New regulations typically encourage thinking about ways to evade or profit from changed circumstances, despite "an ongoing quest for an equilibrium among all parties: regulators, legislators, operators and consumers." Depending on one's perspective, clever and unanticipated outcomes help blunt the adverse and meddlesome impact of regulations, or prevent regulation from fully achieving essential public policy objectives. Perhaps because of the pace of technological and marketplace change, legislators and regulators have unwittingly created an inordinate number of opportunities for stakeholders to exploit inconsistencies in the nature and scope of telecommunications regulation. Asymmetries in regulatory burdens create incentives to find ways to exploit artificial competitive advantages and avoid regulatory classifications that create a bias toward more pervasive and costly regulatory burdens. Currently, Internet Service Providers ("ISPs") can qualify for "reciprocal" interconnection payments from local exchange carriers without having to generate a return flow of traffic. ISPs also can offer Internet-mediated long distance tele-

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2 With rather high frequency, appellate courts have rejected the Federal Communication Commission's ("FCC" or "Commission") interpretation of a legislative mandate or a Commission unilateral rulemaking initiative. For example, on several occasions the FCC unsuccessfully attempted to mandate the elimination of a statutorily imposed tariff filing requirement: Commission efforts to move to a no tariff environment for interexchange carriers—insofar as those carriers do not exercise market power—have not had an easy time with this court and the Supreme Court. For over six decades a tariff regime was mandated by the Communications Act of 1934, which requires the FCC to review telecommunication carriers' tariffs to ensure their reasonableness. The Act requires carriers to file their tariffs with the FCC, and they are prohibited from charging consumers except as provided in the tariffs. Starting in the early 1980s, the Commission tried to prohibit tariff-filing by nondominant carriers—in essence, those other than AT&T—but that effort was successfully challenged in this court in MCI Telecommunications Corp. v. FCC, 765 F.2d 1186 (D.C. Cir. 1985), where we struck down "mandatory detariffing" as inconsistent with the 1934 Act. MCI WorldCom, Inc. v. FCC, 209 F.3d 760, 761-62 (D.C. Cir. 2000) (citations omitted).

3 Mark Schankerman, Symmetric Regulation for Competitive Telecommunications, 8 INFO. ECON. & POL'Y 3, 6 (1996) ("[A]ll forms of asymmetric regulation contain an intrinsic bias toward some firms or technologies.").

4 See Prof. Dr. Gunter Knieps, Interconnection and Network Access, 23 FORDHAM INT'L L.J. 90, 99 (2000). There is a wide range of possible asymmetric regulation. Whereas, in the past, legal entry barriers protected monopolistic carriers, the regulatory pendulum now seems to swing in the opposite direction. Asymmetric regulation in favor of newcomers is motivated by the conviction that, even after the abolishment of the legal monopoly, the incumbent carrier would still possess a factual monopoly position on the network infrastructure and the normal voice telephone service. Therefore, initial support of newcomers, at least for a sufficient transition period, has been recommended recently in the national regulatory debates.

phone services free of interconnection charges without the duty to make universal service contributions like that of competitors.\(^6\) Longer-standing tactics include selecting a favorable jurisdiction (federal rather than state), legal classification (private carrier versus common carrier)\(^7\) and cash flow status (reseller instead of facilities-based carrier).

I. THE LAW OF UNINTENDED CONSEQUENCES

The authors of the Telecommunications Act of 1996\(^8\) (the “96 Act”) had great expectations\(^9\) that they could engineer competition and enhance consumer welfare simply by rewriting a law to remove regulatory barriers to competition.\(^10\) Congress assumed that it could craft legislation that created complementary incentives to achieve this goal.\(^11\) For incumbent Bell Operating Companies (“BOCs”), the law links their access to long distance markets with affirmative steps to open their networks to new local exchange service competitors.\(^12\) The law also seeks to motivate competitive local exchange carriers (“CLECs”) to construct facilities, which will stimulate demand through update the law to catch up with the new convergence in video, computer and telephone technologies,” [citing 141 CONG. REC. S8464 (daily ed. June 15, 1995) (statement of Sen. Leahy)] and that the bill would “allow the cable, telephone, computer, broadcasting, and other telecommunications industries more easily to converge and transform themselves.” [citing 141 CONG. REC. S8477 (daily ed. June 15, 1995) (statement of Sen. Pressler)]. Digitalization, among other things, had rendered modes of transmitting information interchangeable; as a result, many in Congress believed that historic divisions, artificially supported by legislative distinctions and federal and state bureaucratic arrangements, needed to be dissolved. Id. See also Joint Explanatory Statement of the Committee of Conference, H.R. Conf. Rep. No. 104-458, at H1078 (1996), reprinted in 1996 U.S.C.C.A.N. 124.


9 See Price & Duffy, supra note 9, at 982 (“There was a headiness to the rhetoric, a sense that a legislative revolution would assist, and perhaps even underwrite, a technological and organizational revolution in which past media categories would be swept away and a new era of national achievement and citizen and consumer empowerment would be achieved.”).

