

The Impending Doom of Common Carriage

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I. Introduction¹

This article argues that the institution of common carriage, historically the foundation of the way telecommunications are delivered, will not survive. To clarify: "common carriers" (the misnomer used to refer to telephone companies) will continue to exist, but the status under which they operate -- offering service on a non-discriminatory basis, neutral as to use and user -- will not.

This conclusion is reached with reluctance. Common carriage, after all, is of considerable social value. It extends free speech principles to privately-owned carriers. It is an arrangement that promotes interconnection, encourages competition, assists universal service, and reduces transaction costs.

Ironically, it is not the failure of common carriage but rather its very success that undermines the institution. By making communications ubiquitous and essential, it spawned new types of carriers, delivery systems, and yet the blows to traditional common carriage do not come from the new rival telecom carriers such as MCI, but from two other directions: next-generation private networks offered by systems integrators; and broadband services offered by cable television operators. Neither operates as a common carrier, nor is it likely to. It will not be possible for traditional common carriage to prevail in competition with contract carriage. In

¹The author appreciates comments by: Ron Binz, Sidney Dean, Charles Firestone, Joel Lubin, Herbert Marks, Joe Miller, Richard Neustadt, and Doug Watts.

consequence, we are likely to witness a gradual erosion of the common carriage principle among those carriers that today are held to it by regulation and common law. To preserve some of the policy goals behind common carriage, one will therefore have to rely, where market forces result in restrictiveness, on other protective legal arrangements, such as antitrust law, interconnection and access rules, and non-discrimination protections.

Perhaps the furthest-reaching state regulatory proceeding into the nature of common carriage was undertaken by the New York Public Service Commission² at the initiative of Chairman Peter Bradford and the author. Among its policy conclusions were a strong endorsement of common carriage status for any mass media transmission service offered by a telephone carrier. A narrower-focused FCC proceeding on video dial tone³ similarly resulted in a common carrier policy on the issue of video transmission on telco facilities.

Yet both proceedings reached their conclusions in a partial-equilibrium setting only. They failed to take fully into account the system-wide dynamics of interaction, in this case between the common carrier sector on the one hand and the contract carrier on the other hand. The policy conclusions therefore address merely a temporary phase, because the long-term viability of common carriage in a mixed common carriage/contract carriage is doubtful.

The plan of this article is as follows. First, we will discuss what common carriage is,

²New York State Public Service Commission, *Opinion and Order Adopting Regulations Concerning Common Carriage, Case 89-C-099*, Issued and Effective February 20, 1990.

³Federal Communications Commission, In the Matter of TELEPHONE COMPANY-CABLE TELEVISION Cross Ownership Rules, Sections 63.54 - 63.58, CC Docket No. 87-266 (FCC 91-334) (first report and order adopted October 24, 1992)

and where it came from. Then, we will analyze the present and future pressures on the common carrier system. Finally, we will speculate about a future without common carriage. The reader in a hurry can skip to section IV.

II. Origins and Nature of Common Carriage

One must distinguish the notion of common carriage from several other intertwined concepts that are frequently but inaccurately used as synonyms. A common carrier need not be a "public utility" or a "regulated monopoly," and vice versa; for example, public buses operating as common carriers are usually neither utilities nor monopolies; conversely, public utilities in electricity provision are not common carriers. Another concept, "universal service obligation," is the requirement of a carrier to reach every willing user and desired destination, wherever located, while common carriage refers to service obligations toward users *given* a physical plant. Finally, "affordable rates," though often tied to common carriage, are a monopoly and utility issue; where common carriage is concerned with price, it is not with absolute price levels, but rather with relative ones, to prevent price-discrimination as a way to unduly differentiate among users or uses.

For centuries, common carriage principles have played an important role in the infrastructure services of transportation and communications. They intended to guarantee that no customer seeking service upon reasonable demand, willing and able to pay the established price, however set, would be denied lawful use of the service or would otherwise be

discriminated against. For one hundred years these principles, despite their often confused application and interpretation, have aided telecommunications users' access, and thereby also stimulated the development of networks. In return for reduced discretion, a carrier obtained certain benefits, including limited liability for the consequences of its own actions. Some common carriers have been also regulated as public utilities, and have been given, by statute, powers of eminent domain, use of public rights-of-way, and protection against some competition, while being subject to price and service regulation.

Precursors to common carriage go back to the Roman Empire and the legal obligations of shipowners, innkeepers and stable keepers.⁴ In England early common law placed certain duties on businesses which were considered "public callings." Common or public occupations included those of bakers, brewers, cab drivers, ferrymen, innkeepers, millers, smiths, surgeons, tailors and wharfingers.⁵ "Common" in that context meant "open to public service," or "general".

In 1701, an English Court found that "If a man takes upon him a public employment, he is bound to serve the public as far as the employment extends; and for refusal an action lies, as against a farrier refusing to shoe a horse...Against an innkeeper refusing a guest when he has room...Against a carrier refusing to carry goods when he has convenience, his wagon not being

⁴ The author acknowledges the contribution of Thomas Aust to this section, and to other legal points and cases that follow.

⁵See, C. Phillips, Jr., The Regulation of Public Utilities, 2nd ed., p.83, Arlington, Va., (1988).

full."⁶ By 1814, with the coming of the industrial revolution and laissez-faire economics, common callings were generally limited to what we would today call infrastructure services in transportation and communications, together with associated facilities such as inns. Common carriage was applied to freight or carriage companies and inland and ocean water carriers. By common law, common carriers were 1) required to serve upon reasonable demand, any and all who sought out their services; 2) held to a high standard of care for the property entrusted to them; and 3) limited to incidental damages for breach of duty.

The concept of common carriage crossed the Atlantic and became part of the American legal system. Common carriage was broadly applied to railroads and later other transportation and distribution mediums. In 1901, following many state courts, the U.S. Supreme Court held that at common law a telegraph company is a common carrier and owes a duty of non-discrimination.⁷

Local, state, and federal governments also enacted legislation prescribing common carrier type duties on various businesses, usually to help enforcing users' rights at common law, as well as to attain broader social objectives not necessarily embraced by common law common carriage, such as universal service.

