# State Regulation and Upgrading ISDN

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# State Regulation and Upgrading to ISDN

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Many people are interested in what state regulators do in far-off places like Albany, Bismarck, Springfield, Montpelier, and Augusta that relates to ISDN. But why, exactly? It can be partly explained by what can be called the myth of the state regulator as the "noble savage." That is, the notion that in all these provincial capitals there is a lot of regulatory creativity, originality, truth, and wisdom just waiting to be unearthed by the rest of the world. That is the 'nobility' part. The 'savage' part I will leave to others to describe. People who deal with new ISDN technologies and applications are, no doubt, apprehensive about how states will treat them.

Stepping back, it is important to recognize how anomalous it is to have a decentralized regulatory system of regulation in telecommunications. Nobody else does it. Since last month, after the Canadian Supreme Court's unanimous decision in the AGT case which left the provinces with hardly any regulatory powers, the United States seems to be the only country left with a federal as opposed to a centralized telecommunications regulatory system.

In the historic transformation of the network system, which will continue unabated for a long time, the states were often on the traditionalist side. For example, the states -- though not New York --opposed the Carterfone ruling which permitted the

reign of overpriced rented black rotary phones.

In recent years the state's pro-monopoly line has softened substantially, and this is important to recognize, but it has been a slow and uneven process.

The past years have been full of turf battles between the states and the FCC, interrupted by laudable attempts at working things out. Generally, the states have felt that the cost of deregulation has been dumped on them by the Federal government, which basks in the glory of innovation while the state commissions have to raise local rates that make people mad at them. Many commissioners are directly elected by the people. At other times, the states have read jurisdictional expansionism into much of what the FCC has proposed. And of course stakeholder groups were engaging in "forum shopping," playing off Washington and the states, or trying to shop among states for favorable treatment.

Part of the problem of state regulation is structural. State commissioners are basically intelligent, honest and well-intentioned as individuals. They may not have started out as communications experts, but neither have most FCC commissioners. But they are not as strong collectively as they are individually. Given the diversity of states, it is much easier to rally consensus around a negative position, than to fashion a positive alternative. When it comes to upgrading the network, states know what they do not want. They do not want rates to go up and they do not want the FCC to squeeze them out. But rarely will they have a positive policy aimed at upgrade as a conscious policy. Changing that is

a slow process.

I, too, had to undergo some change of mind -- from skepticism about ISDN in the past to support now.

What were the problems that I saw as a regulator? One must step back and understand that the term "ISDN" encompasses several sub-concepts, and thus some confusion exists about its primary rationale. It is, first, a movement towards digitalization. As such, it continues a development of several decades and makes sense.

The second element of ISDN is that of upgrading the telecommunication network to a higher transmission rate. Again, this makes sense.

The third element of ISDN is integration of networks, and is weaker in its rationale. ISDN claims to put together separate communications networks into one unified super-pipe. From the technologist's perspective, this is a more elegant solution than duplication and multiplication.

Almost all ISDN studies start out invoking the wasteful existence of several parallel telecommunications networks. The classical arguments in favor of integration are the benefits of "economies of scale" and the joint production benefits of "economies of scope."

That such economies exists is generally asserted by ISDN proponents as a matter of a priori reasoning, though they have not been empirically demonstrated in publicly available studies. The same logic -- that substitute and complementary products are

cheaper if jointly provided -- applies similarly to such product pairs as orange juice and beer, beer and aluminum cans, etc.

Ultimately, if one wants to eliminate all duplication, the economy should consist of one giant integrated enterprise. But this would be absurd. Thus, the significance of economies of scale and scope is not necessarily as simple a matter as it may appear at first. For their proper evaluation, one must quantify the magnitudes involved and evaluate cost.

This was only one of the problems with the case for integration. But I did not think that the advocates of ISDN had done their homework outside the lab.

Another problem was that investing in ISDN seemed like buying a computer -- one can never afford this year's model, but why buy last year's? In other words, why not go for broadband ISDN?

The result of these doubts was a lengthy paper pointing out some of the deficiencies of the public policy debate over ISDN. But new evidence intervened to change my mind. Perhaps the main factor was attending the ITU's big Geneva trade show that takes place every four years.

