potential intelligent network applications for IXCs and ESPs are obvious. IXCs, for instance, might offer region-wide or nation-wide centrex or a networked Automatic Call Distributor (ACD).[28] An ESP might similarly route a call to different locations depending on the calling number, called number, or other information a caller enters.

The RBOCs, working through Bellcore, have used the term AIN to refer to the new service-independent, intelligent network architecture they are deploying to serve as the platform for their future network-based offerings. Indeed, the AIN vision, which "... builds on and requires the capabilities of CCS,"[29] has been characterized as "... clearly the future of the public network"[30] and as "... being realized through multiple releases of AIN, each with the potential for generating impressive revenue."[31] Implementation of the Advanced Intelligent Network will increase the RBOCs ability to perform the sophisticated functions that their enhanced service and interexchange telephone customers might also wish to exploit.

3. ISDN

Higher speed transmission is critical to the development of many types of enhanced services. Some customers have moved to higher data speeds by obtaining Integrated Services Digital Network ("ISDN") services from their local exchange carriers. In addition to increased

---

[28] An ACD distributes incoming calls to available attendant positions. A networked ACD can do the same over a set of ACD's in different locations.

[29] Ann E. Merrell, "CCS/SS7-A Service Perspective," Annual Review of Communications, (National Engineering Consortium, Chicago, IL, 1992), at p. 602.

[30] Dave Glowacz, "AIN Services Get New Life in 1993," Telephony (January 11, 1993), p. 32.

[31] Roger Berman, et al., "AIN: From Vision to Reality," Bellcore Digest (August 1993), p. 1.

capacity, the major differences between ordinary dial-up access and ISDN-based access is that the latter (a) uses digital rather than analog transmission in the local loop and (b) provides a separate out-of-band signaling channel to the customer location.

The importance of ISDN to enhanced service providers was recently emphasized by Bell Atlantic:

> [ISDN] can help consumers, businessmen, educators, and institutions obtain high-speed digital access to the Internet. It can help unlock the vast potential consumer growth that is just being tapped. While traditional telephone lines can give Internet access, they cannot deliver all the exciting services available on this world-wide network. ISDN, on the other hand, can provide consumers with high-speed digital Internet access, allowing use of all of its exciting features.[32]

For a variety of reasons, ISDN underwent a very slow start; however, as Table 3 shows, ISDN penetration is beginning to increase.

Table 3

RBOC ISDN-Available Lines
(thousand lines)

1986	0
1993	39,874

Source: ARMIS Report 43-07

B. Implications of New Technology for Competitors

SS7 networks are both technically sophisticated and crucial to the creation of future network based services. As a consequence, the development of SS7 networks presents a much greater threat that the RBOCs will use their control over the signaling in the local exchange

---

[32] See, In the Matter of Bell Atlantic Waiver of Section 69.104 of The Commission's Rules in Connection with ISDN Services, Emergency Petition for Waiver, February 8, 1995, p. 2.

network to disadvantage their competitors. That is, when the Commission first proposed network unbundling in Computer III in 1986,[33] and even when it approved the first ONA plans in 1988,[34] techniques for transferring the basic information necessary for interconnection for both IXCs and ESPs were comparatively simple and well defined when provided on an in-band basis; SS7 is much more technically sophisticated and its sophistication will continue to evolve in terms of the services it will support.

As discussed earlier, one of the ironies of the development of interconnection since Computer III is that RBOC competitors are being denied access to the capabilities within the local telephone networks that new signaling systems and the Advanced Intelligent Network make possible. These advanced technologies were originally the basis for the RBOC claims that new technology would allow fundamental network unbundling.

The RBOCs can use their control over the signaling in the local exchange network to limit the nodes that a customer can reach beyond the end office. For example, one of the pieces of information necessary to route an interexchange call beyond the end office is the identity of the caller's Preferred Interexchange Carrier ("PIC"). This piece of information in digital form is known as the Carrier Identification Code ("CIC"). Under equal access, the end office or tandem office routes the call to the preferred carrier based upon this information.

---

[33] In the Matter of Amendment of § 64.702 of The Commission's Rules and Regulations, Notice of Proposed Rulemaking (Computer III NPRM), CC Docket 85-229, 50 FR 33581 (August 20, 1985).

[34] In the Matter of Filing and Review of Open Network Architecture Plans, Memorandum Opinion and Order, CC Docket 88-2, 4 FCC Rcd. 1 (1988).