But the concept of common carriage does not depend on public utility regulation, and a user's rights of service from a common carrier do not rely solely on statute. Statutory public

⁶ Lane v. Cotton, 1Ld.Raym. 646, 654 (1701, per C.J. Holt

⁷Western Union Telegraph Co. v. Call Publishing Co., 181 U.S. 92, 98 (1901).

service regulation augmented common law common carriage rather than supplanted it.⁸ In one case the court stated, "not only is the right to be treated fairly and non-discriminatorily by a common carrier an expression of the pervasive precept of fairness between government and governed that runs through American jurisprudence, it is one derived from the common law of common carriers."⁹

In 1848, New York state required telegraph companies to provide non-discriminatory service to competing telegraph companies as well as to individuals. It also began setting railroad rates as early as 1855. State regulatory boards soon replaced detailed legislative regulation, first in Illinois and Massachusetts. The first independent, broadly empowered commissions to regulate common carriage facilities and utilities were set up in 1907 in Wisconsin and New York. The New York Public Service Commission's authority was expanded in 1911 to include telecommunications.

Common carriage principles were also embodied in federal legislation. The Interstate Commerce Act codified, in 1887, the duties of rail carriers serving the public, recognizing particularly liability and non-discrimination. Rail carriers hauling for a single entity were considered private rather than common carriers. Later, barge, trucking and intercity bus companies were brought under the Act, under similar provisions. Communications companies were included in 1911. In 1934, oversight of interstate and radio communications was

⁸See Hewitt v. New York, N.H.& H.R.R. Co., 284 NY 117 (1940) (involving discrimination charges against a rail carrier)

⁹Trailways of New England, Inc. v. C.A.B., 412 F.2d 926, 931 (1st Cir. 1969) (regarding an air carrier)

transferred to the new Federal Communications Commission.

Title II of the Communications Act (47 U.S.C. sections 201-221) established regulated telecommunications common carriers, defined in a circular fashion, as "any person engaged as a common carrier for hire" (47 U.S.C. 153(h)). Common carriage was defined, unhelpfully, as "[a]ny person engaged in rendering communications service for hire to the public" (47 C.F.R. 21.2). Even so, in Congressional debates leading to the 1934 Act, assurances were given that "common carriage" was well understood and needed little explanation.

Perhaps the most extensive court interpretation of common carriage has been NARUC v. FCC, 525 F.2d 630 (1977) (NARUC I), where the court reviewed the FCC's refusal to classify mobile radio systems as common carriers.

"In seeking an applicable common law definition of common carrier, a good deal of confusion results from the long and complicated history of that concept. Originally the doctrine was used to impose a greater standard of care upon carriers who held themselves out as offering to serve the public in general. The rationale was that by holding themselves out to the public at large, otherwise private carriers took on a quasi-public character. This character, coupled with the lack of control exercised by shippers or travellers over the safety of their carriage, was seen to justify imposing upon the carrier the status of an insurer."

* * *

"What appears to be essential to the quasi-public character implicit in the common carrier concept is that the carrier 'undertakes to carry for all people indifferently ...'"

"This does not mean that a given carrier's services must practically be available to the entire public. One may be a common carrier though the nature of the service rendered is sufficiently specialized as to be of possible use to only a fraction of the total population. And business may be turned away either because it is not of the type normally accepted or because the carrier's capacity has been exhausted. But a carrier will not be a common carrier where its practice

is to make individualized decisions, in particular cases, whether and on what terms to deal. It is not necessary that a carrier be required to serve all indiscriminately; it is enough that its practice is, in fact, to do so."

* * *

"The common carrier concept appears to have developed as a sort of *quid pro quo* whereby a carrier was made to bear a special burden of care, in exchange for the privilege of soliciting the public's business." (citations and footnotes omitted).¹⁰

When does common carriage arise? For common carriage, service must be offered, on demand, to the public at large or to a group of people generally, and the carrier "must hold himself out as ready to engage in the transportation of goods for hire as a business, not as a casual occupation pro hac vice." ¹¹

And "[w]hether a carrier is a common carrier ... does not depend upon whether its charter declares it to be such, ... but upon what it does."¹²

The following factors are important in determining common carriage:

- service is regular
- customers are not readily predictable and are changeable,
- the carrier solicits business from the general public, for example by advertising
- law and regulations define the responsibilities of the parties.

For contract carriers, on the other hand:

¹⁰NARUC v. FCC, 525 F.2d 630, 640-42 (D.C. Cir. 1976), cert. denied, 425 U.S. 992 (1976) (NARUC I).

¹¹ J. Story, Law of Bailments, section 495 (1832) .

¹²United States v. Brooklyn Eastern Distr. Terminal, 249 U.S. 296 (1919).

- service may be occasional
- the clientele is identifiable and stable,
- carriers solicit business on a targeted and individualized basis
- contracts define parties' responsibilities.

The duty to carry does not mean that a carrier cannot refuse service, such as in circumstances of potential damage, unreasonably high risks, or beyond a reasonable capacity.

The prohibition on unreasonable discrimination is the most important component of the common carrier obligation. Utilities are bound to provide "impartial service to all members of the community."¹³ However, this is not absolute. Courts have recognized that some categorization of users is possible. "[A] specialized carrier whose service is of possible use to only a fraction of the population may nonetheless be a common carrier if he holds himself out to serve indifferently all potential users."

NARUC I, 525 F. 2d 640, 642 (D.C. Cir. 1976)

Carriers offering services only to a limited group of users have been held to be still common carriers for that limited group of users.¹⁴ But where terms and conditions

¹³Leighton v. New York Tel., 61 N.Y.S.2d 112, (1946) citing People v. Public Service Commission, 148 N.Y.S. 583 (1914) (involving electric service).

¹⁴ For example, telecommunications common carriers legally made service available only to:

- theater owners, Theater Television Serv., 9 P&F Rad. Reg. 1528, 1538 (FCC 1953)
- stock exchange members, Western Union Tel Co. Sicom Serv., 11 FCC 2d 1, 9 (1967)
- television broadcasters, TelePrompter Corp., 13 Rad. Reg. 111 (FCC 1955)
- the U.S. Postal Service, Graphnet Sys. Inc., 73 FCC 2d 283, 298 (1979).

are too narrowly drawn, e.g., limiting the class to essentially a single customer, they can violate common carriage principles. For example, customized tariffs filed by AT&T (Tariff 12) were initially rejected by the FCC as being too narrowly drawn. In interpreting the existence of common carriage, courts have not let the statutory definition be determinative, perhaps because of its circularity. Instead, they applied common law principles to establish who is a common carrier, and did not let the FCC ignore common law definitions of common carriage. Naruc II; Telelocator vs. FCC.