12 47 U.S.C. § 271 (Supp. IV 1998). This section contains a fourteen-point checklist, among other requirements, which BOCs must adhere to before being allowed into the interLATA long distance telephone service markets. LATA is an acronym for Local Access and Transport Area, a geographical region created in the AT&T divestiture case within which the spin-off BOCs can provide local and toll services. 47 U.S.C. § 153(25)(A)-(B) (Supp. IV 1998). The 14-point checklist requires the BOCs to provide: 1) full and fair interconnection with competitive local exchange carriers in accordance with the requirements of §§ 251(c)(2) and 252(d)(1); 2) nondiscriminatory and “ala carte” access to network elements in accordance with the requirements of...
lower prices and new options, rather than by reselling the services of incumbent local exchange carriers ("ILECs").

Congress underestimated the ability of stakeholders to thwart progress through litigation\(^{14}\) and to exploit ambiguous language in the '96 Act to maintain or create an unlevel competitive playing field.\(^{15}\) Stakeholders have spent more time vying in the courts than competing in the marketplace.\(^{16}\) Likewise, stakeholders have devised clever ways to exploit '96 Act provisions in ways not contemplated by Congress, such as routing Internet traffic through a CLEC, which is affiliated with an ISP, to trigger '96 Act mandated compensation, even though the CLEC has little or no off-setting traffic for ILEC routing.\(^{17}\)

Technological innovations and market convergence in telecommunications require commensurate adjustments in the legal and regulatory arena, particularly when ventures now can provide functionally equivalent services yet face different regulatory treatment. Legislative changes to the status quo occur most infrequently,\(^{18}\) while "regulatory lag"\(^{19}\) becomes a more common occurrence, as a significant period of time may run before regulations reflect changed technological and marketplace circumstances.\(^{20}\) During such periods of delayed adjustment the regulatory process may favor one competitor over others, particularly when marketplace conditions trigger new competitive opportunities and technological convergence eliminates barriers to market entry or market segmentation.\(^{21}\) Comparatively lighter regulation of market entrants may properly incubate and promote incipient competition. But without recalibration, a regulatory dichotomy may distort

\(\S\) 251(c)(3) and 252(d)(1); 3) nondiscriminatory access to the poles, ducts, conduits, and rights-of-way owned or controlled by the Bell operating company at just and reasonable rates in accordance with the requirements of § 224; 4) local loop transmission from the central office to a customer's premises, unbundled from local switching or other services; 5) local transport from the trunk side of a wireline local exchange carrier's switch unbundled from switching or other services; 6) local switching unbundled from transport, local loop transmission, or other services; 7) nondiscriminatory access to 911 emergency services, directory assistance services; 8) nondiscriminatory access to databases and associated signaling necessary for call routing and completion; 10) nondiscriminatory access to databases and associated signaling necessary for call routing and completion; 11) number portability, which is, the ability of a former BOC customer to retain use of a preexisting telephone number after having subscribed to telephone service from another carrier; 12) nondiscriminatory access to such services or information as are necessary to allow requesting carriers to implement local dialing parity in accordance with the requirements of § 251(b)(3), which is the same number of digits dialed for either BOC or alternative service; 13) reciprocal compensation arrangements in accordance with the requirements of § 252(d)(2), which is compensation from a BOC to a CLEC when it completes a call and vice versa; and 14) telecommunications services are available for resale in accordance with the requirements of §§ 251(c)(4) and 252(d)(3). 47 U.S.C. § 271(c)(2)(B).

13 Alexandre M. Wilson, Harmonizing Regulation by Promoting Facilities-Based Competition, 8 Geo. Mason L. Rev. 729, 730 (2000) ("Because the 1996 Act alone will not solve the regulatory convergence problem, the dilemma policymakers face is how to change the current system to alleviate the detrimental effects of asymmetrical regulation, and how to avoid the reflexive application of shopworn regulatory antecedents.").


17 See infra note 65 and accompanying text.

18 Roberts, supra note 10, at 146 ("Congress repeatedly ignored or rebuffed calls by the FCC and critics to amend and update the 1934 Act to provide guidance on emerging issues and technologies.").

19 Regulatory lag has been defined as "the general delay in the responses of regulators to changes in cost or market conditions." Robert W. Crandall & J. Gregory Sidak, Competition and Regulatory Policies for Interactive Broadband Networks, 68 S. Cal. L. Rev. 1203, 1221 (1995).

20 James Alleman et al., Universal Service: The Poverty of Policy, 71 U. COLO. L. Rev. 849, 850 (2000) ("For the transition to competition to succeed, asymmetric measures to control market power should be phased out as the incumbent's market power diminishes.").

