

**The FCC as the National Systems-Integrator:
The New Paradigm for the 90s**

Statement of

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We deal here with "the vision thing." Let me start with the four broad trends.

1. Technical Integration. The future is one of integrated multimedia — the affordable digital superpipe that engineers dream of at night. Many hope or fear the possible resurrection of natural monopoly that such a superpipe might cause. But that is incorrect, because of the second force:

2. Institutional Centrifugalism — this is the stuff of lawyers and economists. Historic forces are at work that transform the centralized public network into a pluralistic federation of subnetworks, a network of networks. Already, more than one-third of telecom investment is by non-traditional carriers. And that does not even count what today we call the cable television industry, which in the future will become a multiservice provider, interconnected in both directions with what we now call telecommunications carriers.

3. Ubiquity is the third trend. The term "mobile" captures only part of this: Whereas in the past one could communicate only from points where the wirelines ran, now every square inch of territory becomes reachable, especially with such next-generation proposed satellite based systems such as Iridium or AMSC. Mobile phones are the off-road vehicles of telecommunications. With communications everywhere, they follow the user and become personal rather than locational.

4. Distance insensitivity means that the traditional organization of telecommunications along territorial lines is transcended. Networks will become organized along functional groups rather than territorial and spatial lines. Some of the ramifications are that specialized global networks will create not the world as the electronic village, but rather as a series of global electronic neighborhoods, of electronic quasi-jurisdictions.

What are the implications of these trends to policy makers?

First, there is nothing that requires a commission to bet on any particular technology.

A commission's role is not in the technology assessment business. It should be technology-neutral, neither picking nor suppressing. But that does not mean passivity. In fact, passivity would be disastrous, because it would let the centrifugal forces take over.

Instead, a Commission's role is to set the general direction and to support experimentation. The issues in the 80s were opening and liberalization. And here it is important to recognize just how successful and historic the policy of opening the markets has been. But that very success requires the Commission to play an active role in the 90s. The 90s issues are post-liberalization issues that require a new paradigm. These 90s issues will be marked by the "inter" words — interconnection, international, integration, intermedia, intelligence, and probably interstate, too.

In the past decade, policy was correctly focused on creating openness by reducing barriers and permitting entry. Now, with fragmentation of the network environment proceeding apace, the primary issue is to create tools and rules for **integration** that permit the continued **interoperability** of a "network of networks." This aspect of integrating the various networks is the new paradigm for a post-deregulatory environment. These issues are more difficult to deal with than the opening questions of the past, as the complexity of open network architecture has demonstrated, and so the task ahead will be much harder than the initial revolution of liberalization.

What in the current regulatory structure stands in the way of good things happening?

At last year's regulatory summit of the FCC with the state commissions, one commissioner from Colorado proposed as a solution to shoot every third lawyer. But this would be the easy way out. The first major problem is you yourself, the Commission. First, because you, just as most regulatory bodies, let the outside world largely set the agenda for you. I know as a former commissioner how easy it becomes to be swept away in the flood of all those proceedings whose source is shrouded in mystery, just as that of the

Nile was to those tilling the soil in Egypt. I'm not saying that outside interested parties shouldn't initiate cases. But the Commission's role isn't just to deal with the floods once they arrive, it's to predict flows, provide channels, and protect low-lying lands. To do so, you need to form a coherent network philosophy for the 90s — which I'm not sure you always have done — and then initiate proceedings that help develop the details. Some of that is done in the NTIA report, Telecom 2000. With such perspective, you can deal with the chronic tendency of the adversarial system to stimulate the parties to macho litigation and free-floating conspiracy theories. In this area, there is no end to either hype or scare scenarios. My personal favorite goes back to the 19th century, to a report by Western Union in 1882, which argued that "Bell's proposal to place [the telephone] in every home and business is, of course, fantastic in view of the capital costs involved in installing endless numbers of wires." Even the experts can be wildly wrong when their own ox is being gored.

Secondly, you are organizationally still geared to a world where media are separate from each other. Excepting OPP, one bureau deals with telephone issues; another with mass media; a third with private radio; each uses a historically different regulatory approach, such as common carriage, broadcast licensing, etc.

But in an environment where all communications tools are interlinked with each other, this approach, though it is already an advance over that existing in many countries, cannot survive. In the future, you may have instead, for example, bureaus for conduit, for content (hopefully a very small bureau), for finance, for technology. And there may again be no international bureau, because everything will be "international." The notion of territoriality, of spatial networks, will be seen as quaint.

A third problem of the FCC itself is that it takes too long to act. This creates great incentives to dilatory tactics, which slow the process even more. The product cycle in communications has accelerated considerably. Therefore, the regulatory decision cycle must

accelerate too, even though there are more issues, more parties, and more sophisticated lawyers. For example, in New York State we dealt with the critical issue of collocation relatively expeditiously with an expert staff of one or two, while the FCC is still thinking about it more than a year and a half after New York has acted.