One can conclude that the common carrier system has served telecommunications participants well: it has permitted society to entrust its vital highways of information to for-profit companies, without the specter of unreasonable discrimination and censorship by government or private monopolies; it was an important element in establishing a free flow of information, neutral as to its content; it reduced the administrative cost and the burden of liability of a carrier, since it needed not, at least in theory, inquire as to a user's background (beyond credit-worthiness) and intended use; and it protected the telephone industry from various pressure groups who would prefer to have it not deal with their targets of protest or competition.

Today's application of common carriage is constantly shifting and requires continuous updating. Telecommunications, after a long period of gradual change, are presently in an extraordinarily dynamic phase in terms of technology, applications, and industry participants. New uses, configurations and players in the telephone network have emerged. All this raises the question how principles going back to the Elizabethan

Age and beyond apply today and for the future.

III. Rationale for Common Carriage

In the last two decades, one of the major intellectual currents in the law has been the "law and economics" movement. One of the central observations of this school of thought has been the fundamental efficiency of the common law. Common law courts, through a process of gradual decisions, would reach overall economically efficient arrangements on issues such as specific performance, foreseeability, damages, unconscionability, negligence, trespass, contingent rights, and many more.¹⁵

The implications of these analyses is that common carriage, also the product of common law judges, is likely to be, or at least has been, an economically efficient institution. Among its purposes one can discern the following:

1. Reduction of Market Power

Historians debate whether monopoly was instrumental in the development of common carriage. Businesses found to be "public callings" in early English common law were often franchised by the Crown under privileged terms and exercised market power.

¹⁵See e.g., Richard A. Posner, *Economic Analysis of Law* (2nd Edition), Boston: Little, Brown and Company, 1977; and Guido Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 *Yale Law Journal* 499, 1961.

On the other hand, in many areas there was competition among such public callings as innkeepers, blacksmiths and tailors.

In the United States, trucking and airlines are regulated as common carriers even though significant competition exists. And at the time the telephone industry was first made subject to regulation at the state and Federal levels, there was some competition in the local markets and even some competition for long-distance service.

Conversely, most firms with market power, such as electric transmission lines, for example, are not common carriers, though "wheeling" requirements for the transmission of power generated by independent producers are being introduced.

Thus, market power is neither a necessary nor sufficient condition for common carriage. However, it is an important factor in the law's imposition of common carriage as a remedy, much in the way that some antitrust cases have led to a mandatory licensing of patents.

2. Essentiality of Service

Common carriers are considered to be private businesses which are "affected with public interest," to use the language of the U.S. Supreme Court's landmark case on regulation. Being essential, they are accorded special treatment. Munn v. Illinois, 94 U.S. 113 (1877). But the notion of an "essential" service is often circular. Telephones, for example, started out as a specialized service for a few users; its essentiality is as much the result of its broad use as the other way around.

Again, essentiality is a factor for the establishment of common carriage, but it is

neither a necessary nor a sufficient condition.

3. Spread of Basic Infrastructure

"Infrastructure" is a term of considerable trendiness and vagueness. It can best be described as those services that are a basic input to most other economic activities, and which provide substantial positive externalities to the economy as a whole. Transportation, energy, communications, education, and protection are prime examples. Network industries, in particular, are considered infrastructure services. The positive externalities to members of the network increase positively with added membership, for example by the greater reach of the telephone.¹⁶

Infrastructure services can greatly contribute to the economic growth of individuals, regions and the nation. In consequence, in most countries they are provided by government. Where historically they were provided in England by private firms, common law courts often imposed some quasi-public obligations, one of which one was common carriage. It mandated the provision of service of service to willing customers, bringing common carriage close to a service obligation to all once it was offered to some.

4. Reduction in Transaction Cost

There are some advantages in setting uniform terms for a business transaction rather than negotiating each separately. There are also benefits in assuring an

¹⁶ Noam, Eli, *A Theory for the Instability of Public Telecommunications Systems*, in Cristiano Antonelli, ed., *The Economics of Information Networks*, Elsevier, 1992, pp. 107-128.

unobstructed flow of commerce and information.

In telecommunications, 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" segments, in the aggregate this would be dysfunctional as if each bank had its own money as opposed to a common legal tender.

In that sense, common carriage is another instance of legal institutions whose purpose is to reduce transaction costs. Other examples are limited liability, legal tender for currency, and commercial paper.

5. Limited Liability

It would be impractical and inefficient to require a carrier to accept any shipment or message while being exposed to huge potential liability of unknowable consequential damages. Thus, the extent of liability by a common carrier is usually limited to the price paid for the communication or transportation, unless otherwise agreed. Incidental liability lies on the sender as the party which has the best information about the value of the message.

6. Extension of Basic Freedoms - Personal and Commercial

Constitutional First Amendment protection helps against governmental restriction, but it deals only indirectly with private sector restrictions. For communications carriers, common carriage is the foundation of free speech exercise, because it provides for

content and use neutrality. Thus, carriers cannot be selective based on content, and cannot be censors.

In Navel v. New York Tel., 170 N.Y.S.2d 95, (1957) a customer's telephone service was disconnected because it might be used for transmitting gambling information. But, the court reinstated service since the telephone company "is not at all qualified, in the absence of evidence of illegal use, to withhold from the petitioner, at will an essential and public utility."¹⁷ ¹⁸ In another case, the police exercised veto power over telephone installations, a California court found the arrangement unenforceable and stated, "[p]ublic utilities and common carriers are not the censors of public or private morals, nor are they authorized or required to investigate or regulate the public or private conduct of those who seek service at their hands."¹⁹

More recently, carriers, reacting primarily to outside pressures and concerns about corporate image, have attempted to ban or restrict sexually oriented dial-it audio entertainment programming based on content, even where the messages were legal and before legislation forced them to do so. In other instances, they required users to make prior arrangements (mandatory pre-subscription) to access such information services.