21 For example, when separate companies installed separate wires to provide mutually exclusive telephone and video services, different legal and regulatory classifications applied to telephone and cable television services, with the former treated as common carriage and the latter as non-common carriage. [C]able systems have two relevant special characteristics. They are unusually involved with government, for they depend upon government permission and government facilities (streets, rights-of-way) to string the cable necessary for their services. And in respect to leased channels, their speech interests are relatively weak because they act less like editors, such as newspapers or television broadcasters, than like common carriers, such as telephone companies.

markets and handicap incumbents who deserve similar deregulation or streamlined government oversight.\textsuperscript{22}

The authors of the '96 Act thought they had performed such a rebalancing of the telecommunications regulatory regime so that more robust competition might ensue without unduly favoring entrants with preferential treatment or allowing incumbents to exploit market power and engage in anticompetitive practices. To the apparent dismay of Congress, telecommunication and information service providers have proven to be quite adept at exploiting opportunities to capture greater profits and market share by tilting the competitive playing field to their advantage. While designed to achieve market access parity, the '96 Act, like so many laws and regulations before it, has become a vehicle for clever interpretation, exploitation and litigation.\textsuperscript{23}

For example, Congress thought that it could ensure market access parity through a "one-size-fits-all" regulatory classification, such as common

\textsuperscript{22} Some critics of FCC policies requiring ILECs to share local distribution facilities allege: [such] unbundling would be a classic case of asymmetric regulation: the CLEC would pursue the more profitable, unregulated service, while the ILEC would be left providing basic local service (in many cases, below cost). Innovation would be eroded by regulations that arbitrarily favored CLECs, without regard to the adverse effect of such asymmetric regulation on the welfare of consumers.


\textsuperscript{24} 47 U.S.C. § 153(44) (Supp. IV 1998) (deeming every telecommunications carrier a "common carrier under this Act only to the extent that it is engaged in providing telecommunications services").

\textsuperscript{25} The FCC may forbear from applying any regulation or any provision of the Communications Act if (1) "enforcement of such regulation or provision is not necessary to ensure that the charges, practices, classifications, or regulations . . . are just and reasonable and are not unjustly or unreasonably discriminatory," (2) enforcement is not necessary to protect consumers and (3) forbearance is consistent with the public interest. 47 U.S.C. § 160(a)(1)-(3) (Supp. V 1999).

\textsuperscript{26} In MCI Telecomm. Corp. v. FCC, 705 F.2d 1186, 1195-96 (D.C. Cir. 1985), the Circuit Court of Appeals for the District of Columbia struck down "mandatory detariffing" as inconsistent with the Communications Act of 1934; see also AT&T Co. v. FCC, 978 F.2d 727, 735-36 (D.C. Cir. 1992), aff'd sub nom. MCI Telecomm. Corp. v. AT&T Co., 512 U.S. 218 (1994) (noting the FCC could not suspend (permissively or mandatorily) the tariff filing obligations for interchange carriers, whether they had market power or not); MCI WorldCom, Inc. v. FCC, 209 F.3d 760, 766 (D.C. Cir. 2000) (holding that mandatory detariffing for interexchange carriers was reasonable).


\textsuperscript{29} The MIT Dictionary of Modern Economics defines market power as the "ability of a single, or group of buyer(s) or seller(s) to influence the price of the product or service in which it is trading. A perfectly competitive market in equilibrium ensures the complete absence of market power." The MIT Dictionary of Modern Economics 268 (David W. Pearce ed., MIT Press 1995).
sight. On the other hand, some incumbents have continued to incur such burdens despite changed circumstances and the '96 Act requirement that all service providers, regardless of regulatory classification, should bear on a "competitively neutral" basis the obligation of making financial contributions to support universal access to basic telecommunications.⁵⁰ For example, ISPs and other ventures providing enhancements to leased lines do not pay local exchange carrier access charges or contribute to universal service funding even when other carriers would trigger such payments.⁵¹

Both newcomers and subsidiaries of incumbents may secure regulatory exemptions on semantic grounds by characterizing and offering services in a way that qualifies for diminished regulation. Incumbents may exploit regulatory inertia that maintains regulatory safeguards and barriers to market entry based on persisting concepts of "natural monopoly" and a strained view that only one enterprise can achieve public policy objectives such as effectively executing a universal service mission. Alternatively, incumbent carriers may create separate subsidiaries to qualify for unregulated or lightly regulated non-dominant, market entrant status.⁵²

Regulatory arbitrage refers to the ability of stakeholders to exploit differences in legislative and regulatory classifications with an eye toward securing more favorable or less burdensome regulatory treatment that typically will accrue financial and competitive advantages.⁵³ This article will examine a number of semantically driven regulatory dichotomies (common carrier versus private carrier, basic versus enhanced services and ILEC versus CLEC) with an eye toward determining whether technological convergence and regulatory opportu

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⁵⁰ 47 U.S.C. § 254(d) (Supp. IV 1998) ("Every telecommunications carrier that provides interstate telecommunication services shall contribute, on an equitable and nondiscriminatory basis, to the specific, predictable, and sufficient mechanisms established by the Commission to preserve and advance universal service."); 47 U.S.C. § 254(h)(2)(A) (requiring the FCC to "establish competitively neutral rules—(A) to enhance, to the extent technically feasible and economically reasonable, access to advanced telecommunication services and information services for all public and nonprofit elementary and secondary school classrooms, health care providers, and libraries"); Texas Office of Public Utility Counsel v. FCC, 183 F.3d 393 (5th Cir. 1999), cert. dismissed sub nom. GTE Service Corp. v. FCC, 531 U.S. 975 (2000).