With the advent of CAPs, it is possible that an additional carrier will be in a position to pick up the call at the end office, switch the call to the appropriate long distance carrier and transport it to the long distance carrier's POP. The local exchange carrier can prevent the CAP from performing this additional routing function simply by refusing to convey the CIC information over their SS7 network.[35]

This notion that the RBOCs would use their control over the signaling network to limit the nodes that a customer can reach beyond the end office is not idle speculation. CAPs and IXCs are having great difficulty in getting competitively critical information transferred over RBOC SS7 networks -- including the CIC information example used here.[36] The exact same sort of problem can be envisioned to happen in enhanced service markets.

Nowhere is the failure of ONA to meet the needs of telephone company customers more obvious than in the area of network management. ESPs, IXCs, CAPs, and, of course, the RBOCs themselves, increasingly require the ability to monitor and control every aspect of their networks. For example, when a user cannot log onto an application, or is experiencing delays, high error rates, or other forms of service degradation, the telecom manager must be able to correlate what the user is experiencing with what is happening within the network. Having made that correlation, he/she must isolate the components causing the problem and fix them.

---

[35] As explained later in this section, rather than blatantly refusing to provide such interconnection, the RBOC can simply delay doing so indefinitely by a variety of techniques. This means that the RBOC can damage competition even without pursuing a strategy of outright refusal to convey certain critical information over their SS7 network.

[36] Cornell Declaration, *op. cit.*, at pp. 28-29.

This being the case, the manager -- and/or the external entity that may be providing a management outsourcing service to the corporation -- must secure extensive cooperation from the RBOC. In particular, the manager must be able to interface his/her enterprise Network Management System (NMS) with the OSS (Operations Support System) that manages the transport networks that are part of the firm's overall network. Therefore, to an ESP, IXC, or large corporation, an ONA requirement to provide such OSS interfaces is critically important, even though a traditional equipment-oriented ESP may have little or no need for such an interface.

As a result, various parties requested access to RBOC network status information (#66),[37] access to exchange network testing facilities (#67),[38] the ability to pass network diagnostic information through to users (#86),[39] the ability to initiate diagnostics (#85),[40] and to control the network for user's premises (#102).[41] Most RBOCs have treated the requests as being for a "Service that Requires Development." One RBOC has lumped these requests under a service offering called "Access to Operations Support Systems Infrastructure" and offered certain features in a limited form. Thus, network providers, whether IXCs, CAPs, ESPs, or even end users that might wish to use ONA offerings to build their corporate enterprise networks, are not being well served by the ONA offerings of the RBOCs.

---

[37] ONA Services Guide, *op. cit.*, Appendix A, p. 10.

[38] *Id.*

[39] *Id.* p. 13.

[40] *Id.*

[41] *Id.* p. 15.

C. Enforcement Problems Created by the New Technologies

The deployment of SS7 and the implementation of AIN by the RBOCs increases their ability to discriminate against ESPs, against IXCs, and against potential local exchange competitors if they emerge. As explained above, with in-band signaling, the information being transferred was necessarily simple and the technique supported only basic call setups and a limited number of additional services. Moreover, because the signaling was done on a "per trunk" basis, there was less threat that a failure would cause disruptions on a widespread basis.

The deployment of SS7 and the implementation of AIN creates an entirely different situation. In addition to the specialized packet switches and high speed data lines which comprise the SS7 network, the AIN architecture includes a host of additional network elements, including Service Switching Points, Service Control Points, Adjuncts, Intelligent Peripherals, and Service Nodes. These additional elements interconnect in complex ways and are involved in the collection, storage and interaction with information collected from customers and the execution of sophisticated call processing logic by the associated network-based computer systems. These additional elements significantly increase the potential number of points of interconnection, and the interconnection at those points is rendered significantly more complex due to the sophistication of the protocols, the greater number of message sets, and possible interaction among the various elements comprising the AIN.

Because of this significantly greater complexity, the RBOCs have a greatly increased ability to use their control over signaling in the local exchange network to discriminate against competitors. For example, they can refuse to provide interconnection at critical points on the basis of alleged technical harm to the network. They can refuse to convey certain types of

control messages across the IN for the same reason or because of claims that standards for a particular message type do not exist. They can refuse to provide certain forms of interconnection unless the signaling messages pass through some type of "filter" that they control -- a filter that is not actually needed to ensure the integrity of the network. They can use this control over the filter to artificially restrict the message sets to those associated with services they wish to offer. They can refuse to provide certain information collected from customers and stored in the network on the basis that the information is proprietary. They can refuse to develop and execute certain types of service logic on the basis of potential technical harm or developmental costs or priorities. These examples are not hypothetical; in each case one or more RBOCs has treated competitors as described.[42]