The issue of content-based treatment moves beyond fringe social behavior to the

¹⁷170 N.Y.S.2d at 98.

¹⁸And in a similar case, Chelation v. Valentine, 53 N.Y.S. 2d 127 (1945), the court stated that absent illegal use, "a telephone company may not refuse to furnish service and facilities because of a mere suspicion or mere belief that they may be or are being used for an illegitimate end; more is required." 53 N.Y.S. at 131.

¹⁹(People v. Brothy, 49 Cal.App.2d 15, at 33, 120 P.2d 946, at 965)

question whether telephone network operators can prohibit lawful uses of their network, whether on grounds of corporate, political, or moral preferences, business strategy, different assessments of the business potential of a new usage, or pressure by customer groups. This is an important issue in light of telephone companies' near-term ability to deliver high quality video signals over their network, either on fiber or by compressed digital signals over copper lines (ADSL).

It is not hard to imagine organized pressures on telephone carriers to deny service, for example to the South African or Vietnamese national airlines, to the computer bulletin boards of abortion-clinics or abortion foes, to a publisher's toll-free number which fills orders for "The Satanic Verses", or to a competitor to a big customer of a carrier.

7. Facilitation of Competition

Common carriage access is provided to all customers, even where they are economic competitors of the carrier. This reduces the entry barriers for competitors, since they can supplement their partial service with service elements of the common carrier. For example, MCI could reach inducers over AT&T's local networks rather than having to first build local distribution facilities.

8. Interconnectivity

Reasonable opportunities for interconnection are an essential element of the common carrier's duty of service. Railroads, for example are required to interconnect at the point of choosing of the tendering carrier, unless otherwise specified by the

shipper.²⁰

Interconnectivity is important to many social and economic processes and is therefore often encouraged. In telecommunications, the establishment of interconnectivity was at the core of most regulatory battles, back to the days of Theodore Vail and the establishment of the AT&T system.

IV. The Challenge to Common Carriage By Private Contract Carriers

The challenge to common carriage is not telephone competition *per se*. MCI, Sprint, and other new long-distance carriers are common carriers. The primary way in which competition can affect non-discriminatory service is by making carriers more vulnerable to targeted boycotts. Suppose for example that anti-abortion groups decry the existence of an 800 abortion hot line which uses AT&T as a carrier. Under the old monopoly system, the groups had little credible leverage on AT&T except to forgo service themselves. But with MCI as an alternative, they can try to pressure AT&T to drop the abortion hot line, or lose their members' business.

The new long-distance companies had no problem becoming common carriers themselves, as indicated by the designation, "other common carriers" ("OCCs") which

²⁰49 U.S.C. 10742 & 10763 (1983). See also McKinney's Consolidated Laws of New York, Transportation Law, sections 97, 106 112 which require interconnection with shippers and other railroads. And see Louisville & Nash. R.R. v. United States, 238 US 1 (1915).

they took. In local service, too, the newcomers begin now to refer to themselves as "local common carriers." Teleport, a major local access provider, files tariffs even in those states where it is not officially defined as a common carrier.

These new carriers know that common carriage is vital to their ability to operate in an end-to-end system. Together these carriers form what may be called a "network of networks" that operates largely as a common carrier.²¹

If competition by other telecommunications carriers is not a direct threat to common carriage, what then?

I see two fundamental challenges to common carriage. The first is the increasing overlap between the common carrier system and well-developed mass media contract carriers such as cable television networks. The other is the emergence of systems integration. Neither operates as a common carrier.

Following Ithiel de Sola Pool, it is often observed that telephone companies operate on common carriage, private publishers follow free-speech principles, and broadcasters and cable companies operate on some not entirely free basis since they are licensed and regulated.²² What happens when the walls separating these realms crumble?

²¹ Noam, Eli, "Towards the Pluralistic Network of the Future," *Siemens Review*, September/October 1991, pp. 4-8.

²² Pool, Ithiel de Sola, *Technologies of Freedom*, Cambridge, MA: Harvard University Press, 1983. See also Ithiel de Sola Pool, *Technologies Without Boundaries*, (Eli Noam, ed.) Cambridge, MA: Harvard University Press, 1990.

The cable television industry, in a remarkably short period, has wired the nation with a second and powerful network system. It is on the verge of entering point-to-point, switched, and mobile telecommunications services. Broadcasters (with the brief exception of an AT&T proposal in the 1920s to serve as a general broadcast service provider under a common carriage obligation) were never common carriers. Cable television, too, was never treated as a common carrier, being viewed at first as essentially a passive antenna system. "Must carry" requirements for over-the air broadcasters, public access, leased access, and various local government channels created some access rights. In the early 1970s, the White House's new Office of Telecommunications Policy proposed a common carrier status; however, the idea, possibly part of the Nixon Administration attempt to put pressure on media companies, never got very far.

Cable television companies are excluded, in providing most of their traditional services, from common carriage. See 47 U.S.C. 541(d), (cable company "not subject to regulation as a common carrier or utility by reason of providing cable service").

The 1992 Cable Act did not change that, but provided for a access to programming, i.e. content. The Act also required cable companies to treat sexually explicit but otherwise lawful programs in a different fashion from other programs, by segregating them on a single channel.

Both cable and telecom segments have begun to intrude into each other's service markets. This development has been duly noted, but analyses of the relative

competitiveness have usually been framed in terms of technology, architecture, regulation, cost structure, content supply, etc.--but not in terms of common carriage versus private contract carriage.

The problem for common carriage are not other common carriers, but private contract carriers without the need to serve everybody on equal terms. In head-to-head competition between a common carrier and a private contract carrier the former is at an inherent disadvantage. The reasons are as follows:

A. A common carrier cannot use differentiated pricing in the same way that a private contract carrier can, due to its non-discrimination obligation and because it cannot prevent arbitrage.

A simple numerical example will illustrate this. Let there be two carriers, a common carrier (CC) and a private contract carrier (KC). Suppose there exist three program channel providers (A, B, and C) who are potential customers for transmission over a broadband network. Due to their different expected demand, their willingness to pay is assumed to be:

$$D(A) = 30$$

$$D(B) = 20$$

$$D(C) = 10$$

Suppose the fixed cost of providing the network is $FC = 30$ and the variable cost of

providing each a channel capacity is $MC = 2$.

