has been in place long enough for the bugs to be worked out and the pricing proven effective. Given the increasing likelihood of federal legislation in this area, it is already late to start this process.

RBOCs have made clear that they want to be able to offer full service packages of local and long distance service to their customers. Put simply, they want complete instead of partial account control over end users. Today LECs sell local service to 100% of their potential customers, and share long distance revenues with IXCs through access payments. RBOCs make no secret that their goal is to capture the balance of long distance revenues by offering long distance services directly to their end users.

In these circumstances, IXCs must be able to compete by offering full service packages themselves. But as discussed above, this only will be possible if the RBOCs are providing a nondiscriminatory "carrier's carrier" wholesale local service product that IXCs can pair with their long distance service inputs to create a full service retail offering of their own. This is true even for -- and perhaps especially for -- the largest IXCs. Note that a new entrant like MFS has no long distance customer base to defend. It can gradually build a full-service customer base using unbundled loops if that is the only option available, moving slowly from customer to customer and geographic zone to zone. But IXCs face a different situation entirely. RBOCs will immediately be able to offer one-stop shopping to every one of an IXC's customers -- and of course each of those customers already is an RBOC customer today. Every IXC therefore must be able to offer local service itself -- immediately and everywhere. Only wholesale local exchange service provides that vehicle.

It should be emphasized that the RBOCs themselves can readily subscribe to wholesale interexchange services that already exist. These "carrier's carrier" products have developed and matured over the past ten years such that RBOCs will have the benefit of both (a) competitive pricing, and (b) well-established operational support systems.

Thus, if the MFJ's restrictions are lifted, the RBOCs would enjoy what effectively amounts to a 10-year head start on providing a package of local and long distance services. These companies would immediately benefit from a long distance industry that has evolved to the point where <u>four</u> carriers with national networks now compete for both <u>wholesale</u> and retail business. In fact, LDDS WorldCom's WilTel subsidiary, was specifically established to serve as a "carrier's carrier," with wholesale products expressly designed to facilitate the entry of other retail providers without their having to invest in any transmission or switching equipment.

These carrier's carrier wholesale services have been thoroughly debugged -- support systems are designed and operational, prices established, billing arrangements automated -- resulting in a wholesale interexchange platform that eliminates (or, at least greatly reduces) any barrier to entering the long distance marketplace. And competitive forces drive the wholesale rates far below the facilities carriers' own retail long distance prices.

The RBOCs (absent their legal restriction) would be able to begin offering long distance services immediately by capitalizing on these wholesale services. The RBOCs would not need to invest in a single switch or strand of optical fiber; they would not need to obtain a single right of way or negotiate a single interconnection agreement. They could simply subscribe to a wholesale "carrier's carrier" service and begin marketing long distance services to their preexisting base of local customers, a base that effectively represents the entire retail market.

Of course, most RBOCs are well positioned to provide long distance service even beyond the availability of these "carrier's carrier" wholesale services. As shown in Table 1 above, the RBOCs have extensive switching systems that already handle all local and toll calls. These systems would require insignificant changes to handle additional interLATA traffic. Furthermore, RBOCs can readily expand their heavily redundant in-region fiber networks for interLATA service. 10/

Given these facts, it is not an overstatement to suggest that the telecommunications market will reconcentrate unless a non-discriminatory wholesale local exchange product is in operation at the time the MFJ is lifted. This product must be priced at nondiscriminatory levels and be fully debugged as an operational matter. But this means the wholesale service must have been up, running, and shown to be effective -- all before the MFJ restrictions are lifted. The next section of this paper discusses the elements of wholesale service more specifically.

II. THE BASIC ELEMENTS OF CARRIER'S CARRIER WHOLESALE LOCAL SERVICE

We have explained that the wholesale local service product is directly analogous to the wholesale carrier's carrier products used in the interexchange market today. Under the "wholesale service" model, the incumbent's exchange network (including the loop, switch and transport) would continue to provide the underlying dial tone, call completion, and optional capabilities that are provided by

10/ See Fiber Deployment Update for End of Year 1992 (FCC Industry Analysis Division, April 1993), Table 9.

the exchange switch: call waiting, call forwarding, and so on. The retail local service company would then resell the wholesale service along with its own customer support, billing, account management and other services, including long distance service, that can be offered independently of the local exchange switch.