Because of the technical complexity of the SS7/IN architecture, the critical role it plays as the "nervous system" of the network, and the necessarily more limited technical knowledge of outsiders, determining whether or not a particular refusal or delay is justified becomes an almost impossible task for competitors and regulators. The ability to refuse or delay such requests puts the RBOC in the position of controlling the development of new and competitive services, both as to whether the new service is created at all or, more subtly, when it comes to market. Through this means, the RBOCs have the ability to extend their monopoly control over the loop into the critical area of signaling, and, because it is so abundantly clear from their own emphasis on the importance of AIN, to use that control over signaling to discriminate against competitors in the provision of new services. The RBOCs' critical role in determining the availability and timing of

---

[42] Cornell Declaration, *op. cit.*, pp. 27-28.

interconnection with potential competitors is explicitly acknowledged in the following passage from the technical paper by a Director at Bellcore that was referenced earlier:

> With the deployment of CCS networks by both local exchange and interexchange carriers in the U.S., a logical next step is to interconnect these signaling networks to support end-to-end capabilities. Interconnection between the seven regions' CCS networks has already occurred to support Calling Card validation. The regions are in various stages of interconnection with interexchange carriers to provide SS7 call set-up on interLATA calls. This would permit Calling Number Delivery to work on interLATA calls, as well as provide additional reductions in call set-up times.
>
> Extensions of other services to function on an interLATA basis are technically feasible. However, in addition to the need to determine the market potential of such extensions, there are possible business, regulatory and legal issues that may need to be addressed first.[43]

This shows that, first, the RBOCs may choose not to make technically feasible forms of interconnection available for strategic business reasons and, second, that they can raise a host of market, regulatory and legal issues in order to delay technically feasible interconnections for potential competitors. In addition, the central involvement of Bellcore in the design of SS7/IN architecture will result in a relatively standard approach among the RBOCs. This coordination will make it even more difficult for regulators to detect and prevent anticompetitive conduct since benchmark regulation is less likely to work.

ISDN presents similar problems. This increased threat to competition is analogous to the increased threat associated with the deployment of SS7 in the local exchange network, as described above. Perhaps this added threat can best be understood by first recognizing that the

---

[43] Merrell, *op. cit.*, p. 601. [Emphasis added.]

customer's ability to send signaling information on an in-band basis over today's analog loops is limited (even with a touchtone equipped telephone) to sending the numbers 0 through 9, sending the symbols * and #, and initiating a "switch-hook flash." Using ISDN, with its out-of-band signaling in the loop itself, the customer can send or receive a much richer and more easily changed set of control messages at a much faster rate, thus providing the support for greatly increased functionality and new services.

However, the RBOCs control both the information carried within the signaling messages in the ISDN signaling channel (i.e., the signaling content) and the transfer of that signaling information between the loop/end office and the interoffice SS7 network described earlier. Their control over what information is carried in the signaling messages stems from their control of the local loop, their leverage over the standards-making activities associated with the local network, and their control over the first point of switching. In other words, it does no good for a customer to generate a new control message that the switch ignores. Likewise, it does no good for an ESP or an interexchange carrier to send a new control message to the end user if the RBOC refuses to carry that control message over its SS7 network, refuses to translate between the SS7 protocol and ISDN control channel protocol, or refuses to carry the new message over the ISDN control channel. It is this control over signaling in the local network that greatly increases the ability of the RBOCs to discriminate in an ISDN environment.[44]

---

[44] Affidavit of Stephen G. Huels, AT&T Opposition to the Four RBOCs' Motion to Vacate the Decree, U.S. v. Western Electric, Civil Action No. 82-0192 (HHG), December 7, 1994 (AT&T Opposition), Appendix A. 5, pp. 7-10.

IV. THE RBOCs HAVE AMPLE OPPORTUNITIES TO ENGAGE IN DISCRIMINATORY AND ANTI-COMPETITIVE PRACTICES AGAINST THEIR POTENTIAL COMPETITORS

Section II demonstrated that the original promise of ONA was not realized for the network that existed in when was first proposed. Section III demonstrated that ESPs and other RBOC customers are not being granted access to evolving features and functions of the network such as the IN, new signalling capabilities and ISDN. Technology will continue to evolve. For example, many RBOCs are proposing to replace existing copper loop plant with some form of a broadband network. As technology evolves, the needs of customers for unbundled access will also evolve. Network architecture, design, implementation and operational decisions by the RBOCs can all affect the nature and quality of access received by RBOC competitors.[45] These issues are discussed below.