At the 1988 event it became evident to me that whatever the niceties of the theoretical arguments, ISDN was becoming very much a technological reality. So the choice was not anymore: should there be ISDN; but rather: should the US have no ISDN while other countries are clearly on their way to its implementation, and while their equipment firms were making progress in its adoption?

And there was another factor. In the past policy makers had

focused on making telecommunications more competitive. I still think it is the right way to go, and that it is working. And ultimately, it is not really a matter of choice. There are fundamental forces at work which governments can block only so long. But for policy makers with a pro-competition orientation such as myself, the concept of ISDN is suspect, and for the following reason:

ISDN posed possibilities for raising the barriers to competitive entry. If it could do everything, was there room for others? This was no idle speculation. The greatest advocates of ISDN were the European PTTs. They saw ISDN as a way to consolidate their control and raise entry barriers. The PTTs' implicit slogan, in response to challenges to their monopoly, was "if one system can provide all of your telecommunications needs, why go anywhere else?"

But that ignored fundamental changes taking place in the network environment.

For several decades two opposing forces have been transforming the traditional world of telecommunications. One force is technological in nature, is unifying and integrative. Narrowband and broadband ISDN networks are examples. The second force is social and economic in nature, and is fragmenting, is diversifying, and tends to split things apart. The growth of extensive private networks and distributed network intelligence are examples of this force.

We are rapidly moving from the one large monolithic network

towards a decentralized and segmented federation of public, private and semi-public networks. In effect, a network of networks -- domestic and multi-national, hardware and software, specialized and general, private and public. It is a very untidy affair, and it makes people nervous who like things well-organized and compartmentalized. I like to use the term the pluralistic network to describe the new environment.

To some extent, these two forces, technical integration and institutional diversification, are substitutes for each other. In order to advance technologically, one can upgrade a network by more powerful integration. Or one can bet on the impact of more competitive diversity.

The European monopoly PTTs have stressed ISDN and integration. The US mostly follows the path of diversity, which has been a traditional strength of its society in general. Japan, not surprisingly, is the most balanced in combining a major push both in diversity and integration.

Recent policy initiatives, such as ONA-type unbundling, are for the United States one way of increasing diversity. But they don't do much for integration. In fact, they will accelerate the centrifugal forces in the network. It will make it harder than ever to have compatibility in an environment where the integrated long-range planning of the old Ma Bell has not been replaced.
I come increasingly to recognize that if you do something for diversity, you also have to do something for the integration of all those pieces. Otherwise the system will become disjointed and

less innovative than it could be.

Take the English language as an example. Its spelling -- which is a form of a standard or protocol -- is weird, to say the least, and yet it is almost impossible to do anything about it, because nobody is in charge, and nobody can afford to be incompatible, with the exception of a few eccentric poets.

The implication is not to recreate a monopoly system but rather to keep in mind that diversity must be balanced with integration. Policy makers must act in a forward-looking manner and to provide the system with tools of integration.

Why is this such a concern? The global competitiveness of U.S. business is directly related to the state of its communications. Other nations are ceaselessly active in making economic inroads, using telecommunications as a strategic tool. Given their economic advantages in manufacturing, the only way to keep up with them is to stay ahead in information content, process intelligence, and innovation.

In telecommunications, the American network is still the best in the world. But the question is whether it can optimally create and absorb change for the future. One cannot coast on the accomplishments of the past.

Other industrialized countries have essentially completed the expansion of their basic networks. Universal service is something they have reached only in the past few years. But now they have begun to turn their monopoly networks and their often symbiotic equipment industries with full speed into more advanced activities,

and they are making progress.

Planning horizons in telecommunications are very long. We may be ahead right now, but what about the first derivative, the trend?

Network policy must be seen in the context of America's declining international position in advanced electronics technology. In just six years the trade deficit in electronics has turned from a $6 billion surplus to a huge $15 billion deficit. In telecommunications, the balance moved from a positive $800 million to a negative $2.7 billion. This is likely to get even worse, judging from the figures for newly registered terminal equipment.

What can state regulators do about this, if anything at all? One way is to encourage the upgrading of the network, or at least not to be a roadblock. ISDN is such an upgrade. But we must keep in mind that we have no monopoly system anymore. Therefore, we should think in terms of a doubly integrated digital network, or "I-square-SDN." It is integrated not only among the various types of services such as voice and data, which is what engineers love. But it is also integrated among BOCs, independent telcos, interexchange carriers, other networks such as metropolitan systems, etc. It helps open the network rather than raise barriers to entry. And that gets me back to New York.

