

BYPASS: PAST, PRESENT, AND FUTURE

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Bypass has been a regulatory worry at least since divestiture. Forecasts of massive revenue losses for the local exchange carrier (LEC) industry have abounded. The rate distortions leading to bypass incentives are well known. However, the threat of bypass has not yet been realized, and this has institutionalized skepticism regarding similar dire predictions currently presented for revenue losses due to local exchange competition. This paper examines the reasons why the bypass threat of the 1980s was overstated and explores the current environment to see whether the present skepticism is justified. The first section focuses on the benefits of hindsight - why the actual bypass of the past decade has been so modest. Section II looks at current conditions, revealing how the existing bypass incentives are considerably different from those of the past decade. Section III examines other industries in which bypass has occurred to see whether bypass in the telecommunications industry should be a major regulatory concern at present. Section IV looks to the future, and the concluding section assesses the current bypass threat and its potential effects on consumer welfare and LEC profitability.

I The Industry that Cried Wolf

The term "bypass" sent shock waves through the LEC industry in 1983 and 1984 as concern mounted over the prospect that AT&T and the other interexchange carriers would move rapidly to circumvent the LEC's subsidy-laden switched access charges. Almost a decade after divestiture, we have yet to realize the bypass revenue losses that many experts had predicted. Why this occurred, or more accurately, failed to occur, is a matter of considerable debate. Nonetheless, in order to understand why the extant competitive threat should be taken seriously, it is necessary to examine why earlier competitive threats failed to live up to the often dire predictions that preceded them.

Bypass warnings proliferated rapidly upon divestiture. For instance, the encyclopedic Annenberg volume Telecommunications Policy For the 1980s devoted over one quarter of its content to bypass. It reported on at least 10 major studies of bypass conducted on behalf of telephone companies - and that was by 1984! Since that time, repeated warnings of significant revenue losses for the LECs due to bypass were presented in regulatory proceedings, trade journals, and the academic literature. The authors of this paper also contributed to these cautions.¹ There has undoubtedly been considerable bypass of LEC switched access services over the past decade. Estimates vary considerably, but it is evident that total LEC revenues have not declined and LEC profitability has not been threatened. In light of these facts, the bypass threat (especially "facilities bypass") appears to have been exaggerated. This would appear to call for regulatory skepticism regarding similar dire predictions of revenue losses from local exchange competition currently in vogue. This skepticism might affect regulatory actions, strategic decisions by LECs, and investor views of LECs - hence, the critical importance to understand why the bypass threat has not materialized to date, and how/if current industry conditions are different from those of the last decade.

There are economic, strategic, and technological reasons for the muted rate of bypass post-divestiture. Most bypass studies concluded that AT&T could reap considerable savings by avoiding switched access charges through the use of microwave or some other viable bypass technology. The "traffic at risk" was primarily that of the largest business customers, but due to the concentration of revenues in these customers, very large revenue losses for the LECs were predicted. Such predictions, presented in many regulatory hearings, were aimed at rate restructuring - the goal was to reduce switched access charges while concomitantly raising local service rates. What is all too clear now, but was considerably less so then, is that this view of the world is rather naive and myopic.

Did AT&T have economic incentives to bypass the public switched network? The answer is "yes," but not nearly to the extent claimed in most analyses of bypass. The bypass studies examined the least cost alternative available to AT&T, but failed to consider the regulatory paradigm under which both AT&T

¹See Weisman [1987] and Weisman [1989].

and the LECs operated. Under rate of return regulation, the potential savings from bypass would never be realized! If AT&T bypassed the LECs on a large scale, AT&T's rate of return would rise and the LECs' rates of return would fall. Assuming that AT&T was operating at or near its allowed rate of return, AT&T would have to refund excess earnings or reduce rates in order to satisfy its rate of return constraint. Moreover, the revenue shortfall for the LECs would force a "true-up" of access charges so that future AT&T switched access charges would be even higher. The true gains for AT&T from bypass were questionable at best.