A. Architecture Issues

The first, and most fundamental, decision in the creation of any network is the choice of the basic architecture. The concept of a network architecture includes not only the choice of a topology (e.g., star, ring, bus or some hybrid combination), but also choices such as (a) how the network is to be broken down into functional hardware and software "building blocks," (b) at what points the building blocks connect and how the connections, or interfaces, are defined, (c) which protocols are chosen to allow these functional building blocks to communicate with one another (i.e., the signaling scheme), and (d) whether the architecture is open or closed. Through these architectural choices, which are highly technical in nature, the RBOCs can discourage, or

[45] Of course, even if ONA results in the availability of valued features and functions, price can be used by the RBOCs to discriminate against their ONA customers.

even thwart entirely, certain types of competitive developments.[46] For instance, offering an inferior form of interconnection and/or access to the intelligent aspects of signaling networks may seriously degrade the overall value to the competitor of being able to interconnect its call-carrying network with the RBOCs.

While ONA is intended to be a fundamental architecture or network design, the RBOCs have continued to develop network architectures without adequately accounting for ONA principles. Indeed, as the Commission found in its Notice of Proposed Rulemaking in the Intelligent Network proceeding,

> We take this action because we believe that without regulatory initiative, IN [Intelligent Network] may not evolve in an open manner. We are concerned that LECs have been resistant to open network policies and that existing market incentives may not alone be sufficient to induce the LECs to open their networks to potential competitors [47]

Notwithstanding its concern with the RBOCs attitude towards, and progress in, unbundling their networks in the fashion envisioned by ONA, the Commission has been unable to drive the implementation of an acceptable unbundling plan in the six years since its ONA decisions.

---

[46] An historic example that illustrates this type of activity is the provision of CENTREX services. Prior to divestiture, AT&T had a widely-recognized strategy of migrating customers from central-office-based CENTREX services to customer-premises-based PBX equipment. With divestiture, the RBOCs resurrected CENTREX and made it a "flagship" service to compete with PBXs. Of the two principal kinds of N-ISDN interfaces, the RBOCs have placed heavy emphasis on the one that works in conjunction with CENTREX at the expense of the other that is utilized by PBXs. Thus in this case, a decision pertaining to the architecture of the basic exchange network is providing a competitive advantage for CENTREX vis-a-vis PBXs.

[47] See, In the Matter of Intelligent Networks, Notice of Inquiry, CC Docket No. 91-346, 6 FCC Rcd. 7256 (1991), at para. 18.

B. Network Design

After the choice of basic architecture, the next step in the creation or evolution of a network is the detailed design consistent with the selected architecture. Certain designs can facilitate competition, while other designs can thwart it. For example, the original Bell Laboratories design for cellular mobile radio systems called for treating the associated mobile telephone switching offices (MTSOs) like any other local telephone company (i.e., Class 5) switching office in the switching hierarchy. When it became apparent that the FCC was going to permit a second, competitive cellular carrier in every market, the RBOCs tried to insist that the second carrier be interconnected technically like a private branch exchange (PBX) rather than like another Class 5 office.[48] This less efficient form of interconnection reduced the possibility of cellular becoming a competitor with the wireline network.[49]

C. Network Deployment

Still another step in the creation or evolution of a network is the actual deployment of the necessary systems or subsystems. Because the RBOC networks are so enormous in terms of investment, it is typically not feasible to "roll out" new systems or new capabilities simultaneously throughout the network. For example, the equal access provisions of the MFJ could not be implemented simultaneously on all switches. The same problem appears in the ONA

---

[48] See Debra Lagapa and William Squadron, "Cellular Interconnection in the Next Phase," Telocator , April 1989, for a discussion of this history.

[49] Even today, the RBOCs do not provide cellcos with co-carrier status like that afforded independent LECs that provide non-competing local services in separate, adjacent territories. For example, the RBOCs require cellcos to compensate them for terminating traffic originated on cellular networks, but refuse to compensate cellcos for terminating traffic originating on wireline networks.

deployment practices of the RBOCs. Notwithstanding the legitimate reasons for a "rollout," this gives the RBOCs the ability to implement certain changes in the network in an order that advantages their own competitive operations at the expense of competitors who are dependent upon the network. Even more likely, it gives each RBOC the opportunity to delay changes that would benefit a competitor until the RBOC is itself ready to take advantage of the change. For example, by scattering switch upgrades throughout the network, the RBOC could make it difficult for a competitor to introduce a service that depends upon that upgrade.

D. Tactical Decisions

What has been described thus far are the strategic ways the RBOCs can extend their existing monopoly power into the broadband world and at the same time extend that monopoly power into adjacent enhanced service markets as well. The description has not included more day-to-day tactical methods by which the RBOCs can technically and operationally discriminate, such as in provisioning, quality, maintenance, restoration, etc. Once a network is in place and meets standards, it must be operated, monitored, tested, and maintained to ensure that the established quality standards continue to be met. The RBOC can discriminate in favor of its competitive operations in the process of providing necessary services, because it can expedite service to its own competitive operations while delaying it to outside firms that are dependent upon the same offerings.

