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Implementing ONA: Federal-State Partnership Needed To Connect Network Of Networks

PERSPECTIVE

BY ELI M. NOAM

First Of Two Parts

State regulatory commissions have only begun to explore Open Network Architecture.

New York and Maine have proceedings, California a task force, and several others have studies under way. Some states harbor suspicions of any idea initiated by the FCC, while others view ONA as an attempt to unchain the Bell operating companies. The FCC, for its part, sends out mixed messages to the states regarding its intentions.

Unfortunately, these perspectives, supplemented by conflicting invocations of jurisdiction, will not get the issues developed.

In a narrow sense, ONA is a process of granting equal access to enhanced service providers, or ESPs, while allowing provision of enhanced services by the BOCs. But understanding ONA requires a broader context. For two decades we have witnessed the erosion of a centralized and uniform monopoly network. Public policy tracked fundamental trends based on changes in the underlying economy and technology. These changes were first manifest in the United States, later in the United Kingdom and Japan, and are now reaching Western Europe. What is emerging is a system of great institutional, technical and legal complexity, which may be best described as a network of networks, serving different regions, user types, and software layers.

Whoever controls the rules of interconnection controls the network system itself. ONA deals with interconnection on the level of exchange services, and is the next logical step in the evolution of the network. The question is who controls the rules for such ONA interconnection: the FCC, the states, or both.

For the FCC to establish a federal predominance over interconnection to local exchanges is to establish federal control over local networks themselves; the contradictions in treatment of largely identical service elements would not permit a stable dual regulatory system to exist over time.

This leads to four major options:

1. An expulsion of the states from the area, which would create major political battles, deprive the policy field of a major source of innovation and experimentation, and eliminate an important element of policy stability.

2. Full federal withdrawal, producing a telecommunications Lebanon facing a world of telecommunications Japans.

3. Non-cooperative coexistence, characterized by continuing litigation, delay and uncertainty, manipulation by various industries' forum-shopping, and ultimate instability.

4. A collaborative approach, which establishes a balance between national uniformity and regional diversity.

Once Innovative, Now Cautious

There are, of course, important industry groups who desire uniformity in policy to facilitate technical standardization. But those parties usually are counting the obvious benefits without considering the hidden costs in terms of lost innovation and flexibility. A more careful analysis establishes the need for a system in which uniformity and diversity coexist.

There was a time, only about two years ago, when several regional Bell holding companies embraced ONA as a vision of the future. Some of their Computer III filings before the FCC showed innovative thinking, hinging deregulation and entry into information services on the opening and disaggregating of central office functions. Perhaps for the first time the Bells proposed making it easier for competitors to access the network. They seemed to understand that intense utilization of the network was in their own best interest.

But now, in their February ONA filings, the Bell companies have revealed considerably more caution. (In fairness, the FCC gave the regional holding companies little time to plan or implement.) Hence, the plans, while a step in the right direction, concentrate on the here and now, and largely repackage existing offerings or those features already contemplated.

Possibly, Judge Greene's initially more negative holdings on Bell participation in information services also had an impact. Possibly, too, the Bells wanted to keep down the cost of the unbundling process. Whatever the reason, the filings do not explicitly deal with several of the longer-range implications of ONA.

These long-range effects include:

- future competition in exchange services, including potential incursions across franchise territories by other local exchange carriers;
- enhanced possibilities of bypass and of private networks;
- built-in strains between the two main functions of local exchange carriers—local transport and exchange—that could lead in the future to full-scale structural separation;
- a move towards a "distributed" rather than centralized physical architecture of central office functions.

The Bypass Problem

The Bell filings talk almost exclusively about access for enhanced service providers, thus giving the impression that ONA is only about software networks. But the principles of interconnection and unbundling really go much further. The FCC has already decided that interstate ONA elements, while based on expressed ESP needs, should be available to anyone.

Whoever controls the rules of interconnection controls the network system itself.

This could also include a wide array of interconnectors such as AT&T; other interexchange carriers; long distance re-sellers; facilities bypassers; private networks; independent telcos; cellular operators, radio common carriers, other BOCs; and even foreign carriers.

There are major ramifications. For example, bypassers could transport interstate traffic (on their own or on leased lines) to the local telco's exchange, have it switched there, and take at least the interstate part (depending on state rules) of the rearranged traffic to its destination. Similarly, they could use the telephone companies' subscriber lines and switches to assemble their own networks.