Situation 1: A monopolistic common carrier, unregulated except non-discrimination obligation:

The optimal price set by the monopolist CC would be $P = 20$. At that price it would attract customers A and B for a total revenue of 40, minus the total cost of $30 + (2 \times 2) = 34$. Total profit is hence $\pi = 6$. Trying for a lower price in order to include C (i.e., $P = 10$) or to charge "as much as the market will bear" (i.e., $P = 30$) will result in lower profits.

Situation 2: A monopolistic unregulated contract carrier:

KC would charge each customer up to its reservation price. Hence A would have to pay 30, B 20, and C 10. Total revenues would be 60, costs $30 + (3 \times 2) = 36$, and profits $\pi = 24$, substantially higher than in Situation 1. This raises the question why CC wouldn't try to price-discriminate, too, given the obvious advantages of such a course. But, even if it could do so legally (negating common carriage principles), it would be stymied by a single right: *resale*. As soon as such right of resale exist -- which is simply use-neutrality, with the use being a resale -- arbitrage becomes possible, and with it vanishes most of the opportunity to price discriminate.²³ Contract carriers, meanwhile,

²³Even in those situations where regulators establish price discrimination (in order to cover the customer C who would be left otherwise without service), a permission to resell would undermine such attempt.

could simply prohibit resale.

So far, we have not assumed competition. But let us now consider it.

Situation 3: Head-to-Head Competition Between a Common Carrier and a Private Contract Carrier deciding whether to enter the market.

CC would set initially the same terms as before, $P = 20$, and provide service to A and B, for a profit of $\pi = 6$.

KC, which can individualize prices, can counter by offering a price vector of:

$$\begin{aligned}P(A) &= 19 \\P(B) &= 19 \\P(C) &= 10\end{aligned}$$

In that fashion, it will serve C (which was not served by CC), and underprice CC for customers A and B. Total profit will be $\pi = 12$, twice as much as CC's. CC could counter KC's prices by lowering its own. But it could not lower them below $P = 17$, where its profit is only $\pi = 0$. KC, on the other hand, can charge A and B 16, C 10, and make a profit of $\pi = 6$. Thus, KC will dominate and, importantly, all three of its customers are better off than under CC's service, which means they are not likely to complain to the regulators. Everyone is better off except for CC itself, which has no customers.

A second reason for KC's superiority is asymmetry:

B. A common carrier must serve a contract carrier, but not vice-versa.

The transmission paths of CC and KC are often substitutes. In some instances CC will be the lower-cost provider. But KC could then simply use CC's service as part of its system, and in effect become a reseller for it. Yet for those segments where KC has the cost advantage, it is under no similar obligation. Heads KC wins, tails CC loses.

C. A contract carrier can pick customers.

It can avoid high-risk customers, or those that negatively affects its image.

D. A contract carrier can manage the competition among its customers and benefit from it.

Suppose that A, B, and C directly competed for audiences. Each would be willing to pay up to 100 if it is assured that its rivals receive no service and can therefore not enter the market in competition. KC would provide such exclusive arrangement, charge 100 for it, and have a tidy profit of $\pi = 100 - 30 - 2 = 68$. CC could try to do the same. But it is not likely to generate the same revenue. Although it can similarly demand a price of 100 -- assuming no regulatory restriction -- it cannot guarantee exclusivity. Conceivably, each of the three channel offered might take the service, with the intention of outstaying the others and driving them out of the market. And even where one prevails temporarily, it could never be certain that another channel would not jump in later. This uncertainty and instability translates itself into a lower willingness to pay, and hence into a lower revenue for to CC.

Where CC and KC compete head-to-head in this situation, KC could not assure exclusivity, either, because CC could service the other two. But notice that by

preempting the most profitable customer it might make CC's entry unprofitable. Under the numbers of the example, if KC agrees to a deal with A for $P = 100$, it will not be possible for CC to enter and break even by servicing B and C at 10 or B alone at 20. CC could try to lure A away from KC, but since it could not assure exclusivity, as discussed, A would not leave KC even for the lower price offer by CC if CC could not, with just B or C as customers, make a rival system break even.

This analysis has centered on the advantages, to a carrier, of contract carriage on the access side of content. Parallel arguments can be made for such a carrier's advantages on the recipient side. A contract carrier could, for example, differentiate between different classes of customers, depending on their ability to pay, and charge different prices. (The federal anti-discrimination Robinson-Patman Act does not apply to services), select customers, prevent resale, etc.

The ability to price-differentiate on the two sides of a communications pipe are interrelated. Where the audience of a particular program channel is charged more by the carrier, demand of the channel is affected and with it the channel provider's willingness to pay. Conversely, a high charge on the program channel will be partly passed on to the viewers.

The conclusion of this stylized analysis is therefore that a contract carrier will be economically more profitable than a common carrier, essentially because it has more flexibility in setting pricing, service conditions, and choice of customer. This is not to say that a common carrier is without advantages. It may be subject to

regulatory favoritism. Its fixed costs are sunk. And it may have economies of scale and scope that make its average and marginal costs lower. The empirical evidence, on the other hand, suggests that traditional telephone common carriers are often high-cost operations. They have accumulated costs elements that are often not borne by younger firms. Second, as discussed, a contract carrier could benefit from a common carrier's economies of scale and scope by subscribing to its low price service elements and reselling them. And thirdly, advantage of economies of scale may erode over time as a rival grows.

V. The Challenge to Common Carriage by Systems Integration

It is important to understand that the emergence of a partly competing, partly collaborating network of networks is the foundation for a change that is fundamental in the long term, and which has received but little understanding. It is the move from the *network of networks* to the *system of systems*. The initial step into that direction is the emergence of "private" networks. Such networks serve organizations or groups communications needs, utilizing a carrier's transmission facilities by leasing "dedicated" lines, later often "software-defined" or "virtual" service that in effect creates segments of the networks that are not "public" but "private" in the sense of access.

The underlying transmission and switching segments of such a network are most likely provided by common carriers under common carriage provisions. Some

elements may also be provided by contract carriers, or by the users themselves.