⁵¹ Frieden, Regulatory Models Diverge, supra note 6, at 412–13.

⁵² As part of its initial deregulatory thrust in the 1980s, the FCC developed a regulatory dichotomy between dominant carriers to be subject to conventional but possibly streamlined regulation, and nondominant carriers to be subject to regulatory forbearance based on the view that carriers lacking market power should not be burdened with regulations designed to curb the potential for dominant carriers to engage in anticompetitive practices. See Scott M. Schoenwald, Regulating Competition in the Interexchange Telecommunications Market: The Dominant/Nondominant Carrier Approach and the Evolution of Forbearance, 49 Fed. Comm. L.J. 367, 375–76 (1997).

⁵³ A. Michael Froomkin, The Internet as a Source of Regulatory Arbitrage, in BORDERS IN CYBERSPACE: INFORMATION POLICY AND THE GLOBAL INFORMATION INFRASTRUCTURE 129 (Brian Kahin & Charles Nesson eds., 1997).
fusal to unburden them relative to market entrants invariably favors the latter group.

Over the years a number of such regulatory anomalies and asymmetries have occurred. For example, the price, but not necessarily the cost, of a minute of telecommunication use has depended on such factors as:

- the perceived value of the service;\(^{34}\)
- which regulatory agency has jurisdiction over cost allocation and tariffing;\(^{35}\)
- whether the service is domestic or international;\(^{36}\)
- whether another carrier or end-user seeks facilities interconnection;\(^{37}\)
- the type of carrier\(^{38}\) or enterprise\(^{39}\) providing service;\(^{40}\) and

\(^{34}\) Both the FCC and state regulatory commissions have allowed carriers to price some services on the perceived value consumers accrue. For example, some local exchange telephone service rates have increased when the number of accessible subscribers reaches a benchmark. In most states, the Bell Operating Companies and larger independents charge higher rates in metropolitan areas than in rural areas—a pricing practice that dates back to the turn of the century and is traditionally justified in the belief that the value of the service provided is higher for subscribers with larger local calling areas. Press Release, Federal Communications Commission, FCC Releases Semiannual Study on Telephone Trends (Aug. 7, 1991), available at 1991 FCC LEXIS 4305 at *10.

\(^{35}\) Typically an intrastate long distance minute of use significantly exceeds the price of an interstate long distance minute of use. Ironically, an intrastate state call originated via a cellular telephone may be significantly cheaper than the corresponding rate for a call originated over wirline facilities. The rate differential results, in part, from rate-making policies, which historically have included cross-subsidies to local exchange service, as opposed to actual cost of service differences. Additionally, many cellular service packages offer minutes of use without regard to whether they are local or long distance. See California v. FCC, 4 F.3d 1505, 1507 (9th Cir. 1993). ("We recognize the states' concern that, because the states' rates for intrastate services offset other costs, state rates will be higher than federal tariffs, and customers may attempt to use the federal tariff for intrastate as well as interstate communications.").


\(^{37}\) The Telecommunications Act of 1996 and pre-existing FCC regulations differentiate the terms and conditions for interconnection between carriers as opposed to customer-carrier interconnection. The Telecommunications Act orders favorable and potentially zero-cost interconnection between certain types of carriers. For example, § 251 requires all local exchange carriers "to establish reciprocal compensation arrangements for the transport and termination of telecommunications." 47 U.S.C. § 251(b)(5) (Supp. IV 1998). End-users and interexchange ("long distance") carriers must pay higher "access charges." In re Developing a Unified Inter-carrier Compensation Regime, \textit{Notice of Proposed Rulemaking}, CC Dkt. No. 01-92, FCC 01-132, paras. 5–10 (rel. Apr. 27, 2001).


\(^{39}\) “Captive” long distance callers from hotel rooms and callers not familiar with “dial around” options for avoiding price gouging for pay phone service recognize the vast price differences for long distance telephone service.

\(^{40}\) Certain types of services have qualified for exemption from regulatory burdens that impose extra costs. For example, enhanced services qualify for non-common carrier status and its users are exempt from having to pay an access charge payment otherwise applicable to basic service subscribers. A 1987 FCC initiative to eliminate the exemption generated substantial opposition by users who claimed the Commission had proposed to impose a “modem tax.”

