Showtime). Once copyright fees have been paid based on the compulsory license, remaining revenues derived from cable viewers are divided between the cable system owner and the premium services.

While this arrangement has worked well in the past, there is a major drawback: the absence of diversity in ownership. In other words, one person controls all the communications (i.e., programming) which go over the cable.

Lease-back -- The lease-back model introduces another party to the delivery of programming: the telephone company. However, it is important to note that, by law, the telephone company can have no control over the nature of the programming; it merely acts as a conduit and thus is a "content-neutral" party. Content and conduit are separated -- at least at one level. There is still a single cable system operator sitting between the viewer and the programmer.

In this model, the telephone company constructs a telecommunications transport system and then leases those facilities for use by an unaffiliated entity, typically the franchised cable operator.¹ A good example of this model is the city of Washington, D.C. C&P Telephone Company is now building a transport system under a "pay-as-you-go"

¹ Telephone companies may enter into such agreements subject to approval by the Commission. See discussion below on Cable-Teleco Cross-Ownership Rules.

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arrangement with District Cablevision Limited Partnership (DCLP), the city franchisee. C&P's role is to build the system and maintain it; the telephone company will not retain any right of use in the system.

Under this arrangement, the viewer still pays a hook-up charge and monthly fee. From the viewer's and the programmer's point of view, this arrangement is the same as the owner/operator model.

Kiosk/Gateway -- This method of billing is currently used in France for the Minitel system as well as in the United States for audiotex and videotext².

Minitel is a data or videotext service provided over the facilities of the French telecommunications authority, the Direction General des Telecommunications (DGT). The DGT provides white page and yellow page services and the rest of the information services are provided by individual information service providers. These information providers can offer service under two arrangements.³ In the most popular arrangement, kiosk billing, the user is billed by the DGT for both telecommunications costs and for the information service. The DGT takes a predetermined share (3/8) of the information service revenues and

² Several major information service providers also act as gateways to other services and provide billing for those services. For example, MDI mail allows an easy connection to the Dow Jones service. Dow Jones, in turn, offers a connection to the Official Airline Guide -- gateways inside gateways. Similarly, CompuServe acts as a gateway to many other data services.

³ See report titled "The French Videotext," April 22, 1987, and made available by the DGT. This report actually describes three different billing arrangements, but the only difference between two of them is whether the user or the information provider pays for the packet network carriage charges.

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remits the rest to the information provider. This arrangement is made available to any information service provider.

This kiosk billing arrangement is similar to the typical audiotex ("976" services) billing arrangement in the United States. Audiotex services include sports scores, jokes, horoscopes, stock prices, etc.

Like the previous two arrangements, in the video kiosk the viewer would still pay a monthly fee to access regular programming and selected premium services and, like the second arrangement (lease-back), the telephone company is still a content-neutral party. However, unlike both previous billing models, kiosk billing, and the revenue sharing derived from that billing (in this instance, between the programmer and the telephone company), would lead to reasonably efficient pricing to multiple video service providers.

To date, the means of delivering narrowband and broadband services have been separate simply because the technology did not exist to economically combine that delivery over one transmission system. In other words, the policies underlying narrowband and broadband delivery have been based on the premise that there are two transmission systems, one for voice and data and another one for video, which are and always have been separate. This premise, now etched in statute as well as in Commission rules, was based on the current technology which could not accommodate narrowband and broadband services over one system.

Fiber optics has the potential to shatter that premise (as well as traditional methods of delivery and billing). As we have noted, fiber optics not only improve the quality of voice and data communications, but can deliver video communications as well. In addition, fiber's low cost and adaptability renders it a highly efficient means of transmission.

Moreover, despite the uncertainty as to which system architecture or

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architectures will evolve in bringing fiber to the home, we do know the following are highly likely: (1) that this architecture will provide effectively unlimited bandwidth and thus increased channel capacity, perhaps as many as 500 channels; (2) that this architecture will include substantial switching capacity; and (3) that this architecture will have the ability to meter the various services accessed.