However, the private networks themselves that are fashioned by the C.C. elements are *not* governed by common carriage principles. Whether the private network is Citicorp's, Columbia's, Federal Government's, Wall Street's clearing system, or the amazingly successful NREN and Internet, the user entity itself can determine who can use the system and under what terms. This means that a university can limit students' access to controversial political groups, employers can block calls to labor unions, or a government entity can record political conversations on its system.

The principle of user control has the powerful potential to expand, and in doing so it collides with common carriage.

The various new physical network segments that are created by the emergency of new carriers provide the elements for the matrix of the "network of networks" that will envelop us electronically. But how will the actual user handle this balkanized environment? There is a tremendous need for integration of the various pieces. It is possible for customers themselves to integrate, or to let a carrier do so; but the most promising scenario for the integration of the bits and pieces of networks is by specialized systems integrators, and indeed a new class of such service providers is emerging.²⁴ Their role is to provide the end user (corporate, governmental, affinity groups) with access to a variety of services, in a one-stop fashion. These specialized

²⁴ Noam, Eli, *The Next Future of Telecommunications: From the Network of Networks to the System of Systems*, Columbia Institute for Tele-Information Working Paper Series, 1992.

integrators, also known as outsourcers or managed data services providers, assemble packages of services and hardware customizing these packages to the special needs of their customers. To these customers, the identity of the underlying carriers and their technology might be unknown and transparent as transmission becomes a commodity.

Today, systems integrators exist for large customers. They are also active in establishing group networks. But when it comes to small users, Mom and Pop need not apply. But tomorrow things may be quite different. The additional step would be for systems integrators to emerge that also put together individualized networks for personal use, or *personal* networks.

Such personal networks will serve and compete for residential customers. They will access such customers through the traditional local exchange carriers as well as through the alternative access providers, including the cable television companies that already pass almost all American households. They might also use a residential "tele-mailbox" that extends the customer-owned inside wire to a neighborhood node.

As these personal, group, and inter-organizational networks develop, they access and interconnect into each other, and form a complex interconnected whole, sprawling across carriers, service providers, and national frontiers. The telecommunications environment evolves from the "network of networks", in which carriers interconnect, to the "system of systems", in which systems integrators link up.

Where does such a system of customized networks bundled together and managed by systems integrators leave government regulation? Can one expect the "system of systems" to be totally self-regulating?

Regulation by government existed partly to right the imbalance of power between huge monopoly suppliers on the one hand, and small, atomized, and technically ignorant users on the other hand. In a system of systems, on the other hand, systems integrators act as the users' representative, or agent vis-à-vis the carriers. They can protect users against carriers under-performance in quality, privacy, and price. This assumes that users have a choice among systems integrators, and that systems integrators have a choice among non-colluding suppliers of underlying services.

Of the policy goals, which are affected by the system of integration? The availability of user choice of integrators and integrator expertise would largely resolve traditional problems of **price, quality, market power, security, even privacy.** **Technological innovation** is likely to be accelerated by knowledgeable buyers and marketers of services. On the other hand, what traditional policy goals are left unresolved?²⁵

One of them is non-discrimination. Common carriage does not apply to systems integrators. They can institute restrictions on their systems, such as the

²⁵Regulatory problems of systems integration, both old and new, are discussed in E. Noam, *Industry Structure in 2000: From the Network of Networks to the System of Systems*, Columbia Institute for Tele-Information Working Paper Series (1993).

exclusion of certain types of information, subjects, speakers, or destinations. It is true that a user could pick another systems integrator, but the need for the systems to access each other, and for information to travel over interconnected carriers, means that the restrictiveness of any one of the participants might require others to institute content and usage tests before it hands over traffic, or to agree to the most restrictive principles.

Systems integration is part resale, part resale, part enhanced service. The FCC has defined resale as "an activity wherein one entity subscribes to the communications services and facilities of another entity and then re-offers communications service and facilities to the public (with or without 'adding value') for profit."²⁶ Although the FCC originally determined that resellers are common carriers,²⁷ it subsequently reconsidered its approach to resale, and has forborne regulation. However, non-discrimination requirements remain in effect.²⁸

When it comes to enhanced services of the kind a systems integrator would provide, the FCC has ruled that "enhanced services" are not common carrier activities.²⁹

²⁶In re Regulatory Policies Concerning Resale and Shared Use of Common Carrier Services and Facilities, 60 FCC 2d 261, 271 (1976), as amended 62 FCC 2d 588 (1977).

²⁷AT&T v. FCC, 572 F.2d 17, 24 (2nd Cir., 1978).

²⁸Policy and Rules Concerning Rates for Competitive Carrier Services, 91 FCC 2d 59 (1982).

²⁹Final Decision (Second Computer Inquiry), 77 F.C.C. 2d 384 (1980), etc., affirmed Computer and Comm. Ind. Assn. v. F.C.C., 693 F.2d 198, 209 (1982).

The fact that system integrators can operate as contract "carriers" to their customers while the underlying carriers may have to serve as common carriers will have far-reaching implications. Essentially, the same dynamics of KC versus CC analyzed above for carriers are at work here, too. The systems integrator can successfully compete against the underlying carriers in the provision of services to customers.

The reasons are the following:

1. In putting together a service package, the System Integrator (SI) can pick-and-choose among the lowest-price component providers, while the CC is likely to offer its own. (A CC could organize its own SI and instruct it to ignore its own parent for a lower-cost provider, but that would take a drastic redefinition of its business purpose, and if successful still lead to an SI-based system, with a SI simply owned by a CC.)
2. Competition for transmission and other services will lower their price for SI to marginal cost, which is likely to be far lower than the average cost that CC has to expend to provide it. The presence of real-time capacity markets would exacerbate this tendency.
3. SI can offer all elements of a service, while CC may well be restricted from end-to-end packages.
4. Perhaps most importantly: SI, as a private contract "carrier", can price-differentiate. The previous analysis of KC versus CC applies again. SI can offer

services to some customers at a low enough price to induce them to sign up, and use their contribution to revenues to underprice CC for high-demand customers.

5. SI can pick its customers.

6. There is no reciprocity. SI can use valuable parts of CC's operations, but if it has a unique feature it need not share it with CC.

As a result of these advantages, systems integrators, who are presently merely in their early stages, may well emerge in the future as a service providers superior to common carriers themselves, even though they use the latter's underlying transmission facilities. Thus, even though common carriage is an economically efficient institution, it will not be sustainable in a competitive environment.