The distinction between private fixed networks and public switched ones would blur further. Competitive regional and local exchange companies could emerge. And LECs may start to compete with each other for the business of switching the traffic of bypassers, independent telcos, or cellular operators. Similarly, interexchange carriers could in effect enter more effectively.

These are ONA scenarios for the future, though not a very distant one. They make participation more readily possible for small users. These changes must not be viewed as necessarily negative if they would lead to substantial technological innovation and cost efficiencies.

In any event, if the experience of two decades is a guide, such developments cannot be prevented in the long run by regulatory means. But they can be channeled to effect an orderly transition.

To deny states a role in this issue is to deny them their ability to affect the nature of local service. But to leave ONA interconnection entirely up to each state could create incompatibility. Local service is traditionally a state concern. Here, this responsibility overlaps with a federal policy of assuring unobstructed interconnection.

Next week: Is this what the FCC meant by "unbundling"?

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BSEs? BSAs? Federal-State Teamwork Is Key To Juggling ONA Issues

PERSPECTIVE

BY ELI M. NOAM

Second Of Two Parts

The FCC intended Open Network Architecture as an aid to competition and innovation. A fundamental direction was that local exchange companies unbundle exchange services into discrete basic service elements, or BSEs, that could be bought separately and as needed by users.

However, apparently to prevent pure transport interconnection that would permit the piecemealing and bypassing of their networks and challenge the existing pricing structure, the regional Bell holding companies now uniformly seek to establish something called BSAs, or basic serving arrangements.

BSAs consist of two or three elements: an access link from the interconnector to the central office; basic central office functions; and, sometimes, transport between central offices.

Different types of BSAs are offered, analogous to present access-line arrangements, such as circuit- and packet-switching service or private-line circuits. By establishing BSAs the Bells in effect sidestep an important part of unbundling. To mix metaphors, they unbundle the bells and whistles, but not the meat and potatoes. Basic switching is not considered a BSE; only the feature add-ons are. Thus, in order to get a BSE, one first needs a BSA, and sometimes a particular BSA, such as a private line.

Illustration by Marcin Kuriowski

The Bell companies, according to their filings, may reject requested BSEs because they are technically infeasible, impractical to unbundle or to bill; are uneconomical to provide; require excessive customization; or are out of bounds under the court-enforced divestiture rules. In some Bell plans a potential factor for rejection includes a negative revenue or technical impact on already existing or potential services.

It is important to recognize just how complicated these questions are. How finely unbundled should BSEs be? How fast should they be deployed? Who should pay for their development? How standardized should they be across the country and across customers? How customized can they be, and if so, how should the costs be distributed? Can BSEs be resold? What should the extent of facility unbundling be, when at the same time technological forces strengthen the importance of integration, such as in ISDN and integrated broadband networks?

Coordination, Resolution

Unavoidably, friction will develop in the process of developing and implementing ONA. A key element, therefore, is a system of dispute resolution.

States do not favor the Federal-State Joint Board arrangement as a model for cooperation, because it leaves the FCC in the driver's seat. Given the federal agency's view that local exchange issues are part of its traditional jurisdiction under the 1934 Communications Act, the FCC insists on parity at the least.

An ONA coordinating mechanism could have a form such as the following dual system:

(A) An intergovernmental ONA forum of the FCC and the states, a body charged with coordinating the various jurisdictional policy interests. It could, for example, establish a hierarchy of uniformity, by defining certain basic functions whose national uniformity is deemed essential and establishing others where regional or local diversity is possible. State regulators may want to constitute themselves into regional forums—again with FCC representation.

(B) A private-sector ONA forum, which would include a balanced representation, including local exchange carriers, enhanced-service providers and equipment manufacturers, as well as telecommunications users, both commercial and residential. The T1 Committee is one model. This body would be responsible, in the first instance, for technical coordination, standards, BSE definitions and dispute resolution. It would operate in a flexible and informal fashion rather than be bound by the traditional regulatory process. Agreements would be reviewed by the intergovernmental ONA forum and forwarded to the FCC and the states for their adoption, if the respective regulatory bodies so chose.

In those cases where the private-sector ONA forum could not reach agreement within a specified and fairly short period, mandatory arbitration would govern. On issues of great importance the intergovernmental ONA forum might choose to make the initial determination instead of an arbitrator.