An RBOC can also discriminate by doing a better job of operating, monitoring, testing, and maintaining those portions of its network upon which its own competitive operations depend. Similarly, an RBOC can notify its competitive operations sooner when there are network problems, so that the RBOC affiliate can take immediate steps to mitigate the problem

and improve customer satisfaction. And, when service is lost for some reason, the lines that the competitive operations are dependent upon can be restored sooner than those lines that belong to competitors.

Regulation cannot really address these tactical actions. The reports of installation times, etc. that the RBOCs claim are so effective may not provide enough detail to permit anyone to determine whether discrimination is occurring. Even if discrimination is proven, what can the regulators do to prevent future discrimination? The installers, technicians, etc. are effectively immune from regulatory action.

E. Network Evolution

One additional step beyond day-to-day operations that is controlled by the RBOCs is the evolution of the network itself. As noted earlier, self-instigated RBOC changes may be discriminatory. Discrimination is likewise possible when a competitor dependent upon the RBOC local exchange monopoly wants some change made in the features or functionality of the network in order to offer a new or better service. The RBOC might refuse to offer some types of network interfaces needed by competitors. The critical facts are that the outside competitor is forced to negotiate with its competitors -- i.e., the RBOC(s) -- and that the RBOCs have the ability and the incentive to treat the competitor poorly. For example, they have the power and the incentive to extract competitively sensitive information, appropriate it for their own use in competing services, and delay implementation of the requisite network changes until their own competitive operation is in a position to take advantage of the proposed change.

A familiar scenario would run as follows. The competitor asks for a technical change in the network. The RBOC professes not to understand the request technically. After considerable

delay, the RBOC might then indicate that it understands what is desired technically, but that it is technically infeasible. After considerable additional negotiations and interminable meetings, the RBOC might then say that it is technically feasible after all, but that it will take years and prohibitive amounts of money to engineer and implement the needed changes in the network. Meanwhile, the RBOC can be developing its own competitive "fighting machine," dependent upon the needed change in the network. When that development is near completion, the required network change might finally be deemed feasible. Finally, if all else fails, the RBOC can resort to pricing the offering unattractively. Each of these tactics would be difficult to prevent by regulation.[50]

In many respects, Ameritech's unbundling plan demonstrates exactly this sort of behavior. Ameritech identified the Feature Node/Service Interface (FN/SI), a predecessor to the intelligent network, back in 1985. Ameritech then proceeded to back off from that concept and side with its RBOC siblings on the subject of network unbundling -- right up to early 1993, when it abruptly offered more substantial unbundling as part of the Customer First Plan, but only in exchange for interexchange entry.[51]

In the above discussion, it was shown how an RBOC could use information concerning access customer plans for service deployment to its own strategic advantage. An RBOC could

---

[50] Problems of this general nature were discovered in the Georgia Public Service Commission investigation of BellSouth's MemoryCall service. See MemoryCall Order, *op. cit.*

[51] Ameritech has not proposed full network unbundling. For example, it is not prepared to make available interfaces between the distribution and feeder plant that would be of substantial benefit to PCS providers. See Rebuttal Testimony of Robert Mercer, Illinois Commerce Commission, Docket No. 94-0048, September 16, 1994.

also put the information it possesses concerning its end-user customer use of the local network to strategic advantage.

F. Procurement Decisions

The public policy problems associated with the choice of an optimal network architecture are compounded by the fact that the RBOCs have the power to drive the choice in a less than optimal direction to fit their own private, strategic business interests. This ability to drive technology in a particular direction stems from two sources. First, they have enormous purchasing power. That is, by installing synchronous transfer mode equipment and "narrowband" digital switching equipment, the RBOCs could signal their suppliers that they think the future network should be broadband, integrated and fiber-based for both rebuild and new construction instead of an extension of the capabilities (and the economic life) of existing twisted pair cable plant. In this case, the research and development efforts of suppliers will naturally concentrate on the broadband, integrated, fiber-based technologies at the expense of the digital technologies designed for use with the existing plant. Second, the RBOCs can act in concert to artificially drive the technology toward an integrated solution by how they direct their jointly-owned research arm, Bellcore.

V. OTHER REGULATORY SAFEGUARDS ARE NOT SUFFICIENT

One of the premises underlying the Commission's Notice is that development of non-structural regulatory safeguards since the original Computer III decision make the structural safeguards originally adopted in Computer II less important.[52] This premise is inaccurate.

---

[52] Further Remand NPRM, *op. cit.*, at pp. 19-20.