Systems integrators, by aggregating the demand of many small customers, can provide them with a higher demand elasticity with respect to carriers, and thereby generate low prices and low shares in fixed costs. Systems integrators thus serve, in effect, as arbitragers in demand elasticity. This is also likely to increase their attractiveness to customers over staying as customers of carriers, and this accelerates the move to systems integration. On the other hand, those customers not able to obtain systems integrator service, perhaps because they are only reached by a monopoly carriers, would end up bearing a greater cost share. Also, systems integrators, absent some support mechanism, would deaverage prices for their customers, and charge, for example, rural customers a price that reflects the greater

cost in serving them.

The advantage of systems integrators is that they pay to competing carriers a price based only on the latter's short-term marginal costs and can pass this low cost on to their customers. Yet a significant part of cost in a capital intensive industry such as telecommunications networks is fixed, and would not get compensated in such an arrangement. The long-term result might be either a gradual disinvestment in networks, or the reestablishment of monopoly, or price cartels and oligopolistic pricing.

It is not likely that the common carriers will simply sit by as their competitors prevail. They will, therefore, in addition to operating their own systems integrators, also move to price-differentiation according to customers, partly based on the argument of "meeting competition." And that is, indeed, what is already starting to happen, especially in long-distance service provision, where customer-specific -- official or unofficial -- abound. The "deaveraging" of prices would become standard, and negotiated rates would spread. As common carriage begins to unravel, its greatest supporters (for others) are likely to be the contract carriers, who will want to preserve their competitive advantage.

This kind of erosion of common carriage is unavoidable. The only way to prevent it might be to force systems integrators to become common carriers, a requirement which would have to be inevitably extended to most private networks and to enhanced service providers. This seems neither doable nor desirable, especially

since it would not likely be enough to solve the problem addressed.

VI. A Mixed System?

Where two principles-- common carriage and private contract carriage --are fundamental in conflict, it is natural to seek some reconciliation. The wholesale conversion of contract carriage into common carriage seems improbable. The reverse - the erosion of common carriage, is much more likely, as this article argues.

Where alternatives are stark, the possibility of a mixed system suggests itself. But what can that be? There are several possibilities for a hybrid system. None of them is likely to work.

A. *Separate and Unequal*: Some competitors are common carriers while others are contract carriers. Resellers could have intermediate obligations. As argued in this paper, the CC would lose out. One would have to force the CC to remain under such a status, but this could not go on indefinitely.

B. *Hermaphrodite*: Another possibility would have to be internal hybridization within carriers themselves. Telcos, for example, might offer some services within and outside others of common carriage. (This is partly happening in the tailored Tariff 12 offerings of AT&T, or in the billing and collection of LECs.)

Historically, even if a carrier is cast as a common carrier, not all of its activities are covered. For example, railroads have long been active in real estate

activities which have no relation to common carrier obligations.³⁰ Common carrier responsibilities of access and non-discrimination are not likely to attach to such "overhead operations" as personnel administration, real estate, and the like, or to "incidental services" such as the marketing of computers, because these are not a part of core telecommunications service. It is more difficult to classify the middle category of "operational services" for example signalling channels, operator services, billing and collection, and directories.

The question is whether an "internal hybridization" can be stable. The advantages to a firm of resorting to contract carriage will continue to assert themselves, and thus will invariably lead it to expand contract carriage in a process that might be called "creeping contractization." This process will take place in particular where a CC service of a carrier faces a competing contract service of a rival. For example, if the micro-cellular service of a CC competes against those of a contract carrier, it might find itself at a disadvantage, and demand the same status.

Regulators may try to hold the line. For example, for contract carriers all mass media and all other "old" services would be subject to contract carriage, but all "new" telecom-type services, for example switched voice, would be operated under common carriage. Such an approach might work for a while, but eventually, the separation of two principles within the same carrier, the same facilities, and the same

³⁰See National Assn of Reg. Util. Com'rs. v. F.C.C., 533 F.2d 601, 608 (D.C. Cir. 1976) (NARUC II) ("one can be a common carrier with regard to some activities but not others.")

bit stream cannot work. Switched voice would be CC, but switched video not? How about video phones? Or interactive video games? How is one to maintain the definitional separation?

C. *Distinguishing Customers*: May a carrier structure its operations so that it is a common carrier for some customers, but is a private carrier for others? Such "dual operations" have been subject to limitations in a transportation context in the past, in order "to prevent the use of the private contract carriage for avoidance of the carrier's legal duties as a common carrier. In particular, common and contract carriage cannot be performed in the same vehicle at the same time."³¹ The concern was that a carrier with bottleneck power could discriminate, with the economically powerful making use of the private carrier for customized rates and service, and the economically weak obtaining an inferior or more expensive service. There is also the issue of whether common carrier liability could be reduced via a contractual relationship.

In a telecommunications setting it is often difficult to distinguish different transactional uses of the same network which could make the effort to distinguish between common and private carriage complicated. And in the context of a regulated public utility there also arise concerns over cross subsidies between the regulated common carrier and the unregulated private carrier. Even if separate subsidiaries were involved, dual operation would raise cost allocation issues.

³¹W. Grossman, Fundamentals of Transportation, 149 (1959).

D. *Upstream, Downstream*: The nature of the telecommunications network permits, in terms of technology, dual operations on each end of the transmission path. Different relations could exist between a network provider and its customers at the two different ends of any particular communication. The upstream end could be contractual, while the downstream users would be common carriage. The same problem of mixed usage arise.

E. *The Berlin Wall*. Another possibility is to assign certain services to a common carriage status across all carriers, in an attempt to level the playing field. But this, too, cannot be a stable solution. Services are not neatly separable into categories; they are dynamic, overlapping, use the same facilities, and consist of largely indistinguishable bit-streams. Add to that the incentive for the provider of a common carrier service to modify its service slightly to get it out of common carriage, and one has all the prescriptions of a built-in regulatory quagmire.