There is a real price to be paid for slowness. Think of the head start the U.S. lost in cellular. Other countries, where the monopoly or near-monopoly still calls all the shots, can make much faster decisions. That's the case in almost all advanced telecom countries: Japan, Germany, France, Sweden, Benelux, Singapore, Hong Kong, Spain, etc. Take Germany. There, the Bundespost is a monopoly in telecom services, and also the provider of the cable television conduit. It can implement new technology in one, upgrade the other, or coordinate the two, without a process of mutual resistance that seems to characterize the U.S. Singapore is consciously using the telecommunications network as the engine for the computerization of its economy. France has created a "smart-card" infrastructure that could be used for numerous purposes besides making phone calls, such as the replacement of cash, or the provision for social welfare payments. The European Commission is pumping hundreds of millions of dollars into the development of integrated broadband networks, while on the political and standards setting levels, old divisions are being overcome.

So far, the impact of the energetic pursuit of telecommunications in other countries hasn't quite shown itself, because they are still catching up with the U.S. But they have invested in a lot of building blocks that will be used for next-generation telecommunications. The point is not whether some country is ahead; it is whether the U.S. is losing its lead. A head start on service gives service providers, users, and equipment makers a big advantage.

I still believe that a multi-carrier system is the potentially more dynamic system, but only if the competition is in the market rather than in the political and regulatory arena. I thought that was the whole idea of competition. The point is that the FCC, having opted for diversity, having assisted in implementing the breakup of the AT&T monopoly, and still

maintaining, unavoidably, some regulation, must not become the last bottleneck. Nor should it let various interested parties let it be used as a bottleneck. Indeed, it should sometimes help cut the Gordian knots into which the contending parties have tied themselves. In New York, the various networks could not provide ISDN service across the state, because the carriers couldn't get their joint act together. But they did, once we asked them to work out an interconnected network trial.

The FCC is also the closest agency there is for the information sector in this country; let it show some advances in the management of its own information process. For example, one might require the parties filing briefs to do so in a format that does not require staff to elaborately summarize them across issues. One could also use some form of EDI for electronic filing and managing the paper flow of the proceedings; why leave all this to General Motors?

This then gets me to the chronic problem of jurisdictional bickering with the states. The states must continue to play a legitimate role as test laboratories for policy. But for all recent advances, they have probably overplayed their hand if one takes a long term perspective. Being over-aggressive on the intra-state/inter-state distinction will backfire on the states, when distance-insensitivity and diversity in service providers will result in even local service to often cross interstate and even international boundaries. Who said that local switching couldn't be done a few hundred miles away, or that fast packets couldn't travel via Canada? And where is the software located in an intelligent and decentralized network? Radio-based communication is already substantially controlled by the feds.

As a result, the core of identifiably intrastate communications will shrink continuously. It would be much better if the states and the FCC could agree on a set of functional regulatory tasks that the states would administer, subject to broad Federal rules and authority (and flexibility within those rules), instead of this outmoded inter/intrastate definition. This might protect the states' turf much better than the present system. But it

presupposes an FCC that has a clear direction and is trusted to lead the way.

I would like to think of this system as the 52 points of light, 51 states plus the FCC, but unfortunately, it often seems to be more like 52 points of sound, with the contending jurisdictions being egged on by various forum-shoppers. Nor is it easy to deal with other nations, because most of them still cling to the monopoly system, and have often given those monopolies new freedoms of action. When Canada moves to a more competitive system, it might be time to think about a North American free telecommunications market.

Another major anachronism is the standard setting process, which is too slow, too cumbersome, and offers too many opportunities for strategic delay. Here, too the cycle of technological innovation has accelerated, while the speed of the process has perhaps even slowed down with the loss of Bell Labs supremacy. (The agreement on SONET is a welcome exception.) Here, the important thing to remember is that the choice is not really between Washington and the market, but between Washington and Brussels and Tokyo. I assume that the United States wants to stay high up in the electronic food chain, in equipment, services, components, and applications. Just last week, the White House issued a list of 22 critical technologies, more than half of which are in the electronics sector. So it seems that a new wind is blowing, and I urge this Commission to take note of it.

Technology industries are vital. The rest of the economy feeds and benefits from their well-being. This does not mean that the FCC should get into the business of setting technical standards itself, for it does not have the resources for that. But it could play an active role as a catalyst for inter-industry standards, at least in the interconnection field, by setting timetables for the industry to follow and by providing mediation. It could, in particular, encourage and facilitate trials and experimentation of new services, and not let nervous competitors set the pace of innovation. And it could provide much greater flexibility in some areas, for example, in the use of spectrum.