From the telephone company's standpoint, it seems likely that the marginal costs of a fiber system for all types of transmission (voice, data, video) would be lower than the average costs. Thus, strict marginal cost pricing is impossible without a subsidy.

Under a kiosk billing arrangement, the telephone company would bill the viewer for both telecommunications transmission costs as well as the costs of the video service. The telco would then retain a predetermined share of the revenues derived from the programming and remit the rest to the programmer.

Now let us put the technological and economic arguments together. A telephone company could recover the costs of providing marginal programming (programming which does not command a sizable audience and is therefore less popular) by charging the viewer only the marginal costs of actual usage. Moreover, because of fiber's enormous carrying capacity, telcos would be able to offer viewers numerous programming possibilities.

Even though the telco is still not in program origination business, this arrangement is financially beneficial: the telephone company receives access revenues as well as a certain percentage of the programming revenues.

From the program suppliers' standpoint, fiber technology and a kiosk billing arrangement would work together to accommodate the programming for which no fee or a nominal fee is charged along with the more valuable

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"premium" programming. As discussed above, telcos would find it financially attractive to carry such lightly-viewed programming. Moreover, a kiosk billing arrangement enables the telephone company to retain its status as a content-neutral common carrier and yet to charge its customers differentially. Consequently, the programmer could assemble a package of services which included the lightly-viewed programming of a local television station as a "bargain" along with the premium programming.

Kiosk/gateway billing has been successful in France for the Minitel system as well as in the United States for audiotex and videotext. There is every reason to believe it would be equally successful with regard to telco-delivered broadband services.

Legal and Regulatory Restrictions

The MFJ.

The 1983 Modified Final Judgment (MFJ) imposed three major restrictions on telephone company activities: telephone companies could not provide long-distance service, they could not pursue certain types of manufacturing and they could not provide "information services." The current restrictions on telephone company activity in the information services area means that RBOCs cannot publish electronically. In particular, they cannot provide electronic yellow pages. Moreover, under this same theory, telephone companies cannot operate cable systems, television or radio stations.

Each of the three restrictions, including information services, was reaffirmed by Judge Harold Greene in the first triennial review of the MFJ in September, 1987 and was clarified further in an opinion issued by Greene in March 1988. While Greene allowed telephone companies considerably more technical flexibility by allowing them to provide services such as electronic mail, voice retrieval and audiotex, he kept the door shut on their generating content-related information services,

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or for that matter, programming (e.g., RBOCs may transmit data, but they cannot create that data). Reiterating his belief that content and conduit should remain separate, Greene wrote: "...an entry of the Regional Companies into the content-generation markets would be positively harmful."⁴

One of the most controversial aspects of both Greene's review and recent opinion concerns the term "gateway." Basically, a gateway is an interface between two dissimilar networks and, as such, is a key technology for data communications. In accordance with Greene's recent opinion, RBOC gateway activity must be confined to providing access to videotext services, not information about videotext providers. In effect, this conservative interpretation of the term gateway means consumers must take two steps (instead of one) in accessing a particular service. By loosening this definition of gateway, videotext services could not only be provided more efficiently, but at lower cost than they are now. This concept could also be extended to video programming generally.

Cable/Telco Rules and the Cable Act.

As noted above, the FCC allows telephone companies to build telecommunications transport systems and then lease-back the capacity on the plant to another party.⁵ However, FCC rules, the Communications Act as amended by the 1984 Cable Act and the MFJ all prohibit telephone companies from providing video services directly to subscribers.

⁴ Opinion in United States of America v. Western Electric Company Inc., et al. United States District Court for the District of Columbia, Civil Action No. 82-0192, March 7, 1988, p. 7.

⁵ Examples of lease-back arrangements include OLF Telephone and District Cablevision Limited Partnership in Washington, D.C.; Wisconsin Bell and Telefloral in Brookfield, Wisconsin; and Ohio Bell Telephone and North Coast Cable in Cleveland, Ohio. In order to enter into such arrangements, telephone companies must first make 214 applications for FCC review.