In 1983 we adopted a comprehensive ‘access charge’ plan for the recovery by local exchange carriers (LECs) of the costs associated with the origination and termination of interstate calls. At that time, we concluded that the immediate application of this plan to certain providers of interstate services might unduly burden their op-
• the type of line or facility providing service and whether the service can access the public switched telephone network (“PSTN”).

III. JURISDICTIONAL BRINKMANSHIP

A perennial candidate for regulatory arbitrage lies in securing favorable jurisdictional treatment. On a cost causation basis, traversing a state or international boundary should not make much difference. But how regulators and carriers allocate costs and which services they attribute cost causation can result in substantially different cost levels depending on whether telecommunications traffic stays within a state, crosses state borders or leaves a nation. Intrastate traffic in the United States and elsewhere typically triggers higher retail rates than interstate traffic, even for routes of equal distance. Similarly, international traffic may cost several times as much as domestic rates of equal mileage.

Given a significant gap between services, as a function of jurisdictional classification, arbitrage opportunities abound. Entrepreneurs have engaged in creative traffic routing to shoehorn services into a preferred jurisdiction. Traffic that originates and terminates within a single state nevertheless may traverse an adjacent state simply to avoid intrastate ratemaking and the jurisdiction of that state’s public utility commission. Until Cal...
nadian long distance telephone rates dropped to U.S. levels, carriers would transmit traffic via the U.S. and back into Canada to qualify the traffic for lower Canada-U.S rates than the higher domestic charges. Similarly, call-back operators would import dial tone from nations with low international calling rates even for domestic calls. Arbitrageurs find and exploit price margins whether created by regulation (intrastate versus interstate rates) or different competitive conditions (high international calling versus lower calling rates).

IV. SEMANTIC GAMES: PRIVATE VERSUS COMMON CARRIERS

Regulatory avoidance and arbitrage also occurs when ventures seek preferred legal classifications. While private carriers used to lack opportunities to target and serve third parties like their common carrier counterparts, over time, the FCC permitted such marketing, thereby diminishing the difference between private and common carriage.

The rights and responsibilities historically vested in common carriers tempered their market power in exchange for reduced liability or insulation from commercial and personal damages caused by the content carried. Historically, providers of neutral and transparent conduits did not have to monitor the content carried, nor could they typically refuse access to their bottleneck.


A firm controlling bottleneck facilities has the ability to impede access of its competitors to those facilities. We must be in a position to contend with this type of potential abuse. We treat control of bottleneck facilities as prima facie evidence of market power requiring detailed regulatory scrutiny. Control of bottleneck facilities is present when a firm or group of firms has sufficient command over some essential commodity or facility in its industry or trade to be able to impede new entrants. Thus bottleneck control describes the structural characteristic of a market that new entrants must either be able to share the bottleneck facility or fail.

See also United States v. Terminal R.R. Ass'n, 224 U.S. 383 (1912) (ordering railroads to provide competitors equivalent access to bottleneck railway terminal facilities); appeal after re-consideration, 236 U.S. 194 (1915); Id. an Inquiry Into the Use of the Bands 825-845 Mhz and 870-890 Mhz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems, Report and Order, 86 F.C.C.2d 469, 495-96, paras. 54-55 (1981) (requiring telephone companies to furnish interconnection to cellular systems upon terms no less favorable than those used by or offered to wireline carriers), modified, 89 F.C.C.2d 58 (1982), further modified, 90 F.C.C.2d 571 (1982); In re Need to Promote Competition and Efficient Use of Spectrum for Radio Common Carrier Services, Declaratory Ruling, 2 FCC Rcd. 2910 (1987), clarified, Order, 2 FCC.
facilities on the basis of content. ISPs and mobile radio operators serving retail customers operate like common carriers, at least insofar as their carriage of voice telephony traffic and generated by such third parties. In the former case, Internet-mediated telephony does not constitute common carriage. However, in the latter case Congress closed a semantic loophole by deeming all commercial mobile radio services, even if initially classified as private carriage, to be common carriage. Subsequent streamlining of common carrier regulation applied equally and fairly to both types of common carriers—incumbents and those classified as private carriers.

The common carrier insulation from liability would support the development of a ubiquitous ISP infrastructure and, in turn, promote universal access to information services. Historically, common carriage has applied exclusively to public utilities and other providers of essential services. Policy makers have not yet deemed Internet access so essential as to place it in the same category as Plain Old Telephone Service (“POTS”) as opposed to other desirable, non-common carrier services like cable television. Additionally, recent developments in the interpretation of what constitutes common carriage does not support extending the classification to ISPs or using it as a vehicle to bolster public policy support for universal Internet service.

The dichotomy between common carriers and private carriers has grown murky, because of:

- Legislative and regulatory tinkering with the common carrier model;
- Technological innovations;
- A growing body of cases articulating robust speaker rights of common carriers; and
- Court cases imposing quasi-common carrier obligations on private carriers and quasi-publisher duties on common carriers.