The strategic costs of bypass are more subtle, yet perhaps equally compelling. Following divestiture, AT&T was very concerned about preserving the interLATA restriction on the Bell Holding Companies (BHCs). The MFJ had not yet gone through its first triennial review, and the certainty of preserving this restriction was not ensured. If the BHCs had been permitted into the interLATA market, they could make serious inroads into AT&T's market share. Indeed, it is widely held today that the BHCs represent the only legitimate challenge to AT&T's dominance of the long distance market.² The line of business restrictions on the BHCs was predicated on the BHCs having a local exchange bottleneck. If AT&T were to engage in large scale bypass (i.e., alternative local serving arrangements), then it would seriously weaken the premise of a local exchange bottleneck, thereby clearing the way for BHC entry into the interLATA long distance market. Moreover, AT&T did not want to be in the bypass business *per se*. While AT&T structured its tariffs such as MEGACOM and SDN to offer customers discounts if traffic were delivered to its POP through some means other than switched access, it did not aggressively design or deploy such networks for its customers. Clearly, AT&T did not want to be perceived as encroaching on the local exchange market - a market it had voluntarily decided to exit as part of the consent decree.

The technological options for bypass were also more limited than predicted. Microwave was relatively inexpensive, but suffered from line-of-sight and reliability concerns, especially in dense metropolitan areas. Fiber optics was rapidly becoming the technology of choice, but deployment in the 1984-89 time

²Huber [1992] argues at length that the long distance market today is not really competitive.

frame was quite limited. The CATV companies had ubiquitously deployed coaxial cable, but their network design was not conducive to telephony, and their capital reserves were depleted. For the most part, AT&T's bypass activities used LEC supplied special access during this time frame. And AT&T's competitors were too busy building their own interLATA networks to construct their own local exchange facilities, and they were generally capital constrained.³

II The Wolf Arrives

Should the threat posed by competitive access providers (CAPS) and PCS/PCN be taken seriously? If so, by whom - regulators, telephone companies, and/or investors? We will argue that present conditions are substantively different than those of the past decade, that indeed the threat should be taken seriously, and that the first two groups have succumbed to the "industry that cried wolf" syndrome, while investors have been slow to respond until recent events have evoked a response.⁴

First, present conditions differ from those immediately after divestiture in important ways. AT&T and the BHCs for the most part no longer operate under ROR regulation, so the benefits of bypass can now flow through to AT&T's bottom line. Carrier access tariffs bear no direct relationship to traffic volume. The FCC price cap formula reflects changes in carrier access charges in the price cap index but not alternative access arrangements. In other words, any savings realized by alternative access arrangements will not reduce AT&T's price cap, thereby rendering alternative access arrangements relatively more attractive to AT&T.⁵

³In fact, since AT&T's competitors faced lower access charges than AT&T, their incentives to bypass were significantly reduced.

⁴See, for example, The Economist, November 14-20, 1992 on the AT&T - McCaw Cellular Communications deal as well as MCI and Sprint plans (pages 75-76). The report cites immediate 5-10% declines in RBOC share prices, and warns of huge revenue losses due to competition before the end of the decade.

⁵This needs to be weighed against the FCC "equal charge" rule discussed at length in Huber [1992]. Under this rule, AT&T is unable to realize the economies associated with its volume/distance advantages over its competitors, thus dampening its incentives for alternative access arrangements. Of course, Huber argues that AT&T is only keeping the pretence of competition, indirectly subsidizing "competitors" through the equal charge rule. Then, alternative access arrangements, in conjunction with the equal charge rule, become a convenient way for AT&T to subsidize its competitors.