Regulation is extremely limited in its ability to detect and remedy problems. Experience with the Joint Cost Allocation Rules shows that they are inadequate to protect against cross-subsidy and discrimination. Although not a panacea, structural separation does provide substantially more protection against discrimination and cross-subsidy than non-structural safeguards. Before discussing specific safeguards, the next section addresses the general problem with non-structural regulatory safeguards.

A. Regulation Is Inherently Flawed

Regulation is an imperfect instrument for social control.[53] There are many reasons for this, but two factors are particularly important here. First, regulators must rely on imperfect information about virtually everything relevant to the decisions they make. They do not know what technologies the local telephone companies should use, the underlying costs of the technologies actually implemented, or what these costs would be if appropriate technologies were adopted.[54] Second, regulation does not change the incentives that companies have to use market power to increase their profits. Firms will react to, or "game," any regulation in order to maximize their profits. Only if regulators were omniscient could they prevent all evasions.

The assumption that regulators have adequate resources is not accurate either, which exacerbates the imperfect information problem.[55] Moreover, the communications industry is

---

[53] See Paul Joskow and Roger Noll, "Regulation in Theory and Practice: An Overview," in Gary Fromm, ed., Studies of Public Regulation, 1981.

[54] See the Affidavit of Roger Noll, filed in the Triennial Review Proceeding, October 15, 1990, pp. 18-33, for a discussion of the inability of regulators to prevent anticompetitive conduct.

[55] The resource constraints are discussed in Section V.F.

characterized by rapid technological change, which means that the value of information the regulators do possess depreciates rapidly.

These problems do not imply that regulation should be abandoned. Imperfect control of market power is better than no control at all. But any cost/benefit analysis of the decision to eliminate structural safeguards must understand the limitations of the alternative regulatory tools at the disposal of the Commission.

B. Incentive Regulation

Contrary to assertions by telephone companies in other proceedings, price cap regulation plans do not eliminate incentives for telephone companies to engage in cross-subsidy.[56] The theory is that, with prices capped, a monopoly telephone company is unable to receive any benefits from cost misallocations. Increased costs in a market where prices are capped do not translate into increased revenue and profits.[57]

In practice, incentive regulation does not eliminate RBOC incentive or ability to cross-subsidize competitive services. The Commission and most state incentive plans have not completely divorced prices from rate of return. Therefore, regulators continue to utilize RBOC profits as a factor in setting price caps, and because they care about profits, they have to measure

---

[56] See Affidavit of Rivera, Firestone and Halprin, Motion of Four RBOCs, Appendix 31, p. 51. Also, Michael A. Crew and Paul R. Kleindorfer, Appendix 8, p.6, argue that "... the price-cap approach eliminates the incentive for a regulated firm to shift to its regulated activities various costs from other lines of business not subject to rate-of-return regulation."

[57] For a discussion of incentives under price caps see the "Symposium on Price-Cap Regulation," The Rand Journal of Economics, Autumn 1989, pp. 369-472.

costs. As a consequence, costs are still relevant to the decision-making calculus of a regulated firm.

If an incentive regulation plan has a set term, the regulated firm will want to position itself to be in an optimal position at the end of the term. If earnings are high, it may choose to "spend" those earnings by investing or pricing strategically and thereby show a lower return when earnings are being evaluated. If instead, the incentive plan has earnings boundaries, costs are relevant during the entire life of the plan.[58]

Even if the plans nominally ignore profits and have no set termination date, long term considerations are likely to reintroduce profits and costs into the decision-making calculus. As Ron Braeutigam and John Panzer point out:

> A regulatory agency is likely to be subjected to considerable pressure to change the price cap or price-cap-formula over time. If a firm regulated by price caps begins to earn large profits, consumers will no doubt petition the regulator to lower the price in a core market. On the other side, if profits are very low, a regulated firm may seek a higher core service price cap on the grounds that a higher price is needed to preserve financial viability.[59]

In other words, it is difficult for regulators to commit to a true price cap plan.

A brief review of the Commission's Rules shows why the local telephone companies continue to have an incentive to misallocate costs.[60] The price cap rules specifically retain the core of the rate of return regulation scheme. After a price cap carrier exceeds the prescribed rate

---

[58] Ron Braeutigam and John Panzer, "Diversification Incentives Under 'Price-Based' and 'Cost-Based' Regulation," *id.*, p. 389, point out that the desirable efficiency properties of price caps are unlikely to be realized if the cap depends on carrier performance.

[59] *Id.*, p. 389.