It is important to reemphasize that the wholesale local service and unbundled loop options are not mutually exclusive. Some entrants will employ both configurations, serving some customers from their switch and others by reselling the wholesale service offered by the local exchange carrier. Furthermore, entrants sometimes will rely on their own network to connect directly to certain customers (thereby avoiding use of the incumbent's local loop altogether.) As discussed above, however, the predominant means of serving most customers, particularly at first, will be through the bundled wholesale service.

Although little formal analysis has been devoted to developing wholesale local exchange services, progress is underway in a number of areas. The pioneer application of the "carrier's carrier" concept to the local exchange arena is the restructure of Rochester Telephone Company in New York. This company is the first to offer a wholesale equivalent to each of its exchange services that other carriers can buy and resell. Not surprisingly, however, this experience has revealed a number of problems that must be resolved for the option to become commercially viable. 11/

11/ The usefulness of Rochester's wholesale service has evidently been frustrated by problems with operational support systems and pricing, particularly the relationship between the LEC's wholesale and retail prices. The principal lesson of the Rochester experience, however, is the importance of beginning a local competition experiment in order to gain the knowledge needed to transform theories into workable solutions.

Similarly, the Department of Justice has included a requirement in its Customers First agreement with Ameritech conditioning the interLATA "trial" on provision of wholesale local exchange services to other carriers (in addition to unbundled network components) on a basis that makes resale competition commercially feasible. The introduction of a wholesale service is expected to be one of the Illinois Commerce Commission's first priorities in moving forward with competition in the Chicago LATA. 12/ However, Ameritech has not yet filed its proposal for wholesale exchange services, and the issue is sure to be litigated.

This is only a start. Much work remains for Commissions across the country to develop, implement, evaluate, (and inevitably correct) the initial wholesale local services of the LECs. In general terms, the objective will be to create wholesale products that permit non-discriminatory use of the local exchange network by any provider of retail service -- including, in its capacity as a retail provider, the incumbent LEC itself. This matter involves at least two dimensions: pricing and operational support.

A. Pricing

The most obvious issue that must be resolved for a meaningful local exchange service is pricing. LECs already are engaged in rear-guard battles

12/ The Justice Department has made clear that it views wholesale local service as central to the Ameritech "Customers First" experiment. The Department recently advised Judge Greene that "a comprehensive state regulatory proceeding [in Illinois and Michigan] can address essential issues such as pricing and wholesale discounts, and thus * * * hasten the day when resale competition becomes a practical reality and satisfies the requirement of the proposed order that resale be allowed and that 'substantial opportunities for additional local exchange competition' emerge," before the start of the interLATA trial. See Reply Memorandum of the United States in Support of its Motion for Modification of the Decree to Permit a Limited Trial of Interexchange Service by Ameritech, U.S. v. AT&T, Civ. Action No. 82-0192, at 17-18 (June 30, 1995).

regarding the pricing of unbundled loops and local termination service. There is no reason to expect them to willingly offer a non-discriminatory wholesale service either. Commissions will have to play the central role in controlling LEC incentives to discriminate in favor of their own retail services.

Establishing appropriate wholesale exchange prices must consider two factors. First, the price should appropriately reflect the lower cost to provide a wholesale service than a retail offering. Costs which can be avoided typically include retail marketing, billing, administration and customer service. These "avoided costs" will explain part of the price differential between the LEC's wholesale and retail services.

Second, and at least as important, the contribution 13/ recovered in wholesale exchange service must also be addressed. Discrimination in contribution recovery can doom a new entrant's ability to compete with the LEC's retail prices. In particular, regulators should recognize that when a LEC's wholesale local service is resold, the LEC necessarily receives other revenue streams attached to the loop and switch serving the customer. The most obvious of these is interexchange access. Most switched access charges are levied against local switching minutes. Because the local telephone company performs the local switching under the wholesale configuration, it would continue to receive the revenues from all access rate elements associated with the local switch. Similarly, the LEC will receive contribution from other ancillary switch-based services. 14/

13/ Contribution as used here refers to the contribution to the joint and common costs of the LEC. The term is not intended to imply any socially determined contribution or subsidy.

