Principles for the Communications Act of 2034: The Superstructure of Infrastructure

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In the past, the regulation of telecommunications had been essential, partly to protect against the various forms of network monopoly, partly to protect monopolists themselves. In the transition to competition, what regulation was left was seen as temporary, as shrinking reciprocally with the growth of competition.

But can we expect the future "network of networks" to be totally self-regulating, with no rules by government? On the one hand, the more complex and advanced any network system becomes, the less one can guide it centrally. On the other hand, diversity does not assure optimality when different participants pursue different strategies and private and public objectives diverge. Some traditional subjects of regulation, such as price and entry controls will become unnecessary. But issues involving free flow of information, interconnectivity, universality of service, and international asymmetry will not vanish with competition.(note 1) Thus, rules and regulations will change, but not disappear entirely. Liberalization does not mean libertarianism. Therefore, what kind of rules should we expect to provide in the emerging "network of networks" interconnecting presently widely disparate types of communications systems?

In the world of computers, a hierarchy of control instructions exists-assembly language, machine language, and programming languages. When it comes to societal rules, we similarly think in terms of a hierarchy. In telecommunications there are *regulations of detail*; for example, what price can be charged for a local call after five o'clock. Then there are *fundamental societal tenets*, such as freedom of speech or property rights. In between are the intermediate *rules of public policy*, usually codified by statutes of varying specificity.

The United States has been fairly successful in framing regulations of detail. Although participants in the American regulatory system tend to castigate it, the positives need to also be acknowledged, especially in contrast to the alternatives practiced elsewhere. Regulations in America tend to be developed and practiced openly, with opportunity for the public and for contending stakeholders to contribute their views and challenges. Due process and rights of appeal exist. The independent and bipartisan system of regulatory commissions helps to create some political insulation and policy continuity, without a total separation from the democratic and economic forces in society. The process is capable of adapting to changing circumstances, as the shift in telecommunications from promonopoly to procompetition regulation demonstrates.

The fundamental rules of governance have also been quite successfully drafted, a legacy from brief but creative historic periods when big-picture issues were taken seriously. But the weak link in the American hierarchy of rules, at least for telecommunications, is the intermediate range of rules of public policy. Here, the basic documents are the creaky 1934 Communications Act, the controversial 1984 and 1992 Cable Acts, and a motley collection of state utility laws.

The basic 1934 Communications Act was written before TV was out of the labs; before microwave transmission; before satellites; before micro-electronics; before computers; before digital data communications; and before transatlantic telephone cables. Some of its rules are even older than the New Deal era enactment date suggests, going back to 1910 Mann-Elkins Act provisions that applied to telephony principles of railroad regulation, which in turn date back to 1887 on the federal level and even further for some states.

Given the dynamic telecommunications environment, the 1934 Act is at its best when its provisions are fairly general, with details provided by the regulations of the specialized Federal Communications Commission (FCC or Commission) that the Act created. It is least effective where it is overly specific, almost assuring problems a few years later, since it is usually more difficult to change a law than to modify a regulation.(note 2)

In telecommunications, Congress is at its legitimate best when it sets national rules of public policy. It has been at its procedural worst when it assumes the role of a quasi-regulatory agency and writes into law numerous rules of detail. This happens when it distrusts an agency controlled by another party, when a transitional leadership vacuum exists at an agency, or when it is enticed to closely arbitrate nettlesome power struggles among stakeholders.

The Need for New Principles

But what should these broad principles of telecommunications be? In the past decade, policy was correctly focused on creating competitive openness by reducing barriers and permitting entry. But now, with the fragmentation of the monopoly telecommunications environment proceeding apace, the primary policy responsibility is to assure an *integration* that permits the functioning of the emerging "network of networks."

On the conduit side of networks, such integration involves interconnectivity, interoperability, privacy protection, financial compensation, and network universality. On the content side, different approaches govern the different segments of the communications system, such as common and private carriage. The difference in regulatory status is sustainable only as long as the underlying transmission media are kept apart. As these grow together and interconnect, the differing rules of content status come into conflict.

