The Telecommunications Marketplace of the 1990's: New Opportunities and New Challenges

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DURING THE NEXT DECADE, THE FOCUS OF THE telecommunications industry should finally move beyond the twenty-year-old set of issues associated with the introduction of competition into what had been the exclusive turf of the Bell System into a review of the means by which twenty-first century American consumers will have access to electronic information. The possible merging of the markets for video and voice communications promises to provide an extensive array of economic challenges and opportunities to the participants in the telecommunications marketplace.

The changes in the markets for distribution of electronic information may portend fundamental changes to the business plans and strategies of the present distributors of electronic information. Regulators must face up to the new challenges. We must allow existing institutions to adapt to the new challenges. Existing service providers must not be isolated from the threats that new technologies pose to their business, but at the same time they must be allowed to respond. They must be able to seek their targets of economic opportunity.

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In the sections that follow, I describe the challenges posed to the existing telecommunications providers, both telephone providers and cable providers, by prospective changes in technology. I conclude with some suggestions on the prospects for effective regulatory response to the new information transmission environment. Fortunately, the Federal Communications Commission has been able to learn from the experience of managing the transition to competition in telephony. Plans and policies already in place, or under consideration, at the Commission promise to enable the United States to meet these new crises in a way that will serve the public interest.

The Importance of Competition

Predicting the impact of technical and regulatory change, in a sector as complex as information delivery, with a high degree of confidence is nearly impossible. Nevertheless, I am willing to offer my best guesses about the impact of developments on the relationships among the participants in this industry and our ability to cope with change.

First, it cannot be stressed too much that public policy needs to avoid losing sight of the potential power of competition in the information delivery marketplace. The initial debates concerning the scope of permissible competition to the Bell System focused on what was considered at that time to be competition in peripheral areas. Competition for private lines, for customer premises equipment, and for network equipment were the subjects of extensive debate. Yet in the last few years, the power of competition in the core long distance network has become apparent.

Not too long ago, there was skepticism as to the extent of genuine competition in the interexchange marketplace. In the early years of entry in the market for switched servces, AT&T's competitors paid much less than AT&T for access to the local exchange. There was uncertainty as to whether the inferior access arrangements they received justified the extensive discounts. Some argued that when the access charge differential disappeared, so would competition. There were at least some facts, including the claims of some of the competitors asking for special help, that supported the belief that this was so. Yet we now know that competition is here to stay in the interexchange marketplace.

Access charges paid by AT&T and its competitors were essentially equalized by the end of 1986, at the end of the first phase of the Bell System's equal access program. Competition and competitors continue to thrive in the interexchange market. AT&T's market share, especially among large business users, continues to decline. The profitability of AT&T's competitors is steadily improving. The number of firms competing with AT&T remains high, despite the pressure that access charge reform has placed on the reseller community. Every indication of a marketplace with real competition in the ordinary sense of the term is present.

The strength of competition in what had been felt to be another area of network dominance just a few years ago is instructive. That competition is so robust, in spite of large declines in

end-to-end prices, the reduction in access expense discounts enjoyed by the competitors as equal access conversion has progressed, and the need to recover from the intoxicating growth of the early 1980's, is a testament to the power of competition in telecommunications. We cannot dismiss the possibility of the growth of similar significant change in local information delivery.

The New Video Competition

The source of possible new competition in telecommunications comes from the gradual evolution of video distribution technology. Historically, the local landline distribution of video signals has been the province of cable television providers using copper coaxial cable to distribute their signals. The cable industry has been able to achieve a high degree of success with this technology. Cable now passes about eighty percent of all households, and a majority of homes passed are cable subscribers. Over 47 million households get some of their video information from cable. While it has been possible to send voice and narrowband data over coaxial cable systems, no cable system has ever tried to provide the ubiquitous addressable two-way voice and data connectivity that is the province of the telephone companies. Tree and branch networks designed for distribution of analog video signals are just not well adapted to providing telephone services. Cable systems also differ from telephone networks in that they typically bundle both transmission services and video content from their cable system.

Telephone companies, on the other hand, have dominated a distinctly different segment of the communications market. The key characteristic of a local telephone network is the use of pairs of copper wires connected to switches. This combination enables the local telephone companies to dominate the delivery of two-way addressable voice service. The use of switches gives the local telephone company an unrivaled ability to offer flexible addressable connections. However, their use of copper wire as the transmission medium has been limited to voice and relatively slow-speed data distribution. Telephone companies, in contrast to cable companies, have almost exclusively limited their business to the provision of information channels for their customers. They have sold the medium, not the message. Thus, the two landline distributors of information serve different customer needs using different technical means and with distinctly different customer relationships.