14/ The claim that local exchange service is priced below its cost is reached by ignoring these other revenue streams that are inherently tied to the provision of

One approach to establishing appropriate contribution recovery in wholesale price levels is to assure that the LEC receives the same contribution whether its wholesale loop and termination service is sold on an "unbundled" or "bundled" basis. This "equal-contribution/non-discrimination" approach recognizes that additional (high margin) revenue streams such as access remain with the incumbent under the bundled wholesale local service option. In contrast, under the loop-unbundling configuration the entrant performs the local switching, and would apply switched access charges and receive switched access revenues. The "loop reseller" also would receive all revenue associated with vertical switching services. Table 2 summarizes the different contribution sources to the LEC under these alternative configurations.

local exchange service. Wholesale local service shifts customer account control because the end user looks to the retail provider as its vendor. But the LEC continues to receive not only the wholesale local service rate, but also switched access charges and revenue for wholesale vertical features.

Table 2: Comparing Loop Unbundling with Wholesale

	Loop Unbundling	Wholesale
Services Local Competitor Obtains from LEC:	* Loop * Termination of Local Service (i.e., interconnection)	* Wholesale Local Service which includes: - Loop - Local Switching - Local Call Termination * Wholesale Switch-Based Vertical Services
LEC then Receives Contribution from:	* Charges for unbundled loop * Charges for local termination	* Charges for wholesale local exchange service * Most carrier access charges, including - CCLC - RIC - Local switching * Charges for wholesale switch-based vertical services including - call waiting - call forwarding

Few would dispute that existing contribution levels in access and other services are excessive and must be corrected. Discrimination also is a large competitive problem in part because the incremental cost of existing LEC services is so low, and hence the LEC can have great discretion to impose contribution on its rivals without "pricing below cost." These are problems endemic to the creation of local competition that go beyond the scope of this paper.

For present purposes, we note that loop unbundling will require regulators to assign some measure of contribution to unbundled service elements. That contribution provides a benchmark for setting wholesale service rates. Under an "equal-contribution/nondiscrimination" standard, the incumbent LEC would receive essentially the same total contribution from the wholesale service product -- plus other services it continues to sell -- as it does from competitors using the unbundled-loop configuration. That is, the contribution from (a) the sum of the wholesale local service charges (including the wholesale rate for optional features) plus the LEC-retained switched access charges, should roughly equal (b) the contribution recovered from the unbundled loop charges (i.e., the charges for the unbundled loop and traffic termination).

This means that wholesale local exchange service rates should contain less contribution than unbundled loops to reflect the fact that the LEC will continue to earn contribution from other services, such as switched access, that continue to generate LEC revenue under this configuration. 15/ In contrast, the unbundled loop should carry relatively more contribution in its wholesale rate, because the carrier purchasing that loop can then recover that additional contribution cost in its own charges for access and other services.

It should be emphasized that under this "equal contribution" methodology wholesale local service does not result in less contribution to the LEC

15/ Eventually, switched access prices must be reduced to cost. At that point, a single cost-based wholesale tariff structure should emerge with rates for wholesale exchange services, unbundled network components, call termination service and interexchange access.

than that due from a carrier purchasing unbundled loops. It simply means that the LEC receives the contribution in a different form. For example, under loop unbundling the loop "reseller" will make a single payment that includes all the contribution associated with use of the LEC loop. The loop "reseller" also presumably will pay contribution in its termination charges. Alternatively, the LEC may receive contribution from several sources collectively: wholesale local service charged to the local service company, originating access charged to the customer's presubscribed long distance company, and terminating access.

The "equal contribution/nondiscrimination" standard ensures that a new entrant's decision to use unbundled loops rather than wholesale local service is driven by the true cost savings from providing its own switching -- and not simply a LEC's decision to impose larger contribution burden on the wholesale service option. And this approach is particularly important given that, for the reasons discussed above, LECs initially may have an incentive to encourage local competition through unbundled loops rather than bundled wholesale service because loops are so much less effective as an entry vehicle.

Again, the existing contribution levels in access (and other) services are excessive and must be corrected. Meanwhile, however, it is possible to establish wholesale local service rates at levels where LECs recover permitted contribution, but retail local competition is not distorted.