One of the 1934 Act's major problems, from tomorrow's perspective, is that it deals with separate transmission media differently. It is not transmission-path neutral. This was workable in the past, but is not where technology and applications are taking us.(note 3)

Let us therefore think of ourselves as an electronic legislative convention for the Communications Act of 2034. What might its principles look like?

1. Preamble

Congress, in order to create a more perfect union of various transmission and content media, establishes principles by which all electronic communications should be governed, with the goals of encouraging the production of information of many types, sources, and destinations; assuring the existence of multiple pathways of information; encouraging their spread across society, the economy, and the world; and enhancing social and economic well-being, technology, and education.

2. Free Flow of Information

All electronic bits are created equal, and freedom of speech is technology-neutral. Government shall not prohibit the exercise of communications nor abridge electronic speech, content provided by the electronic press, nor the right of the people to peaceably assemble electronically.

Freedom of speech, as applied to telecommunications, must assure a legal parity of electronic speech with traditional forms of communication. The First Amendment protects speech against governmental restrictions but not against private constraints. To account for private constraints, the legal institution of common carriage established a free flow of information over some telecommunications networks. Common carriage is a frequently misunderstood concept. It means nondiscriminatory conduit service by a carrier, neutral as to content, users, and usage.(note 4) It does not mean universal service, regulated monopoly, or rate-of-return regulation.

Common carriage is not only a free speech matter. The reason for common carriage, whether in transportation or communication, is generally to reduce transaction costs in the use of infrastructure and hence to benefit its development. 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. While it may be in the interest of every carrier to maintain full control over "its" segment, in the aggregate, this would be as dysfunctional as if each commercial bank issued and used its own money rather than a common legal tender.

At present, who is a common carrier? Basically, it is a provider of a public switched telecommunications network. Other carriers operate as private contract carriers, subject to their own discretion on access and use. With competition, it is distortive to designate some networks as common carriers and not others. One alternative is to abolish all private carriage, but that would violate principles of property and freedom of association. The alternative is to abolish all common carrier obligations of nondiscrimination. This may be, in the long run, the outcome of head-to-head competition between common and private carriers.(note 5) The ability of a private carrier to price differentiate, to select customers, and to use its rival's conduits whenever it needs to, will all make it superior in head-to-head competition with common carriage. Hence, the latter will fade away as common carriers are increasingly permitted to enter into customer-specific contracts and deals. The last alternative-hybrid solutions that try to assure the coexistence of common and private carriage-will not be stable in a dynamic environment.

What is needed, therefore, is to reconcile an essentially private carrier-based communications system with the free flow of information. One way to do this is by replacing the principle of common carriage by a new principle of *third-party neutral interconnection*. A carrier can elect to be private by running its own end-to-end infrastructure, thus having full control over its content, use, and access. However, if it interconnects into other networks and accepts transmission traffic from them, it cannot screen the traffic and pick some bits over other bits. This means that while a private carrier can be selective in its choice of its direct customers-whether end-users, content providers, or carriers-it cannot differentiate among its customers' customers. For example, if some content *A* is carried by a carrier *B* that is interconnected into carrier *C*, *C* cannot screen out that content, nor can any other carrier do so that is interconnected to *C* and to which *A* is being passed. To exclude *A* would require that not a single carrier of type *B* would be willing to accept it, and that such a carrier would not be granted interconnection by any other carrier type *C*. While such containment is possible, it is not particularly likely. Such a principle is similar to arrangements in commercial paper, sales, and legal tender, where the law discourages restraints on alienation.

The common carriage goals of informational free-flow and low transaction cost are preserved by such a system of third-party neutral traffic interconnection. This principle does not require transmission on economically equal terms, as in the case of common carriage, but does establish the possibility of arbitrage if differentiated pricing occurs.