Technical change may destroy this neat and largely successful division of the market [1]. Fiber optics may prove to be a technology of choice for the local distribution of both cable television and traditional telephone signals.

The source of the possible convergence of local information distribution technologies is the potential ability of fiber to separately serve as a superior mode of distribution for cable television and telephone traffic.[1] Part of this advantage stems from the decline in the cost of glass fiber relative to copper. Fiber optics also offers both telephone and cable companies the ability to deliver their traditional products in a superior way. For the cable companies, it offers the ability to deliver a superior signal to the home; fiber optics may eliminate the expensive need for series of amplifiers. For telephone companies, fiber provides an ability to offer end-to-end digital service and to eliminate the need for analog-to-digital conversion that is inherent in the use of analog loops in an otherwise increasingly digital environment.

These routine cost savings from fiber come with a vast increase in the ability of fiber to deliver information. Traditional copper wire pairs are used to deliver only one narrowband voice circuit. Narrowband ISDN promises to expand this to two voice-capable, digital channels and one low-speed data channel. The capacity of fiber is much greater. The fibers that the telephone companies may install can readily deliver the video signals that are now delivered by cable operators. Conversely, the fiber optic links of the cable companies can carry voice traffic with only a tiny fraction of their information delivery capacity.[2]

The possibility of this convergence may offer the welcome possibility for competition between the modes of local information distribution. The market may evolve such that households have two fiber optic pipes into each house. Alternatively, one or the other mode may choose to retain the old technology, while the other may choose to invest in fiber optic technology. The prospect of expanded competition poses real challenges for the economic and regulatory structure of this industry.

Economic Challenges

The economic challenge to the cable industry is substantial. First, their landline delivery of video signals is threatened by another wire-provided service. One option is to retreat from the provision of delivery facilities altogether and seek to acquire a leasehold interest in the telephone companies' facilities. This would permit the market division to continue, and would also permit the exploitation of fiber's capacity for broadband delivery. This "switch rather than fight" option leaves the cable companies exposed to competition from other programmers who also seek to use the telephone companies' facilities to deliver programming. The alternative of expanding into the telephone companies' domain requires substantial new investment beyond the fiber loops themselves. It would also require the navigation of a complex regulatory maze.

For telephone companies, the economic challenge is also significant. While fiber appears to be nearly cost-effective for new facilities, the telephone companies have a substantial investment in the existing distribution plant. This plant is capable of providing useful service for the telephone companies' existing products for many years. Ubiquitous delivery of video signals, similiar to the telephone companies' delivery of voice service, will require substantial new investments. On the other hand, a failure to modernize with fiber may give aggressive cable operators a window to do what no one else has ever achieved: place the local telephone companies in second place as delivery mechanisms for local electronic information.

The Challenge to Regulation

A basic premise of my analysis is that it is not regulation's job to make this or any other possible technical change happen. There is too much uncertainty for government to plan *ex ante* the technical and economic choices for the local distribution competitors. There may be much useful life left in the traditional modes of delivery. The number of alternative broadband pipes and their logical ownership and control is not clear. What is clear is that regulation must face and resolve a number of very fundamental questions if the market for video distribution is to evolve.

The joint provision of voice, data, and video services raises issues that have not been thoroughly addressed. First, an upgrade of the local distribution plant to provide universal video communications will not be cheap. There are many competitive alternatives for video distribution. Traditional rate-of-return regulation offers no good solutions to the economic issues that this presents. Placing the fiber optic plant in the traditional rate base would raise fears that users of conventional telephone serv-

[1] R. Pepper provides a thorough survey of the literature in [1].

[2] In order to provide the interconnection capability of the local telephone companies, however, the cable companies must do more than merely divert a small portion of a fiber bit stream. The provision of switching is not a minor feature of local telephony.

ice will be providing the local telephone companies with an insurance policy against failure in the competitive video market.

Further, traditional techniques of pricing are often artificial and yield perverse results. Their use could cause inefficient production of services and lessened competition. As we address pricing questions in this new environment, we should strive to break from the past and implement efficient cost-based pricing that maximizes consumer welfare. We should pursue necessary social goals, such as universal service, through rifleshot rather than shotgun mechanisms.