Strategic concerns about "poaching" on BHC revenues are muted, since there are now well positioned third parties willing and able to do the "dirty work." The rapidly changing technology of the local exchange (particularly wireless) now makes facilities bypass economical, even for moderate sized subscribers. The embedded base of the telcos is rapidly becoming obsolete and other options are becoming economically superior. Increased concerns about network reliability following the Hinsdale disaster in Illinois (May, 1988) and related network failures in New York and elsewhere provide a new dimension to bypass. Bypass is now a way to address customers' reliability concerns, giving it a legitimacy that it did not have with regulators in the past. Finally, the CATV companies have engaged in a massive deployment of fiber optics in the last 3 years. In many cases these companies will have fiber to the curb with a coaxial drop which represents a clear advantage over the LECs' proposed fiber to the curb with a copper drop.

Historically, competition in the telecommunications industry has been slowed by conflicting goals of state and federal regulators as well as the U.S. Congress.⁶ State regulators and Congress were concerned that increased competition would erode the toll-to-local subsidies that historically maintained basic local service rates below cost. Federal regulators were sufficiently removed from the fall-out that increased local rates might cause, and, as a result, tended to be more pro-competitive. Recently, LECs have begun to enter into "social contracts" that freeze basic service rates as the *quid pro quo* for "incentive regulation." This will likely have the effect of aligning state regulators with the more pro-competitive policies of the FCC as frozen local rates will serve to fully insure state regulators against the adverse consequences of such policies. We should therefore expect the march toward competition in telecommunications to be more rapid and deliberate than history would suggest.

The economic, strategic, and technological barriers to large-scale bypass have fallen with time.

Divestiture focused attention on service-based cross subsidies. The toll-to-local subsidy was seen as the

⁶This debate came to a head in the FCC's Access Charge proceedings in CC Docket 78-72, when Congress, encouraged by consumer advocates and State Public Service Commissions, intervened to reduce the level of end user line charges proposed by the FCC.

source of potential uneconomic bypass. This diverted attention to facilities based bypass for the local portion of long distance traffic, as well as the need for price restructuring to eliminate the incentives for uneconomic bypass. However, changing technology and changing incentives have relegated service-based cross subsidization to a secondary status. Customer specific characteristics are increasingly relevant to competitive alternatives. Concerns about uneconomic bypass should now be focused on customer-based bypass.

Table 1 indicates the subsidy flows within the class of residential customers, based on data in Brown and Norgaard [1991]⁷:

TABLE 1: Residential User Cross Subsidies

Service	Customer Group	Monthly Usage	Monthly Revenues	Monthly Cost	Monthly Subsidy Flow
Local Usage	Top 5%	2653 min	\$0.00	\$26.53	\$-26.53
	Lowest 5%	32	0.00	0.32	- 0.32
	Average	800	0.00	8.00	- 8.00
Long-Distance Usage (1)	Top 5%	2058	343.69	281.95*	61.74
	Lowest 5%	0	0.00	0.00	0.00
	Average	63	10.52	8.63*	1.89
Long-Distance Usage (2)	Top 5%	2058	343.69	164.64**	179.05
	Lowest 5%	0	0.00	0.00	0.00
	Average	63	10.52	5.04**	5.48

*Computed using \$0.137 as the incremental cost per minute. **Computed using \$0.08 as the incremental cost per minute. (Both estimates are given in Crandall [1991] and are provided here for sensitivity analysis. Sources: Crandall [1991] & OECD [1990].

⁷Brown and Norgaard only present NYNEX local usage data. We have estimated the long distance usage assuming a Pavarini distribution. We have assumed that the heaviest local users are also the heaviest long distance users - this may not be the case. Recognizing that the two groups may diverge, however, only reinforces the extent of the cross-subsidies between customers.