Competitive transmission segments need not be common carriers, but among interconnected carriers, no carrier can selectively transmit traffic passed on to it by another carrier based on content, uses, or usage.

Where no competition exists in an essential conduit, service must be offered on a common carrier basis on at least part of the capacity. Any interconnectivity requirements and charges must be symmetrical.

3. Market Structure and Prices

In the past, control over entry and prices was the major tool of regulation. For a network of networks these retrictions are obsolete.

Government shall make no regulation establishing a network privileged in terms of territory, function, or national origin. Nor shall it burden any network more than its competitors, except with compensation.

Entry by any content or conduit provider is open. Competitive conduits and all content shall be priced freely. Price or profit regulated segments must be separated in some fashion from unregulated ones.

4. Reliability and Security

Interconnected networks affect each other negatively if one of them inadequately protects security and privacy. Market forces can play an important role, but only if users and networks have information about foreseeable dangers.

Interconnected carriers in a chain of transmission must disclose foreseeable jeopardies to privacy and security.

5. Universality of Networks

At present, redistribution operates within the public network across customers. This system cannot be stable in a competitive environment. Instead, these subsidies that are to be maintained need to be explicit and neutrally distributed across competitors.

Where Congress mandates to support some users or usages for social and economic reasons, such support must be generated and allocated explicitly, and any burden must be placed neutrally on all market competitors.

Where a new service is subscribed to by a wide majority of the population at market prices, a rebuttable presumption is created to affordably connect to such a service the remainder of the population desiring it.

6. Jurisdiction

The traditional notion of jurisdictional separation was based on a linear, spatial concept of networks. Networks were configured to minimize transmission distance. But as transmission costs decline, telecommunications becomes distance-insensitive, and definitions of interstate, intrastate, and national services become increasingly irrelevant. Networks become relational, not locational.

Information should move freely across interstate and international borders, without unreasonable burdens by state or national jurisdictions. No content or carrier from abroad should be treated more restrictively than domestic providers, provided meaningful reciprocity is given.

The federal jurisdiction sets basic national telecommunications policy where it can demonstrate that national solutions are necessary. Application and implementation may lie with lower-level governmental bodies, which may also set policy for functions of clearly local or regional nature.

Conclusion

These principles, in the aggregate, provide a framework that provides an integration of common and private carriage, of narrow and broadband networks, and of domestic and international providers. Furthermore, they do so without the prerequisite of an official "public" network.

To return to the original question, whether or not telecommunications will operate effectively under the guidance of an invisible hand mechanism-the answer is, to a large extent, yes-but only on a foundation of basic rules of the road, with less of a "retail approach" of detailed legislation and more of the "wholesale approach" of policy principles. As communications media converge, the invisible hand must be ultimately connected to a body of law. Ritualistically invoking competition is not enough. We need a principled superstructure for the technical infrastructure.

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Notes

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1. This is analyzed in Eli M. Noam, *Beyond Liberalization: From the Network of Networks to the System of Systems*, 18 Telecommunications Pol'y 286 (1994). Return to text

2. Thus, few of the main changes in telecommunications policy that in the aggregate broke the monopoly system over the past two decades have originated in congressional legislation. Return to text

3. Partly for that reason, the Clinton administration proposed in 1994 a new and voluntary regulatory classification (a new "Title VII" of the Communications Act) for switched interactive digital broadband transmission. This proposal, too, is not technology-neutral. Administration White Paper on Communications Act Reforms 5 (Jan.

27, 1994) (copy on file with the *Federal Communications Law Journal*). Return to text

4. The FCC's concept of the video dialtone has such a common carrier orientation. In the Clinton administration's 1994 Title VII proposal, "open access" was substituted as a term for common carriage and defined to permit "anyone, including end users and information service providers . . ., to transmit information including voice, data, and video programming, on a non-discriminatory basis." Return to text

5. Eli Noam, *The Impending Doom of Common Carriage*, 18 Telecommunications Pol'y 435 (1994). Return to text