Last year, the Commission initiated an inquiry into its cable telco-cross ownership rules. Comments were filed in November and reply comments were filed in December. The Commission is still reviewing the issue. On the Hill, Congressman Howard C. Nielson (R-Utah) has filed legislation which would eliminate the rules. However, Congressional consideration of that bill is unlikely this year.

Any modification of the current restrictions on telco-provided video services (the MFJ, the Cable Act, FCC rules) will be difficult to achieve in the near future.

Computer Inquiry III Rules.

In Computer Inquiry III (CI-III) the FCC removed the requirement that BOCs supply enhanced services only through a separate subsidiary, but imposed an "equal access" requirement known as comparably efficient interconnection (CEI), which requires BOCs to provide competitors access roughly equal to that they provide to their own information service operations. The FCC also imposed an Open Network Architecture (ONA) obligation on the BOCs which requires them to structure their networks and services to facilitate more effective operations by enhanced service providers such as videotext services, telephone answering services, and burglar alarm companies.

Accommodating CEI and ONA obligations for FTSN video services is easy or difficult, depending upon the service model. The telco as owner/operator fits neither CEI nor the ONA at all. A traditional lease-back arrangement meets the CEI requirement (as long as the cable company leasing the system is not an affiliate of the telephone company), but does not appear to meet the ONA requirements. It appears that the operator of a lease-back system could meet the ONA requirements by any of three approaches:

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- 1) At the time the lease-back is agreed to, offering an equal deal to all comers.
- 2) Holding out a continuing offer of a lease-back deal to all comers.
- 3) Leasing bandwidth rather than the entire channel capacity of the cable, and reserving capacity for future customers. This alternative is probably quite inefficient for traditional coaxial cable plant, it may not be so inefficient in the BISDN world.

The kiosk/gateway approach lends itself easily to the CEI/DNA world. This approach appears to meet DNA obligations. It would meet CEI obligations if price and technical parity were maintained between the programming operation of the telephone company and all other information providers.

Of the three models for telco provision of video services over a BISDN, kiosk/gateway fits best into the CI-III regulatory structure.

Discussion

Of the two feasible models discussed above for telco entry into video programming, lease-back and gateway/kiosk, the latter appears to be the more appropriate model. The lease-back system places the telephone company's customer (the cable company) in the position of a monopolist between broadcasters and viewers. In contrast, the gateway/kiosk system places the telephone company in the more desirable position of a non-discriminating common carrier between broadcasters and viewers.

In the long run, the many advantages of fiber technology will see the introduction of telephone companies into the video distribution business. In addition, telephone company participation can be structured in a manner that maintains the industry's content-neutral status.

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But a key question remains. Should the telephone company be allowed to acquire and package programming to be offered over its own gateway?

One line of argument against allowing such acts can be basically summarized by observing that the MFJ prohibits this, the FCC rules and the Cable Act appear to prohibit it, and that the justifications for these policies are still valid. The underlying fundamental argument is that the monopolist must be restricted to core monopoly activities or the firm will engage in cross-subsidy, predatory pricing, and restrictive business practices to the detriment of consumers.

But, there is also a line of argument supporting such acts. That line of argument can be summarized by observing that the FCC's Computer Inquiry III rules and new accounting rules were designed to deal with exactly this kind of issue. The FCC rules allow a telephone company to provide videotext services over its own gateway⁶ provided all other parties get equal access to the gateway. The rules were adopted to allow the more rapid adoption of improved technologies and to allow services to be offered more efficiently.

And, there is an economic argument for allowing telephone companies -- perhaps through separate subsidiaries purchasing service under tariff -- to package video programming services. A B1SDN will be a new entrant to the video services market. In most communities it will face an established cable firm, over-the-air broadcasters⁷, VCR rentals, and perhaps direct broadcast satellite competition.

⁶ The MFJ allows EOCs to offer some enhanced services such as voice mail, but prohibits other such as videotext.

⁷ Over-the-air broadcasters may be the first customers for a B1SDN.

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The telephone company offering BISDN services will face a difficult critical mass or chicken-and-egg problem. Without viewers, why should program suppliers contract to use the system? Without programming, why should viewers pay for access?