[60] Parts 61 and 69 of the Commission's Rules contain the price cap regulations.

of return, it must "share" a portion of the excess earnings with customers.[61] Sharing is implemented through price reductions in the next annual access tariff review. On the other hand, if a carrier's earnings fall below the rate of return prescription by a certain amount, it is able to automatically adjust rates upward the next year. In essence, price caps reduce to rate of return regulation with some earnings flexibility. If a carrier is near the upper or lower adjustment bands in earnings, full rate of return incentives apply. Even for carriers that elect high productivity offsets and thus avoid sharing, rate of return will be monitored.

MCI has demonstrated that, under price caps, many RBOCs have shown a pattern of booking large fourth quarter expenses. The increased expenses have the effect of reducing earnings, thus helping the carriers to avoid sharing, or to share lesser amounts.[62] This is an example of how price caps affect costing decisions.

In addition, the price cap rules explicitly, and necessarily, require cost showings for new services. There is an obvious incentive to show high costs so that the price cap for the new service will reflect these artificially inflated costs. The local telephone company does not have to offset that high price with a lower price for some other service in order to stay within the cap constraint. New services are obviously a critical concern for ESPs who, as discussed in Section

---

[61] The Commission has just recently modified its price cap rules. If a carrier elects a high productivity offset, it is allowed to retain excess earnings. It appears, however, that profits will still be monitored.

[62] See Comments of MCI Telecommunications Corporation, In the Matter of Price Cap Performance Review for Local Exchange Carriers, Comments, CC Docket No. 94-1, May 9, 1994, pp. 33-34.

III, would receive enormous benefits from new network capabilities that are not yet offered for sale by the local telephone companies.

State price cap or incentive regulation plans have similar problems. Not all state plans have rate of return considerations directly built into them as the Commission's plan does. However, most have a specific term or length after which a regulatory review that considers costs and rate of return will take place. In any event, given the fact that regulators and politics change, the local telephone company must always consider that there is some probability that cost regulation will be reimposed, even if there is no fixed term or period between regulatory reviews.

Finally, Price Cap Rules typically allow the local telephone companies considerable discretion in the setting of the prices for individual rate elements. For example, in the Commission's Price Cap Plan, the companies have considerable discretion to set individual prices within baskets. This is particularly important for ESPs because BSE prices can be changed strategically to favor the RBOCs own enhanced services by raising the prices of BSEs they purchase more intensively and lowering the prices of BSEs purchased more intensively by their competitors.

C. Cross-Subsidy and Accounting Rules

Enforcement of FCC accounting rules, including the Joint Cost Rules, will not prevent cross-subsidy.[63] First, the Commission's Rules are obsolete and ineffective. Second, the Commission's tariff review process, which is the mechanism through which much of the accounting regulation is enforced, is seriously flawed. Third, enforcement resources are

---

[63] See Kelley Declaration, *op. cit.*, at p. 37.

inadequate. Even if all of the above were not true, conduct regulation is simply a crude tool for social control. These problems are exacerbated by rapidly changing telecommunications technology.[64]

Most of the rules that make up the current cost allocation systems are designed for decades old telecommunications technologies. Revision of the rules to reflect today's technology is not a solution. Given rapid technological changes and local telephone company control over technology choices, and the pace at which they are implemented, any such revision would soon be obsolete. As the Commission recently noted:

> ...such accounting rules can be rapidly overtaken by technological or marketplace changes. Joint petitioners, for example, supported in their pleadings the establishment of accounts to identify loop investment as either copper or fiber. Such accounts, had we adopted them in 1992, would no longer serve the purposes envisioned by their proponents because carriers have since that time developed proposals to incorporate a third transmission medium, coaxial cable, into the loop.[65]

In other words accounting regulation is inadequate to keep up with technological change.

The Joint Cost Rules contained in Part 64, or more accurately, the individual telephone company Cost Allocation Manuals (CAMs) that implement those rules, start with the detail recorded in the Commission's Part 32 USOA accounts. Therefore, to the extent that Part 32 does not reflect the changes in the network and the competitive environment, Part 64 suffers from the same considerable problem.

---

[64] See Declaration of Robert Hall. MCI Comments to DOJ, Exhibit 2, pp. 9-11.

[65] See, In the Matter of Telephone Company Cable Television Cross-Ownership Rules, Memorandum Opinion and Order on Reconsideration and Third Further Notice of Proposed Rulemaking, CC Docket 87-266, released November 7, 1994, p. 80.

Moreover, a tremendous amount of discretion is built into the process of designing and implementing the CAMS. The RBOCs are large and complex organizations using complicated and sophisticated technology and undergoing rapid technological change. No Uniform System of Accounts or Cost Allocation Manual can realistically hope to capture this reality. Judgments, sometimes arbitrary, have to be made at every stage of the cost data collection and allocation process. The cumulative effects of many judgments about how to classify dual-or multi-purpose equipment may lead to significant cost misallocation, even within the bounds of all applicable rules and regulations.