B. Operational Issues

It is clear that one of the continuing problems with the wholesale arrangement in the Rochester area is the absence of carrier-interfaces needed to support the service on a non-discriminatory basis. The fact of the matter is that each of the wholesale configurations -- bundled service and unbundled-loops -- is breaking new ground. As a result, the key is to establish basic obligations (such as non-discrimination between LEC retail services and those of other vendors in order processing, service intervals, maintenance, etc.) and remain committed and involved during implementation to resolve disputes. Specific LEC systems must be modified to support an environment of multiple retail carriers, including:

a. Service Ordering
b. Installation
c. Number Assignment
d. Billing
e. Customer Account Record Exchange (CARE)
f. Repair
g. Network Status

Today, these systems are integrated into the LEC's retail operational structure and are designed for a single-provider environment. To prevent discrimination in these important customer-contact areas, these systems must be modified to support competius of independent retail operations, including the LEC's own retail systems:

a. Automated systems are needed so that service orders can be executed in a manner that permits LEC competitors to provide firm commitment dates to their customers.

b. Standards must be developed to govern the exchange of billing data and CARE records so that changes in customer billing and or accounts can be automatically handled by each retail local service provider.

c. All local carriers must have on-line access to number administration systems to meet customer expectations for number assignment.

d. All local carriers must be able to provide on-line scheduling of customer appointments for installation or repair.

e. All local carriers should receive notice of unplanned network outages affecting customers through automated systems to properly prepare customer account teams to respond to customer requests for information.

f. Disaster recovery plans need to be established that provide for the non-discriminatory restoration of service to customers, irrespective of their retail local service provider.

To police the non-discrimination obligations outlined above, monitoring and measurement systems will need to be established, implemented and (no doubt) refined with actual experience. Performance audits are needed to ensure equivalent treatment by the LEC wholesale operation of both its own affiliated retail operations, and those of carriers retailing the LEC's wholesale services.

Finally, commissions will need to create other safeguards. For instance, the interexchange PIC-change process is highly automated and time-tested. In contrast, the systems needed to transfer an end user from the LEC to a new local carrier using the LEC's wholesale service all will be new and, at least at the beginning, are unlikely to be as automated or have as low an error-rate as the PIC-change process. The concern is that an RBOC might be able to use PIC changes to convert thousands of interexchange customers a week to its services, while IXCs might only be able to convert several dozen wholesale local service customers a week due to system problems. In that event the telecommunications market could rapidly become unbalanced, even assuming a non-discriminatory wholesale local exchange service otherwise was available. "Safety brakes" may be necessary to prevent RBOCs from unfairly dominating the full-service market at a time when only they have the operational means to offer one-stop shopping.

III. OTHER COMPETITIVE ISSUES RAISED BY WHOLESALE SERVICE

As state commissions consider wholesale local exchange service further, other issues and problems inevitably will need to be addressed. However, as this paper explains, the process of experimentation with wholesale local service must begin. If LECs do not create such a service in the first place, at best local competition will be slow and sporadic to develop. At worst -- assuming MFJ relief for the RBOCs -- the telecommunications market could reconcentrate because only the RBOCs would be able to meet customer preferences for full-service, one-stop shopping. Inadequate competition in the local market, would thus poison existing competition in the long distance market, and reduce existing consumer choice.

This paper is intended to discuss only the general issue of wholesale local service. However, it is worth noting briefly here two issues that inevitably will have to be considered as this service is developed.

A. Regulation and Separation

A serious question exists regarding how regulators actually will prevent LECs from engaging in anticompetitive discrimination in the pricing and operational areas discussed above. It is one thing to establish a non-discrimination standard; it is another to enforce one. Of course, the Bell System was broken up a decade ago out of a view that no other remedy would prevent AT&T from using its control of the local facilities network to engage in access discrimination, and hence no other remedy would permit long distance competition to evolve.

A LEC has the same incentive to prevent new rivals from using its local facilities network to compete in the local market, presenting a serious challenge to regulators. At once the stakes are very high, and the resource requirements enormous. Commissions are familiar with this issue from debates over intraLATA toll competition. Enforcement of access imputation rules and other non-discrimination standards have been difficult to say the least. Yet if discrimination in the use of the LEC network for retail service competition is allowed, then local competition will fail, potentially bringing long distance down with it.