Table 2 reveals the far more significant subsidy flow from the heaviest business users:

TABLE 2
Subsidy from Heavy Business Users

Top 0.05% of Customers	Price (\$)	Cost (\$)	#/customer /month	Monthly Subsidy (\$)
Access	40.12/line	12.50 or 20.00 /line	100 lines	2762.00 or 2012.00
Long-Distance Usage	0.167/min	0.08 or 0.137 /min	5715 min	497.21 or 171.45
Local Usage	0.00/min	0.01/min	7099 min	-70.99
TOTAL				3188.22 or 2112.46

Sources: Crandall [1991], Heyman et al [1987], OECD [1990], & the Pavarini Distribution. Further recent evidence concerning cross subsidies between business and residential users can be found in Palmer [1992].

As developed by Willig [1979] and Baumol [1986], "there can be cross-subsidy of purchases of a given good by other purchasers of the same good."⁸ The concept "anonymous equity" refers to a situation in which no service cross-subsidizes another and no consumer (or group of consumers) cross-subsidizes another. Our concern is with the latter meaning of "cross-subsidy," since the subsidy flows between consumers is huge and ripe for competitive exploitation. The above tables indicate that there are

⁸Baumol [1986], page 124.

significant incentives to "exit" the public switched network for business customers and even for some residential customers. The latter are increasingly becoming potential "defectors" as technology continues to develop more rapidly than regulatory reform. It is likely that no aggregate price structure will eliminate uneconomic bypass incentives in the increasingly competitive environment. Pricing is becoming customer specific - an evolution increasingly incompatible with a regulatory setting. Since most of the costs of the embedded base are sunk, the BHCs could well provide a cheaper service, but this would require their abandonment of recovering these sunk costs. Regulators will be uncomfortable in allowing this, and the BHCs will be reluctant to accept such losses unless they can increase their earnings from remaining "captive" customers - a result even more unpopular with regulators. The forces are now in place for a dynamic unraveling of the BHCs' business.

III The Wolf has Relatives

A similar pattern is revealed in a number of industries: railroads, natural gas, electric generation, and health care. In railroads the bypass was almost complete - to an alternative mode of transport. Attempts to preserve universal service through cross subsidization lasted 70 years, nearly bankrupting the railroads, and eventually failing. These futile attempts to preserve cross subsidization, and the ensuing damage to the railroads is well documented in a variety of sources, especially Keeler [1983]. It is worth repeating some of Keeler's analysis at length:

"it can be argued that rail regulation reached its high-water mark just before World War I. After the war the industry began to suffer increasing inroads from highway competition. The response of the regulatory process to the changes reveals much about that process and the goals of regulation. To adapt, regulatory policy took two paths. First, it gradually relieved the industry of its common carrier obligations that highway competition had made unprofitable and obsolete. But political pressure never allowed it to grant these changes rapidly, so its second set of policies was directed at slowing the process of abandonment of common carrier obligations; both by regulatory fiat and by intervention in the marketplace in attempts to make continued operation of unprofitable services feasible."⁹

⁹Keeler, T.E., [1983], p.139.

Keeler documents the failure of these reform attempts, with "the general prediction for the railroad industry of reduced common carrier obligations, somewhat higher rates for captive shippers, a slow increase in labor concessions, and, despite the recent swing of the political pendulum against subsidies for railroads, additional public support (though perhaps at the state and local level rather than the federal) for unprofitable services that it is politically impossible to abandon." The relevance of this experience for local exchange services is unmistakable - except that in telecommunications the rate of technological progress far exceeds that in transportation. The rapidity with which technology changes, particularly in response to distorted tariffs, may make the railroad experience seem orderly and guided in contrast.

In health care, carrier of last resort obligations on Blue Cross/Blue Shield invited competition from experience rating insurers (including BC/BS, but particularly HMOs) against community ratings. Community ratings were offered by BC/BS in exchange for their tax exempt status. A community ratings scheme provided insurance to any member of "the community" at the same price, regardless of their actual health experience. Experience ratings schemes provide insurance rates geared to the individual's actual health experience. Experience rating insurers found themselves well positioned to compete for healthier market segments, despite the lack of tax exempt status. The result has been an unsustainable increase in the price of community ratings coverage until it is no longer widely used or affordable. Leyerle [1984] documents these changes and the collapse of the BC/BS market share is well documented - from 59% in 1945 to 39% by 1989 (see Folland et al [1993]). Coincident with this "bypass" of community ratings is the fact that 37 million Americans have no health insurance at all (and BC/BS has all but abandoned their community ratings policies). Many of these were formerly served by the "common carrier obligations" embodied in the community ratings which were no longer feasible in the presence of competition.