Recent Actions of the Federal Communications Commission

The Federal Communications Commission (FCC) has taken a number of steps to permit the growth of the new information delivery marketplace. The Commission has been a prime mover in a number of actions that will let the market work to determine if these new modes of information delivery are in the public interest. First, in our *Compulsory Copyright* and *Syndicated Exclusivity* proceedings, we have raised the consciousness of the public and reformed our regulations to make the property rights of information distributors more secure [2]. Secure rights to the information to be distributed are necessary for the information market place to evolve.

Second, we have taken the lead in freeing the local companies to offer a variety of information services. Some progress has been made in lifting the binding constraints of the Modification of Final Judgment. We have considered the extent to which it is possible, under the Cable Act, to permit telephone companies to offer broadband distribution service [3]. We have proposed to recommend to Congress that it remove the Cable Act prohibition against the provision of video programming by the local telephone companies in their service areas.

The path-breaking price caps proceeding promises to provide a path that will protect the interest of the public in reasonable telephone rates from the monopoly carriers, yet permit the local companies to have the economic incentives needed to invest in competitive alternatives for local distribution [4]. Price caps will protect the public by controlling the key element of consumer concern, the price of service, while providing carriers with reasonable profit incentives to lower costs.

With our initiatives, we have attempted to permit the efficient introduction of new technology in the market, and attempted to maintain incentives for efficient behavior. Of course, we must maintain oversight of markets where market power exists in order to protect the interests of ratepayers. But we need to do so in ways that interfere as little as possible with the incentives of the market.

The past offers clear lessons. Technological change can profoundly alter the structure of an industry and the regulation that is appropriate to it. As we have learned, regulatory processes that hinder or supersede competition impose costs on everyone and, in the long run, will be self-defeating. The prospect of broadband services, especially video, delivered to the home offers enormous opportunities.

I do not have answers for many of the questions that are raised by the capabilities of local fiber optic networks. It is clear, however, that there are issues that we all must face in the near future. If we thought that, after working out the details of the divestiture, we could achieve stability for a while and catch our breath, we were wrong. The next great competitive upheaval already confronts us. We all need to plan to meet the challenge, and to meet it without dependence on protectionist, incentive-distorting regulation. Rather, we should meet the challenge with heavy dependence on the good entrepreneurial instincts of the private sector.

References

[1] R. Pepper, "Through the Looking Glass: Integrated Broadband Networks, Regulatory Policy, Institutional Change," Working Paper No. 24, Federal Communications Commission, Office of Plans and Policy, Nov. 1988.

[2] Amendment of Parts 73 and 76 of the FCC's rules relating to program exclusivity in the cable and broadcast industries, 1988; *Notice of Inquiry in Gen. Dkt. 87-25, 2 FCC Rcd 2387 (1987),* released July 15, 1988.

[3] "In the Matter of Telephone Company-Cable Television Cross-Ownership Rules," Section 63.54–63.58, CC Docket No. 87-266, Sept. 22, 1988.

[4] "In the Matter of Policy and Rules Concerning Rates for Dominant Carriers," CC Docket No. 87-313, May 23, 1988.

Biography

Dennis R. Patrick, a native of California, was born in Los Angeles on June 1, 1951. He received his A.B. degree magna cum laude from Occidental College in 1973, where he was elected to membership in Phi Beta Kappa. He earned his Juris Doctor degree from the University of California at Los Angeles in 1976. During law school, he served as a law clerk to the Honorable William P. Clark, then sitting on the California Surpreme Court.

He has served as Chairman of the Federal Communications Commision since April 1987. As Chairman, Mr. Patrick directs the development of regulatory policies of the F.C.C., which encompasses domestic and international communications by radio, television, wire, satellite, and cable. In addition, he administrates the daily opeations of the Commission.

He was appointed a Commissioner of the F.C.C. on December 5, 1983 and served in that capacity until appointed Chairman. Previous to that appointment, he served for a brief period as Special Assistant to the Administrator of the National Telecommunications and Information Administration in the Department of Commerce. Prior to that, he served as Associate Director of Presidential Personnel at the White House. During this time, from December 1981 to October 1983, he was responsible for advising President Reagan and Senior White House staff members on presidential appointments to most of the federal independent regulatory agencies. From 1976 to 1981, Mr. Patrick was a member of the Los Angles law firm of Adams. Duque and Hazeltine.