This is hardly a new problem. Shopping malls, daily newspapers, electronic mail systems, technical standards, video distribution satellites, and long distance companies all face similar critical mass problems. Shopping malls normally sign up "anchor" tenants whose presence serves to assure other retailers that there will be sufficient traffic to justify committing to the mall. New daily newspapers are rarely started today -- in part because, the chicken-and-egg problem of signing up both subscribers and advertisers is too hard to solve. Hughes was able to get a few anchor tenants to switch to their Galaxy satellite. This ensured that cable systems would point earth station antennas at the Galaxy satellite. This, in turn, assured many other cable programmers that, if they went on the Galaxy bird, cable systems would be able to receive their programming at little cost. Entry into long-distance telephony was impossible until the FCC ordered that MCI could interconnect with the local network of the AT&T companies -- and thereby avoid building its own critical mass of subscribers. It's hard to believe that Minitel could have ever gotten off the ground, let alone grown so quickly, if the DGT had not offered yellow pages and white pages information on the system.

Each critical mass problem has its own specific characteristics. In the case of video programming on a BISDN, one must keep in mind that:

- 1) Some of the most desirable programming services are owned or controlled by the cable television industry. Today, such services include HBO, Showtime, WTBS, CNN, CNN and other major services. It is quite possible that cable industry control of programming will expand over the next few years. It seems highly unlikely that such program services will be initially available over telephone company

video gateways.

2) Many video services not controlled by cable services (such as ESPN) are distributed almost entirely by cable systems and may fear retribution from cable firms if they choose to distribute their programming over a telephone company's BISDN. Wireless cable (MMDS) interests, SMATV firms, and home satellite advocates have all claimed that pressure on program suppliers from cable firms has reduced the supply of programming to their industries.

3) The average broadcast station reaches half its potential audience over cable. In the short run it has more to lose by being dropped by the cable company than it has to gain by being carried on a BISDN.

Starting up video services on a telephone company BISDN will be a difficult task. Even program providers who cheer the advent of downstream competition may be reluctant to be among the first to offer their service over the new competitor.

Thus, it is apparent that, if one wants the kiosk/gateway approach to have a fair market test, a program source other than traditional cable programmers must be considered. One such program source is the telephone company itself. It could buy programming from Hollywood, the networks, and independent stations and package this programming onto several channels, and promote the package. This core programming or anchor tenant would be the key to getting subscribers to agree to connect to the BISDN and to pay the costs of access to programming.

Conclusion

The kiosk/gateway model for the distribution of video programming over a telephone company BISDN appears to meet both the regulatory problems posed by the FCC's Cable/Telco and CI-III rules, the MFJ, and the Cable

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Act. Because the kiosk/gateway allows video services of differing value to pay differing amounts for carriage, it will also serve economic efficiency. It separates content and conduit and provides access for all desiring to publish.

However, it also appears that, unless telephone companies are allowed to purchase, package and promote programming in the early states of BISDN operation, the video kiosk/gateway may be slow in growing and may never manage to reach its potential.

One last observation. These thoughts on separating content from conduit and moving to kiosk/gateway billing are not new. Five years ago, the late Ithiel de Sola Pool wrote:

A clean way to make such distinctions [between high and low valued users of cable capacity] would be to establish a three-tier leasing tariff, in which one uniform charge would be levied for the raw channel regardless of what was carried, another charge for use of the billing computer, and a third charge in the form of a royalty on all revenue gained from advertiser or viewer payments for a program. Such purely commercial distinctions pass First Amendment muster. Any would-be publisher who wished to use the cable systems would pay a publicly announced, rational and content-independent tariff, but would end up paying far more for time used to peddle paid entertainment than for time for community chatter or for promoting ideas.

Thus the conundrum of how to make cable systems profitable enough to be built while at the same time giving equal access to all would-be publishers is solved. It is not necessary just to wait for technology to solve the problem, as it may ultimately do. To wait for a common carrier broadband ISDN to overwhelm the cable monopoly means that for a troubled decade or two of cable system dominance, the temporary monopolists would be in a position to establish a franchise on various parts of the video and electronic publishing industries.

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