F. *Common carrier rights of way*. This approach would be based on reciprocity. This approach was proposed by the author a year ago.³² Contract carriers would not operate as common carriers. But if it interconnects with or accesses other networks by taking advantage of common carrier access rights, then it must offer such rights reciprocally on part of its capacity upstream. Thus a contract carrier which does not demand interconnection with a common carrier may

³²Noam, Eli, *The Superstructure of Infrastructure: Thinking About a Future Without a Public Network, or Principles for the Communications Act of 2034*, Columbia Institute for Tele-Information Working Paper Series, 1991.

refuse to carry the signals of any user or of other network. However, once it does make use of common carrier access to another carrier, it would have to reciprocally open up part of its own capacity to other in a upstream direction. In such a fashion, one creates common carriage "rights-of-way."

Subsequent thinking revealed problems with this approach. How much reciprocity would have to be granted, and how far upstream? Would a little bit of common carrier access require a contract carrier to grant a lot of common carriage rights in the reverse direction?

If the reciprocal rights are defined too extensively, their burden might be too high, and common carriage access by the KC would not be undertaken. Instead, KC would build or use contract carrier segments only. It would in effect "bypass" common carriage for purely regulatory reasons, or forgo offering the particular service altogether. The reciprocity approach is hence limited in its effectiveness.

VII. A Contract-Carrier Based Telecommunications System?

The conclusion of the discussion is therefore that common carriage will erode in time, and that a hybrid co-existence will not be stable. This is not to say that the common carriers qua carriers will become extinct; many of them will be significant players, but they will conduct their business as contract carriers. Common carriage as such will disappear. This will not happen overnight, of course. Intermediate arrangements can buy several decades of transition time. But the basic dynamics will

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sooner or later assert themselves.

Let us therefore imagine a communications system based entirely on contract carriage and systems integration . What are the implications? To discuss this question, we now return to the underlying objectives of common carriage that were described earlier in the paper, and see how they would fare under a private contract system.

1. Free speech access. A diverse carrier and integrator system would have room for a large number of voices, probably more than the traditional system. However, the diversity of such voices is likely to be narrower, because private carriers would not want to be identified with certain types of uses and users. Competition will not resolve this problem since all carriers will be under similar pressures. Take for example birth control information by a hotline of an abortion clinic. Faced with negative publicity and pressure, service providers with discretion in the choice of customer may drop the service as a business decision. It is of course likely that "alternative" carriers and systems integrators will emerge to serve such uses. Yet this solves only part of the problem. The need for the various systems to access each other, and for information to travel over numerous interconnected carriers, means that the restrictiveness of any one of the participants would require everyone else to institute content and usage tests before they can hand over or accept traffic, or they must agree to the most restrictive principles. Information travels across numerous

subnetworks until it reaches its destination, and nobody can tell one bit apart from another bit. If each of these networks and systems integrators sets its own rules about which information is carried and which is not, information would not flow easily.

2. Reduction of market power and essentiality of service. The creation of a system that is diverse in both carrier and upper-level integration should remove market power. Antitrust laws can deal with continuing or new problems. Remaining bottlenecks are likely to continue to function as common carriers.

3. Promotion of basic infrastructure. The new system is likely to be dynamic in generating infrastructure. On the other hand, without a mandate to deal with all interested customers, there is no service obligation, and some customers and areas may suffer. To help them will require a revamping of the existing subsidy system.

4. Reduction in transaction costs. Transaction costs would rise. Some standardized arrangements might be set up, along the model of the Uniform Commercial Code, but contractual arrangements would still be more complex than the set tariff arrangements. On the other hand, the political and regulatory process would be simplified by taking many transactions out of it and into the commercial realm. But resourceful legal counsel will, no doubt, keep such tendency in check.

5. Limited liability. There should be no problem in limiting the liability of carriers by contract.

6. Facilitation of competition and interconnection. There are two conflicting tendencies. On the one hand, it becomes more difficult for small entrants to reach customers. On the other hand, the ability to price-discriminate makes it easier to be profitable.

Interconnectivity is critical to the future network system. Yet interconnectivity does not happen by itself; that is the lesson of decades of American experience. Open Network Architecture, Comparably Efficient Interconnection, and Collocation are part of this evolution.

Such interconnection arrangements do not depend on common carriage, though they are inspired by it. Therefore, its is possible, where contractual system do not result in the desired extent of interconnectivity, and thus threaten to fragment the national communications infrastructure, to set interconnection rules by regulation.

7. Privacy. In a contractual multi-carrier system, customer privacy can be violated, but not more so than in a similar common carriage system.

To conclude: The primary problem of a contract-based network system is its reduced openness to a wide diversity of voices, in comparison to a common carriage system,

to and its increase in transaction costs, and its potential reduction of service to marginal customers. (This assumes that interconnection and market power would be dealt with otherwise.) Thus, even if common carriage erodes, its neutrality principles still remain important for economic efficiency and free speech, and will have to be protected in other ways, for example by establishing content-neutrality for transmission across carriers.

On the other side of the ledger are a more flexible and dynamic carrier system, and greater managerial control.

The juxtaposition of positive and negatives may give the impression that a policy choice exists. But as has been argued in this paper, once the basic choice has been made, correctly, in favor of competitive and non-compartmentalized transmission media and upper level services, the eventual unravelling of common carriage is inevitable.

This suggests that other policy instruments would have to be found instead of common carriage to deal with the negatives effect on speech diversity, interconnectivity, and universality. Contract carriers should not be stronger than common carriers in a micro sense, but the aggregate system may be weaker in a macro sense. This will be a challenging task for the next generation of communications policy issues and makers.³³

³³For a discussion of federal and state roles, see Noam, Eli, *The Next Future of Telecommunications: From the Network of Networks to the System of Systems*, Columbia Institute for Tele-Information Working Paper Series, 1992.

The introduction of vigorous competition will not therefore be the "end of history" as far as regulation is concerned, and government is not likely to disappear from this area. In the 1980s, telecommunications policy was centered on open entry. This was correct then and now. But in the 1990s second-generation or issues involving the integration of the various partial networks and services will be at the forefront. Fortunately, there is time. None of these developments anticipated in this paper are happening overnight, though some are already manifest. But this should not lead us to ignore them. We may all be dead in the long term, but that will not stop the long term from happening. The direction of change needs to be understood and considered in an underlying and system-wide vision that provides sense and direction to today's policy. Opening telecommunications competition will prove to have been the easy part. Dealing with the consequences will be part of the next and more difficult agenda.