Pricing

The Bell companies seem to accept the prospect of state regulation of ONA pricing. On the other hand, most enhanced-service providers maintain that they want nationally uniform rules and rates, service definitions, interfaces, installation, even administrative procedures—at least for "standard" BSEs.

This is an understandable interest on the part of ESPs, many of which are fledgling firms that desire compatibility and portability around the country. But the need for national uniformity in pricing of BSEs and BSAs is not as compelling as for, say, basic protocol standardization—as long as pricing is not used to manipulate the competitive environment. It makes no sense to have uniform prices or pricing rules across the country without regard to local costs, conditions of demand, alternative offerings, technological state of the network and demographic and economic characteristics.

No doubt, the desire for national uniformity will lead to calls for a federal pre-emption of conflicting state pricing regulation. But such pre-emption will not work, because it cannot be limited to ONA. It would establish prices for BSEs or BSAs that are, as likely as not, different from those of comparable services presently tariffed by the states for intrastate use. This creates the potential for arbitrage and conflict.

One can therefore have uniformity only if one pre-empts state tariffing of most services, and not just of BSEs: in other words, if state rate regulation is largely cut off. To do so would be an unprecedented challenge to federalism in telecommunications regulation, and would be unwise in almost any respect. Furthermore, because price determines the quantity of demand, taking pricing out of states' hands also denies them an essential tool for another of their traditional goals, that of assuring universal service.

A large number of questions need to be resolved. Who should

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Perspective: ONA Requires Federal-State Teamwork

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bear the risk of developing and introducing BSEs (and BSAs, if approved)? States do not want to see ratepayers become involuntary venture capitalists. Must each BSE/BSA be priced according to the same principle, or depending on market conditions? At any given time, some BSEs/BSAs may face competitive offerings, while others will not. Must each BSE's/BSA's revenue cover its own cost, or only in the aggregate? And if not, could there be cross-subsidization that would distort competition? Conversely, could BSEs be defined so finely as to permit undue price discrimination between users? How much flexibility should there be in the rates? Similarly, should it be possible for an ESP to obtain exclusivity to a BSE in return for its special development? Which cost definition is used—average, incremental, fully distributed, something else?

Level Playing Ground?

ONA is designed to equalize competitive conditions for the broad array of interconnecting parties, such as ESPs, and to permit the Bell operating companies to enter activities from which they had been either precluded or subjected to complicated forms of organizational structure. Some of the advantages of a BOC "home field" have been addressed by the FCC and the Bell plans, including unequal access to technical standards. But other concerns remain.

The BOCs are requiring ESPs to provide supporting marketing information in order to assess demand for a new BSE. Thus, the ESPs could alert the Bells to potential market opportunities. (To their credit, some Bell companies have identified this possible conflict and have established BSE reviewers separate from ESP-BOC product managers.) And if the BOCs undertake their own studies of the feasibility of BSEs, ratepayers as well as non-affiliated ESPs must be protected, as in the FCC's "Part X" rules, from bearing the cost of developing information that may benefit the BOC-ESPs.

Outlook

The BOCs' long-range interest is in a smoothly working ONA system. It would be a historic mistake for them to stall ESPs. AT&T dragged its feet on interconnecting competing long distance carriers, and eventually the political-legal process became frustrated enough to seek the meat-cleaver approach of divestiture. If the BOCs were to use interconnection as a strategic tool to repress competition, they may be threatened, in a decade or two, by a similar fate, and their exchange operations may become organizationally separated from their transmission functions.

Open Network Architecture is a sensible concept. Moreover, ONA-type interconnection is unavoidable in the long term, and within the historical trend of opening the network to new entrants.

In the process, the traditional centralized and hierarchical system becomes transformed into a network of networks. Interconnection of hardware and software networks becomes a central issue, and control over interconnection a key element of regulatory supervision. To squeeze the states out of this area is to deny them participation in the control of future telecommunications structure. Yet, for states to fight the principle of open interconnection is to tilt at windmills.

The complex and interdependent web of ONA issues cannot be resolved by independent actions by federal and state jurisdictions, and certainly not by pre-emption. States also may have to coordinate their policies among themselves to avoid inconsistent treatment of the Bell companies operating in their jurisdictions, and undesirable increases in "tariff shopping." What is needed is a collaborative effort, based on agreed-upon institutions. To be result-oriented in seeking pre-emption is extremely short-sighted. Presidents, commissioners and policy preferences come and go, but the federal system, with its balances, must continue.