Extension of the common carrier model appears difficult now that common carriers can avoid many of the traditional requirements and non-common carriers have acquired some of the insulation from liability previously available only to common carriers. The '96 Act requires the application of common carriage classification on commercial providers of telecommunication services, but authorizes the FCC to abandon virtually all regulatory requirements on any common carrier if circumstances favor such deregulation.

On the other hand, the '96 Act provides ISPs with

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52. In Sable Communications, Inc. v. FCC, 492 U.S. 115, 126 (1989), the Supreme Court upheld a federal statute prohibiting obscene telephone messages, but overturned the statute's absolute denial of adult access via telecommunication common carriers to indecent messages that are entitled to First Amendment protection.


54. Section 153(44) defines telecommunications carrier "as a common carrier . . . to the extent that it is engaged in providing telecommunications services." 47 U.S.C. § 153(44) (Supp. IV 1998).

a quasi-common carrier exemption from liability for the carriage of material, like obscenity and copyright violations, if the operator had no knowledge that it carried the offending content.65

V. THE GAME CONTINUES

Jurisdictional brinkmanship continues despite the reforms engineered by the '96 Act. ISPs have created CLEC affiliates with the sole purpose of qualifying for a compensation stream based on the jurisdictional view that the link from Internet subscriber to the ILEC and then onward to the ISP's CLEC affiliate and finally to the ISP is a local and not an interstate call.64

The '96 Act requires reciprocal compensation between ILECs and CLECs based on the view that such a compulsory compensation scheme would encourage market entry and competition in the local exchange services.65 Reciprocal compensation presumably would favor incumbents who would receive more traffic generated by a CLEC. ILECs sought this transfer payment system in lieu of a rough justice “sender keep all,” “bill and keep” model,66 because of the expected asymmetry in traffic flows, in which small market entrants with few customers typically would hand off more traffic for termination by the incumbent to one of its subscribers than would the incumbent hand off traffic for termination by a CLEC to one of its customers.67

ISPs and their CLEC affiliates outsmarted the ILECs by engineering a local exchange routing system that guaranteed the CLEC significant traffic originating on ILEC facilities and requiring a transfer to CLEC facilities, but without the prospect for an off-setting return flow. Internet traffic originated by an ILEC customer and handed off to an ISP’s CLEC affiliate qualifies for compensation from the ILEC because the traffic is deemed local in nature. The FCC recently sought to close the jurisdictional loophole by recognizing that the end-to-end nature of the Internet-access call typically delivers the call to an interstate and even global network; however, the Commission refrained from upsetting in-place interconnection arrangements and from preempting state public utility commission jurisdiction over such arrangements. Therefore, Internet access calls trigger the reciprocal compensation requirement even though an examination of the origination and termination “end points” of typical Internet calls proves the interstate nature of most calls. Ironically, in previous instances, the FCC considered the presence of even a small portion of interstate calls as “contaminating” an otherwise intrastate line and subjecting that line to federal and not state jurisdiction.68

VI. INTERNATIONAL ACCOUNTING RATE ARBITRAGE

Because international accounting rates69 remain at artificially high levels for many routes, carriers and their customers strategize on how to route traffic exempt from the settlement process. The vehicles for avoiding high accounting rates include the use of call-back services, which provide dialtone to end-users physically situated in another country, and linking international private lines with a switch that secures access to the PSTN. These options may violate ITU recommen-

63 Historically, common carriers have operated as neutral and transparent conduits, neither knowledgeable of the content they carry, nor legally responsible for what they carry. The Telecommunications Act of 1996 also provides legal protection for the “[G]ood [S]amaritan” blocking and screening of offensive material defined as “any action voluntarily taken in good faith to restrict access to or availability of material that the provider or user considers to be obscene, lewd, lascivious, filthy, excessively violent, harassing, or otherwise objectionable, whether or not such material is constitutionally protected.” 47 U.S.C. § 230(c) (Supp. IV 1998).


65 Id.

66 “Sender Keep All” and “Bill and Keep” arrangements refer to the absence of a monetary transfer when carriers agree to route the traffic of another carrier to yet another carrier (also known as transiting), or to the final recipient.

67 Id. at 40–41 nn.201–03.

68 Id. at 4.

69 For background on how international telecommunications carriers divide toll revenues using the accounting rate regime, see generally Robert M. Frieden, Falling Through the Cracks: International Accounting Rate Reform at the ITU and WTO, 22 TELECOMM. POL’Y 963 (1998) [hereinafter Frieden, Falling Through the Cracks]; Frieden, Impact of Call-Back, supra note 46; Frieden, International Toll Revenue, supra note 37; Paul W. Kenefick, A Step in the Right Direction: The FCC Provides Regulatory Relief in International Settlements and International Services Licensing, 8 COMM’LAW CONSPECTUS 43, 54 (2000).
Indian carriers do provide discounted rates to high volume users. For example, international carriers would offer a discount as an incentive to migrate from unmetered private lines to metered "virtual" (software defined) private lines using the public switched network. The carriers avoid application of artificially high accounting rates by creating a new service category and applying a different and lower accounting rate. Foreign carriers typically have no obligation to justify how the new rate does not discriminate against users paying higher charges for existing offerings subject to accounting rates.