Electric utilities find similar asymmetric regulations and bypass incentives at work. Electric companies have traditionally been vertically integrated across generation, transmission, and distribution activities.

Perhaps the most notable change in market conditions in this otherwise stable and slow-to-change industry is the rapid increase in competition in the generation of electricity. Debate continues concerning the potential natural monopoly characteristics of generation, and these are well documented in Joskow [1989]. The regulatory environment changed markedly with the passage of the Public Utility Regulatory Policy Act of 1978 (PURPA). The reform of interest to us is the special treatment accorded cogenerators - regulated utilities were mandated to purchase electricity from cogenerators at avoided cost. This requirement, combined with the reticence of regulators to approve large new generating facilities constructed by the regulated utilities, amounted to asymmetric treatment of generating sources (see Weisman [1988]). Not surprisingly, the extent of cogeneration has rapidly grown.

It is worth quoting Joskow at length:

"Probably the most important long-term responses to the perceived problems that emerged in the 1970s and early 1980s are associated with the growing importance of wholesale power markets, especially the development of a competitive independent generating sector made up of power-supply entities that sell power to distribution utilities without being subject to traditional price and market entry regulations....it is especially important to recognize that significant potential externalities and free-rider behavior are associated with decentralized operation of individual pieces of an interconnected electric power network....The second section relevant to electric utilities (Title II) required them to purchase power from and provide backup services at nondiscriminatory rates to companies that install cogeneration equipment and certain small power-production facilities that make use of renewable energy sources and a variety of waste fuels, including garbage...It is fairly clear that the statute does not reflect a broad intention to promote competition in wholesale generation markets, to encourage vertical deintegration of the electric utility industry, or anything nearly so exciting....The independent generator cat is now out of the bag, however, and I see little reason to try to stuff it back in....There are, however, many legitimate questions

about how reliably and economically the system will perform if it comes to rely exclusively on competing independent suppliers."¹⁰

Notwithstanding Joskow's optimism concerning the value of a competitive generation sector, it is important to note that Joskow calls for expansion from cogeneration to independent generation, *but without the obligation to purchase at avoidable cost clause, and with competitive bidding for new supplies*. In other words, with the asymmetric regulation removed. Further, the reliability and synchronization problems potentially applicable to electric power generation apply doubly to telecommunications. Finally, since there is no competition in transmission or distribution on the horizon, it would appear that the common carrier obligations of the electric utilities are not threatened. It is this last point which is particularly troublesome in local telephony under asymmetric regulation.

The lessons would appear to be that bypass is a widely observed phenomenon and occurs when regulated prices are out of line with costs. It is impossible to distinguish between economic and uneconomic bypass in such an environment. The final result is a fragmentation of the industry with more competition and less regulation - but the efficiency characteristics are uncertain.¹¹ Regulatory objectives become replaced with coalition objectives. The ability of such coalitions to satisfy common carriage principles is presently unknown. There are costs and benefits to the new alignment, and there is a mismatch between the rate at which these are being studied and the rate at which the telecommunications industry structure is being transformed.

IV. The Future of the Wolf

One could well push the analogy and say that it is about time to repopulate wolf populations. But there are several dangers in accepting or encouraging the present trends:

¹⁰Joskow, P.L., [1989], pages 127,141,163,165,198.

¹¹Huber [1992] argues that we have created competition in long distance, where there should be none, and stifled competition in local access, where there should be more! Regardless of whether Huber is correct or not, the efficiency properties of the competitive environment created by distorted regulatory prices are ambiguous at best.