The RBOCs have argued that the problem of the allocation of costs between regulated and unregulated services is solved by requiring fully distributed costing.[66] The argument is that by requiring unregulated services to bear a portion of joint costs, a bias against cross-subsidy has been put into the system, thus guaranteeing that consumers of regulated services receive at least some benefits from economies of scope.[67] However, if there are no real economies of scope from joint provision of regulated and unregulated services, and if the telephone company has selected a technology with high common costs, then consumers of regulated services could be

---

[66] See Affidavit of Rivera, Halprin and Firestone, *op. cit.*, at p. 38. Under Fully Distributed Cost (FDC) costing, shared costs that cannot be unambiguously attributed to individual services are allocated among services on the basis of some essentially arbitrary basis, such as relative minutes of use, circuit miles, etc. For a description of FDC allocators and the welfare effects of employing them, see Ronald R. Braeutigam, "An Analysis of Fully Distributed Cost Pricing in Regulated Industries," The Bell Journal of Economics, Spring 1980, pp. 182-196.

[67] *Id.*

overcharged anyway.[68] Moreover, this approach assumes that all directly assignable costs have been identified and assigned correctly. This is a heroic assumption given the complexity of both the technology and the cost manuals.

D. The Tariff Review Process Is Flawed

The FCC's ability to prevent the anticompetitive pricing and discrimination is severely limited. For the most part, the Rules described above are enforced through the tariff review and the complaint processes. A detailed examination of how these processes actually work demonstrates that they do not prevent the RBOCs from exercising market power.

There are three fundamental problems. First, the lack of any credible threat of meaningful enforcement or serious penalties for violations robs the system of any deterrent value. Violations seldom carry any sanctions. Second, when investigations or enforcement proceedings are initiated, they take so long to complete that the competitive harm can be substantial. Their competitive affiliates can take advantage of any unlawful pricing while the rates are in effect. Thus, there is little incentive for the RBOCs to "get it right"in the first place. Finally, given scarce Commission resources, an avalanche of RBOC filings precludes thorough regulatory review of most of their actions. Commission resource constraints are discussed next.

E. The Commission's Resources Are Inadequate

Commission resources are traditionally insufficient to police tariffs, even when the rules being enforced are clear and sufficiently detailed. The Tariff Division, which is responsible for evaluating RBOC tariffs, received about 2,700 tariff filings and over 200,000 pages of support

---

[68] See Kenneth Baseman, "Open Entry and Cross-Subsidization in Regulated Markets," in Gary Fromm, ed., Studies in Public Regulation, 1981.

information in 1990.[69] Due to resource constraints, the Commission no longer collects this tariff filing information. In addition to reviewing tariffs, the Division is responsible for docketed Investigations, Rulemakings, Petitions for Reconsideration, Applications for Review of prior orders, and Petitions for Waivers of the Rules. The authorized strength of the Tariff Division is 17 lawyers and 11 economists or public utility specialists.[70]

The Commission as a whole does not have the resources to move into the Tariff Division or into the Accounting and Audits or Enforcement Divisions, which are also key links in the Commission's enforcement chain. A May 24, 1993 letter from then Chairman Quello to the Chairman of the House Committee on Government Operations bears quoting in detail:

> The Commission has considered the possibility of increasing audit resources by reassigning staff from other Common Carrier Bureau (CCB) operations. However, all other CCB operations also face severe staffing shortages coupled with increasing workloads. This is the result of the same budgetary constraints that have prevented us from hiring additional auditors. For example, the volume of formal complaints filed with the CCB Enforcement Division almost tripled from 51 in FY 1985 to 133 in FY 1992 -- and even reached a high of 458 in FY 1990. These complaints are becoming more complex as parties use the formal complaint process to resolve private disputes, often involving substantial dollar amounts. Yet the formal complaints staff, after doubling the number of formal complaint attorneys between FY 1989-92, still numbers only 23 -- including 2 paralegals, a secretary and a clerk trainee.[71]

---

[69] These data were collected by the Tariff Division.

[70] One of the results of this chronic shortage of resources is that there is no official record of tariff filings available to the public. The accuracy of the informal tariff log that is available is not guaranteed, and entries are sometimes missing. The streamlined notice period that affects many tariffs makes filing a petition almost impossible. In these cases petitions must be filed six days (counting holidays) from the time a tariff is filed. In the absence of an official tariff log, parties lose a day at a minimum, or worse never even know about a tariff filing.

[71] Letter from James Quello to Honorable John Conyers, May 24, 1993, p. 2.