Resellers can expand the reach of leaky private lines with higher capacity switches. Some carriers and their regulatory overseers do not object to this type of "pure resale" that does not enhance leased lines. Resale stimulates overall capacity demand, and it can reduce outbound international message telephone service ("IMTS") accounting rate liability, particularly where regulatory policies block or limit inbound resale.

Transiting, the routing of traffic destined for another country across domestic facilities, presents another opportunity for carriers and new international telephone entrepreneurs alike to engineer innovative new arrangements for users.

Since the early 1990s, the FCC has taken a more proactive role in accounting rate oversight, looking to encourage carrier and end-user "self help," by creating routing strategies that collectively make high accounting rates unsustainable. The FCC also adopted a "get tough" policy with international carriers, including prescribed accounting line network means that users, who otherwise would have to use dial up international telephone circuits, can opt for specially configured private line access for functionally equivalent service.

What is occurring in international telecommunications parallels the grey market in international commercial aviation where carriers look the other way, or clandestinely collaborate with ticket resellers, consolidators and brokers who offer seats at rates well below the published tariff. Private lines, by definition, provide closed, intra-corporate networking capabilities, which are not functionally equivalent to switched public, long distance services.

In international telecommunications, sophisticated users and system integrators design private line networks that avoid accounting rates liability. Carriers originally offered unmetered private lines in a way to fill up excess capacity and satisfy large-volume user requirements for closed, internal networks. Private branch exchanges and other customer-controlled equipment have enabled users to interconnect unmetered international private lines with local public switched telephone networks. Such "leakiness" enables the private line subscriber to access users outside the internal network. Expanded access to a private network means that users, who otherwise would have to use dial up international telephone circuits, can opt for specially configured private line access for functionally equivalent service.
principles, because it had grown impatient with the pace of reform in private accounting rate negotiations. While the FCC can properly condition grants of regulatory authorizations and prescribe rates for the carriers it regulates, attempts to affect the behavior and the financial performance of other carriers has generated vocal opposition, at home and abroad, that the Commission failed to appreciate international comity and national sovereignty. Nevertheless, a federal court has affirmed the FCC's accounting rate presumptions and policies.

Similarly, a FCC proposal to impose reporting requirements and other means for overseeing the extent of participation in the U.S. telecommunications market by foreign-owned firms generated arguments that it would violate the commitment to "national treatment" of foreign enterprises (applying identical regulatory rights, responsibilities and opportunities for foreign-owned carriers as for domestic carriers). The FCC subsequently decided to calibrate the scope of regulatory oversight of foreign carriers to the degree of market access afforded U.S. carriers, particularly the extent to which U.S. service providers may use leased international private lines to access the PSTN in foreign locales. This mechanism provides strong leverage for achieving market access parity by linking the scope of inbound U.S. market access with reciprocal opportunities for outbound traffic.

Reliance on proliferating private line resale redirected the FCC from confrontation with foreign carriers over their sovereign right to negotiate accounting rates to "procedural reforms that remove any U.S. regulatory impediments to lower, more economically efficient, cost-based accounting rates . . . ." The Commission assumed that if resale were available on an equivalent basis, inbound and outbound, then the incumbent facili-

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84 In re Regulatory Policies and International Telecommunications, Notice of Inquiry, 2 FCC Rcd. 1022, 1022, para. 1 (1987), Report and Order and Supplemental Notice of Inquiry, 4 FCC Rcd. 7387, 7387, para. 1 (1988), Order on Reconsideration, 4 FCC Rcd. 323 (1989). The FCC has modified its policies that impose more extensive oversight of foreign owned carriers providing international services from the United States. See In re Regulation of International Common Carrier Services, Notice of Proposed Rulemaking, 7 FCC Rcd. 577, 583, para. 38 n.35 (1992); Report and Order, 7 FCC 7331 (1992) (retaining more burdensome "dominant carrier" oversight only where the foreign affiliate of a USISC has the ability to discriminate against unaffiliated carriers through control of bottleneck services and facilities in the foreign market).


86 See In re Rules and Policies on Foreign Participation in the U.S. Telecommunications Market, Order on Reconsideration, 15 FCC Rcd. 18,158, 18,160-65 (2000); Report and Order on Reconsideration, 12 FCC Rcd. 23,891, 23,894, para. 2 (1997) (replacing an "effective competitive opportunities" test with a "looser "open entry" standard for WTO Members when considering foreign carrier entry into the U.S. market by means of authorizations to provide facilities-based, switched resale, and resold non-interconnected private line service, authorizations to exceed the 25% foreign ownership benchmark and cable landing licenses).