When I got back from Geneva, I started talking with NYNEX and New York Tel about their ISDN plans. This turned out to be a bit frustrating. They were on the verge of announcing some big trial with a major user, but it did not happen. And there seemed to be

no notion of involving other carriers. After about half a year of this, I concluded that there was a role for the Commission to play. I do not believe in government getting involved in technology deployment issues, but on the other hand, it is not obvious why the pace of change should be left largely to the decisions of one company, where the essential infrastructure of the New York economy was at stake. At the least, it was our public obligation to ask some questions and be sure that things were on track.

One of my primary concerns was that New York State and particularly New York City remain nationally and internationally competitive in financial and other telecommunications and information-intensive industries. Other countries are making vigorous efforts to pursue ISDN as a conscious strategy of economic development. Other global business centers, such as London, Hong Kong, Singapore, and Tokyo are ceaselessly using network policy to compete with New York in global business.

In Albany, we made an effort to involve the PSC staff in these issues, but that, too, was a learning process. I wrote a document which we issued in September 1988, in which we asked for public comments about the need for upgrade of the network, about the role of ISDN, and about the responsibility of the commission. It was the first time a state had done this.

We received a good number of comments filed, but many were a bit disappointing. Most parties used the opportunity to push for their respective regulatory pet priorities of the moment, whether price caps, or collocation, or lower rates, or greater pricing

flexibility, etc. Many parties told us that there should be no involvement by regulators, except of course they had one or two "little problems" that we should take care of first. Everybody had different little problems.

Our staff was not quite sure how to handle this one. They started out thinking about giving the Commission the option of ordering ISDN on a large scale, or waiting to see what would happen. Eventually, we decided that we would initiate an ISDN trial in New York that would encompass multiple carriers. Or, to be more precise, that a plan for such a trial would be worked out by the industry and presented to us.

This resulted in an inter-industry group, meeting regularly, with subcommittees to deal with specifics. All this was chaired and coordinated by a PSC staff section chief. The goal was to have a plan before us this fall. Unfortunately, the NYNEX strike has thrown the schedule off track.

Because of the lack of ISDN interconnection standards, two trials were envisioned with each trial conducted by companies with compatible network facilities. New York Telephone and Teleport will participate simultaneously in both trials. The goal is to inter-network the two trials. Under our preliminary timetable, the separate trials were to begin next year, with inter-networking scheduled for the latter part of 1991. We are aware of the fact that not all technical standards have currently been set. And it has been suggested that we should wait. But one cannot ever have all one's ducks in a row. Much better to proceed on both fronts,

technical and regulatory. It is a trial, after all.

It is encouraging to see the likes of AT&T, Northern Telecom, MCI, New York Tel, Rochester Tel, Teleport and others take some steps in unison. And although the companies have not always thought that the PSC should become active, some of their experts have been satisfied that the ball got rolling.

Issues that the trial group has dealt with include:

- a non-disclosure agreement
- press release procedures
- customer selection
- applications development and specifications
- customer applications implementation
- trial charges (participating customers may not be charged for trial services beyond the normal tariffed services that they use. Customers may also receive ISDN interconnection and ISDN terminal equipment without charge, but must bear the costs of implementing their own internal applications.)
- trial results and analysis
- technical approaches
- schedule
- tracking of costs/cost recovery

The question of who will pay for the trial shows the potholes in the road ahead. The State Consumer Protection Board has already petitioned the Commission to reconsider its earlier determination that ratepayers, in effect, should bear part of the costs of the ISDN trial.

Part of the skepticism with ISDN is related to the lack of service development activity. It is difficult for many state regulators to accept ISDN if they can see no benefits to the proverbial "aunt Minnie." This suggests that procurement of ISDN must include the development of applications that the general public will find valuable. Personally, for all the advance applications that have been designed, the higher bit rate may be a major drawing point for general users, for example high-speed fax.

So how does it all add up? State regulators are not natural allies for ISDN. But (a) one cannot get around them, and (b) they can help by being a catalyst. One can enlist them with arguments of technological and economic development. One need not persuade all 51 state commissions. A few progressive and large states can get a start on momentum. Those involved in the technology of upgrading the network should be sure that they have prepared the regulatory ground, too.