The discrimination problem is recognized in the context of access for long distance service through proposals that the RBOCs provide retail long distance through a separate subsidiary, buying access from the operating company at arm's length and under tariff. It is assumed that this will permit little or no regulation of the RBOC's retail toll services, with regulatory attention instead focused on making sure that there is no discrimination in the wholesale access input to long distance.

Logically, similar separation of LEC retail local services from the wholesale network company would simplify the task of regulators and allow retail local prices also to respond more freely to competitive market pressures. For example, the RBOC "long distance" subsidiary could become the RBOC "competitive retail service" subsidiary, purchasing both the inputs of wholesale interexchange access and wholesale local exchange service (or unbundled local service elements) from the wholesale operating company. This approach similarly would enable regulators to more readily enforce nondiscrimination standards against the wholesale network company, while allowing retail prices to respond to the market. 16/

This issue is better the subject of an independent paper in its own right. However, we raise the issue here to emphasize that state commissions must

---

16/ Under this approach the wholesale LEC operating company would discontinue retailing local service to new customers, eliminating its incentive to discriminate in favor of itself, and allowing attention to focus on how evenly the operating company treats all local service retailers, including its own affiliate. The LEC's preexisting retail customer base would stay with the operating company for the time being, with the expectation that most customers would be won over by either the LEC competitive retail company or a LEC retail competitor.

focus from the outset on how to prevent LECs from discriminating in favor of their own retail local services -- through increased regulation, or alternatively through separation. This issue is as important as how and when commissions make the wholesale LEC network available to potential new entrants in the first place.

B. Wholesale Service Before InterLATA Relief

A common complaint of the RBOCs is that they should not be required to offer a wholesale local exchange product until they are allowed to market interLATA services. This argument may have superficial appeal, but it should be rejected.

First, the wholesale local service product provides RBOCs with essentially the same revenue they receive today. They would still receive access revenue, contribution, and the local service revenue that they otherwise receive when they sell service to the customer directly (except avoided retail costs). As a result, this approach is much less onerous to the RBOCs than real facilities-based competition.

Second, as discussed above, wholesale local service is undeveloped as a matter of both pricing and operational support. Regulatory tools for the ongoing prevention of discrimination also must be tested. It is critical that the service be up and working <u>before</u> the interLATA restriction is lifted. Only actual experience will identify how to make this service work in a pro-competitive manner. This is the view reflected in the Justice Department's "Customers First" Plan, and the Rochester difficulties only reemphasize the need for experience. The product must mature to the level of the wholesale interexchange products available on the market today.

Third, regulators need the carrot of interLATA relief in order to encourage the otherwise unwilling RBOCs to implement competitively useful wholesale services (and support the structural and regulatory tools needed to prevent future discrimination). Wholesale local service will engender more resistance from the RBOCs than mere loop unbundling because it actually can permit widespread retail service competition to develop. It is no accident that disputes about resale have become one of the primary areas of contention in the context of federal and state legislation. Wholesale local service, far more than unbundling, actually creates retail local competition. LECs will resist offering it on a non-discriminatory basis unless they have something to gain.

The only impact on the RBOCs of being required to offer wholesale local service now is that they may lose direct customer control over some percentage of their current base -- that is, they may no longer have direct control of 100% of the market when the interLATA restriction is lifted. But this is really a further argument for implementation of wholesale local service as soon as possible. The RBOCs have no "entitlement" to 100% market share, especially when every other carrier starts with far less. A drop in their retail market share would simply balance the starting point for full-service competition more equally (especially given that the RBOCs still would have nearly 100% market share for <u>wholesale</u> access and local service).

CONCLUSION

Local network arrangements in the future will not be altogether different than they are today: the incumbent local telephone company will continue to own the predominant (if not monopoly) local facilities network. The key to a highly competitive retail service environment -- *in spite* of the incumbent's

dominant position -- will be the structure and pricing of the incumbent's "carrier-to-carrier" wholesale services. And in particular, LECs must make available a wholesale local exchange service that other carriers can use to provide retail services in competition with each other and the LEC. Only such a service will establish widespread retail local competition for all consumers, not just those in a few dense urban areas..

Development of a competitively viable wholesale service is a critical priority, especially if the RBOCs are to be allowed to provide interexchange services any time in the near future. State commissions should begin this process now.