Regulatory - the danger is that bypass will now be ignored, witness the FCC view on interconnection charges.¹² The vast differences in the current environment from the post-divestiture setting means that the speed and extent of bypass may be surprising. This would be fine if we could be assured that such bypass is efficient. We cannot have confidence in this since we know the existing price structure is not efficient. The danger will show up in two areas: (i) the inability to finance appropriate infrastructure upgrades - this already can be seen and it is likely that the niche approach being taken by all market players will not and can not provide a broad infrastructure upgrade. If there is a case to be made for such an upgrade, then the fragmentation will have high costs indeed. (ii) the replacement of regulation as a public policy institution with coalitions of private interests. This transition is proceeding rapidly but without enough analysis. Private incentives are strong motivators and to be preferred to regulatory decisions where possible. But, private incentives will not automatically produce good public policy - particularly where there are externalities, learning costs, sunk costs, considerable R&D expenses, etc. Do we really believe that these are less important in today's world?

Business - the danger is that telcos will be too slow to react. Their pricing of special access would appear to substantiate this concern. Further evidence may be the failure to connect incentive regulation with entry policies. Telcos appear to be welcoming the new environment despite the threats it poses for them. This could be viewed as a final failure of the regulatory environment, in which telcos are unable to recognize what is in their own interests!

Research - as the competitive tide overwhelms past regulatory objectives, there is the danger that researchers will disavow those objectives completely. This would appear to be the case in health care where the notion of "shared risk" has been gutted and now is being declared obsolete or wrong. In

¹²FCC Docket CC-91-141, September 17, 1992 states "The LECs will not be allowed to impose a contribution charge at this time...The LECs may seek to demonstrate that regulatory support flows..are imbedded in the rates of special access services subject to competition, and warrant a contribution charge. The LECs may seek Commission approval of such a charge, but would be required to file petitions and obtain Commission approval..." Thus, the LECs will have to demonstrate revenue losses due to bypass before the regulators will permit bypassers to be "taxed."

telecommunications, the same reaction appears concerning "network externalities." Are they real?¹³ Are they substantial enough to warrant public policy action? Whatever their relevance in the past, they are now being declared irrelevant. While the extent of the network externality for the voice network is surely reduced (perhaps even negative), is there any reason to believe it is insignificant in a data/image/multimedia world? There is also the danger that researchers will be drawn to the quite interesting problems of coalition formation and coalition interests. There is certainly lots of money in these problems and lots of reasons to think that coalitions will address many of the social goals of interconnection, etc. But, is there any reason to believe that the goals of such coalitions will be the same as our public policy goals? There is the danger that the latter is in such disfavor that nobody will recognize that there are public policy goals.

V Conclusions

Current industry observers are warning of imminent large scale bypass of local exchange carriers. Peter Huber claims "this new competition in local telephony could spell real trouble for anyone assuming that the telcos still have monopoly power...the well-dressed bottleneck theory is being mugged by a vicious gang of new facts."¹⁴ Value Line Investment Service predicts that "if current pricing structures are maintained, network bypass could accelerate tremendously."¹⁵ As the prophets of bypass once again call for regulatory reform, we have looked back at the earlier dire predictions.

Like most futurist visions, the vision of bypass was premature and failed to recognize the actual conditions which would slow its realization. However, those conditions have changed and we now face an imminent and large structural change. If history is any guide to the future, regulators and telcos will futilely attempt to slow this change, thereby inadvertently accelerating it and expanding its scope. It is incorrect to view the present shift as one from "regulation" to "competition." The shift is to "managed competition" where the extent and form of competition is determined by regulatory policy and not by market forces.

¹³For example, Gordon and Haring, in "The Effects of Higher Telephone Prices on Universal Service," FCC Office of Plans and Policy Working Paper Series No. 10 (1984) argue that there is little evidence to support the notion of network externalities or to demonstrate its size.