Perhaps most importantly, the nature of interconnection in the network has not been

worked out yet. This will be a large task. Today, just as one can plug a "Mickey Mouse" telephone into the network, so can one increasingly plug an entire network into the network. But it is necessary to work out the details, for example, technical compatibility; financial arrangements; quality and privacy protection; interface points; and many more. The result of creating such a system will be to create the network as a modularized entity of numerous participants.

This changes the definition of infrastructure. Now it's never been quite clear to me what infrastructure exactly is. Nobody except for Janice Obuchowski knows what infrastructure is, and she still isn't telling. In a network of networks, the public network will be just one segment of the infrastructure. Others will be cable companies, radio-based carriers, the many private networks, and even parts of the terminal equipment. Cable companies will be able to interconnect under the various ONA and collocation rules. Soon, they'll start doing it. John Malone of TCI recently as much as said so.

I could talk about this for a long time, for example about the necessity in such a matrix system to redesign the system of subsidies from implicit to explicit. Or about the problem of a technologically balanced evolution of the various network modules. Right now the United States is the only country in the world where some of the large business users have become a bit of technological Luddites, at least when it comes to the upgrade of the public network.

But in the remaining four minutes, I will concentrate on the aspect I believe most critical. This is the issue of common carriage in such a network environment. Let me give you an illustration.

I have here two radio devices. And suppose my neighbor here pays me to sing into both the songs "Happy days are here again" and "There's no business like show business." With one device, a cellular radio, this would be perfectly legal, because it operates as a common carrier. But with the other, a ham radio, I would violate at least nine FCC

regulations by doing so. No music. No politics. No business talk. No commercial transactions over the air. No third party traffic. No paid service. No swear words. No unlicensed, unsupervised operation. Station identification required. Etc. Etc.

The point is that different rules can be imposed on different segments of the communications system, but as they grow together and interconnect, these differing rules become impossible to reconcile. If a common carrier interconnects with a private carrier, which content rules govern?

This is a critical issue for two reasons. First, because common carriage is the practical analog to First Amendment for electronic speech over privately owned networks, where the First Amendment does not necessarily govern directly. Common carriage means non-discriminatory conduit service, neutral as to content, users and usage — in other words, all electrons (or photons) are created equal. First Amendment protection from government restriction and common carriage for conduits are the foundation of free speech in the electronic age. Imagine if magazines couldn't be sent by mail, which is a common carrier, because the postal service refused to carry those magazines that support abortion. That's why I like the concept of the video dial tone, because it defines broadband services on telecommunications carriers as governed by common carrier principles.

And this is not just a free speech matter. It's just as much based on the practical needs of the future network environment. The reason for common carriage generally, whether in transportation or communication, is to foster infrastructure and its easy use. As such, it is similar to other societal arrangements to encourage economic transactions, by devices such as legal tender status for currency, negotiable instruments in commercial transactions, or limited liability for corporations. The protection of common carriage is essential to the well functioning of a network of networks.

The question may be asked: if we don't have monopoly, why do we need common carriage? Actually, the opposite is true. Common carriage is critically important today

because information travels across numerous subnetworks until it reaches its destination. If each of these networks sets its own rules about which information is carried and which is not, information cannot flow easily, constricting the information lifeblood of the society and the economy. It is as if each local government would establish its own automobile construction requirements and would check any passing motorist for compliance. Therefore, a decentralized network system requires some basic and fundamental rules of the road, and the non-discriminatory treatment of those 1's and 0's of digital communications is one of them.

Today, we have public networks operating as common carriers and private networks that do not. I am not suggesting that we abolish private carriage. That would make no sense, it would be unfair to do so retroactively, and also violate the principle of freedom of association. What is needed is the establishment of a mixed private-public network system. Such a system would permit private network arrangements but would also create what might be called common carriage "rights of way." Such rights-of-way would function like public roads and highways that pass private property. They permit the access of various networks, and the transmission of information across the network federation. Some rights-of-way would be quite wide superhighways, while others could be narrow but otherwise unobstructed lanes.

So again, to use former Chairman Fowler's term, we should go "back to the future" — back to the common law notions of common carriage and of rights of way. But these things will not happen by themselves. You need to give these issues pro-active attention. It is hard to unscramble the omelette later.

The lesson from recent history in Eastern Europe is not just that people want freedom, but that institutions that are not capable of changing themselves and being responsive to the changes around them eventually are in real trouble. If the system doesn't work well, it will be changed from the outside. The role of the FCC should be to provide

the glue that keeps the network system together. **The FCC should play the role of the national systems-integrator.** This is the new paradigm for the 90s. Or, to put it less technologically and more historically, the Commission should see itself as the Abe Lincoln of telecommunications — having issued the emancipation proclamation, it must lead the fight to keep the fractious whole together. It must keep the telecommunications house from being divided against itself.