¹⁴Huber, P. , 1993, "Telephony unbottled," *Forbes*, January 18, p. 94.

¹⁵Value Line, January 15, 1993, p. 748.

An example would be slow attempts to reform price structures which the market and technological environment will be quick to exploit.¹⁶ The combination of rapid technological change and sluggish regulatory response (inhibited by the skepticism promoted by the past decade of bypass warnings) is particularly dangerous public policy. Of course, the emerging competition has significant benefits for the quality of services available, their prices, and the efficiency with which they are produced. However, the common carrier obligations incurred by the regulated carriers may not be sustainable in a competitive market, particularly in the presence of asymmetric regulation.

The loss of the railroad industry to the trucking industry establishes a precedent for the size of change that is possible, even in the face of regulatory resistance (or, because of it). CATV combined with wireless could pose a similar challenge to telco services. Perhaps the railroad example establishes the seeds for appropriate changes. There has been a bifurcation of markets into regulated and unregulated, combined with direct targeted subsidization of those markets which can not be competitively served. The telecommunications approach has been to bifurcate *services* into regulated and unregulated categories, presumably based on cost considerations and/or public interest concerns. The attempt to separate these services when they share a common delivery infrastructure may well be hopeless. The entangled cross-subsidization will provide a breeding ground for bypass - inefficient as well as efficient. Recognition that some *markets* may be workably competitive, regardless of the service (POTS, data, video dial tone, etc.) may be the drastic reform that is needed. The will of regulators to affirm reform with the same rapidity as the ability of technology to exploit distorted price structures, is doubtful.

Another innovation might be to facilitate the distinction between retailers and wholesalers. This, too, has precedent in the railroad industry. Keeler discusses the develops in Australia where railroads have been

¹⁶An example is Illinois' concept of "free trade zones." The price restructuring included a combination of local measured service and drastically reduced (but uniform) intraLATA toll prices. While this is clearly a move towards cost based pricing, it would be a leap of faith to declare these tariffs as "cost-based." Consequently, the emerging competition and market structure will be largely influenced by these prices, in combination with market forces.

deregulated for a long time. He says that "Although the railroads are ostensibly state-owned monopolies, much of the interstate traffic is carried by a highly efficient and competitive group of forwarders. Unlike American forwarders, which have been forced by regulation to consolidate only traffic consisting of less than carload or truckload, the Australian forwarders are in effect large multimodal transportation companies. All of them own trucking companies, which operate in deregulated markets on parallel highways. And one of the big forwarders, Ansett, also provides domestic airline and bus service. For their rail traffic, these forwarders charter unit trains, at prices and travel times negotiated freely with the railroads. The forwarders provide all the terminal and yard services, and competition among them is intense: they were as fast or faster than American firms to adopt advances in piggyback and container technology."

As the multimedia environment evolves, consumers may desire a single retailer who combines a variety of technologies and distribution networks to provide the services desired. BHCs may be well positioned to provide such a service, particularly as a clearinghouse for network capacity. Regulators will need to be more open-minded concerning restrictions on the BHCs if novel market structures are to be achieved.

"Policy on infrastructure will be one of the biggest challenges facing governments in the rest of this decade - all the more formidable because the ideological certainties of the 1980s shed so little light on it."¹⁷ As the infrastructure debate develops, the ability of competition to further the public interest will need to be clarified. Telephony has a long history of common carriage and its associated obligations. Competition and asymmetric regulation may not be consistent with these. The belief that we have time to discover our errors and correct them may be based on a complacency promoted by "the industry that cried wolf." Recognition of how industry conditions have changed, and the historical precedents of other regulated industries, has the sobering effect of revealing how large the stakes really are. The emergence of competition should not be seen as an end in itself. What is needed is clear articulation of what the public interest is and how it can best be achieved.

¹⁷The Economist, 9/12/92.

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