87 See In re Cable & Wireless, Inc., Memorandum Opinion, Order and Authorization, 9 FCC Rcd. 7283, 7283, para. 4 (1994); In re Cable & Wireless, Inc., Order and Certification, 8 FCC Rcd. 1664, 1664, para. 2 (1993); In re Fonorola Corp. Application for Authority Under Section 214 of the Communications Act to Resell Facilities of Other Common Carriers to Provide Domestic Carriers Interconnection with Canadian Carriers, Memorandum Opinion, Order and Certification, 7 FCC Rcd. 7312 (1992), Order on Reconsideration, 9 FCC Rcd. 4066, 4071, para. 25 (1994) (authorizing British and Canadian resellers to provide international service upon finding that the foreign country on the other end of the circuit provides equivalent opportunities to U.S. carriers to resell interconnected private lines).

ties-based carriers would perceive new incentives to negotiate lower accounting rates to dissuade customers from migrating to private line and resale options. Facilities-based international telecommunications carriers, which face competition from resellers\(^9\)\(^9\) unencumbered by accounting rate liability, may view high accounting rates as imposing a floor on how low they can price end user rates "to prevent diversion of . . . customers to a reseller." Presumably, resellers providing outbound services from the United States will acquire market share, thereby reducing the number of IMTS outbound minutes subject to accounting rate settlements.\(^9\)\(^9\) A facilities-based carrier, refusing to negotiate accounting rates closer to cost, would "receive fewer revenues from its IMTS customers and, thus, would wind up with fewer revenues overall."\(^9\)\(^9\)

VII. THE INTERNET AS A MEDIUM FOR ARBITRAGE

The Internet has evolved into a vibrant medium for communications, entertainment, education and commerce. One of the primary drivers for the growing consumer reliance on Internet-mediation involves the ability of the Internet to offer instant "real time" delivery of digital packets in addition to the store and forward, non-real time delivery of packets in applications like electronic mail. Real time "streaming" of information packets means that the Internet can serve as a medium for audio and video programming and also for telephone services.

Absent network congestion, the cost to carry or process an additional minute of Internet traffic approaches zero because the incremental cost is near zero.\(^9\)\(^9\) This pricing system enhances consumer welfare, stimulates usage and revenue generation and accrues positive networking externalities.\(^9\)\(^4\) The Internet adds thousands of new sites and users daily with such expanded access opportunities accruing greater utility for all users.\(^9\)\(^5\) As long as ample capacity remains available along with moderate transport and content costs, ISPs need not meter traffic and can offer service on an insensitive All You Can Eat ("AYCE") usage basis.

ISPs can offer AYCE service because even as they have high fixed costs, they incur relatively low incremental costs absent network congestion. They can represent that their network extends globally even though few, outside of a small group of Tier-1 backbone network operators, actually have built or leased such an extensive array of facilities.\(^9\)\(^6\) Until recently, ISPs have incurred little additional expense in providing their customers opportunities to access Internet networks via incumbent telecommunication carriers' facilities.\(^9\)\(^7\)

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89 K. Cheong & M. Mullins, International Telephone Service Imbalances, 15 TELECOMM. POL’Y 107, 116 (1991) ("Resale of leased private lines] would bypass the accounting rate mechanism—a major cost to the traditional carrier mode of operation—and increase the feasibility of creating unidirectional traffic channels."). If resale remains unidirectional, United States facilities-based carriers and consumers will not benefit: resale occurring only in the inbound United States direction would increase the United States accounting rate deficit. Resale must be bi-directional to have the effect of exposing the differential between tariffs and accounting rates and ultimately force traditional carriers to renegotiate accounting rates closer to service costs." Id. at 116-17.

90 In re Regulation of International Accounting Rates, First Report and Order, 7 FCC Rcd. 559, 561, para. 16 (1991) (stating "[t]o the extent that the accounting rate is above cost, the underlying carrier will face a constraint on how much of a reduction in its revenues it can tolerate.").

91 Id.
92 Id.

93 This pricing scenario presupposes that an ISP does not incur usage sensitive prices for any major element of service. For many Asia-Pacific routes, the need to access network access points in far away locations, such as the United States, does impose significant costs. To offset the charges of facilities-based telecommunications carriers, ISPs may charge end users on a usage sensitive basis, for example, an hourly surcharge after an initial allocation of access time. See Rob Frieden, Does a Hierarchical Internet Necessitate Multilateral Intervention?, 26 N.C. J. INT’L L. & COM. REG. 361, (2001) [hereinafter Frieden, Multilateral Intervention?].

94 A positive network externality exists when the cost incurred by a user of the Internet does not fully reflect the benefit derived with the addition of new users and points of communications. See also Mark A. Lemley & David McGowan, Legal Implications of Network Economic Effects, 86 CAL. L. REV. 479 (1998); See generally John Farrell & Garth Saloner, Standardization, Compatibility and Innovation, 16 RAND J. ECON. 70 (1985); Michael L. Katz & Carl Shapiro, Network Externalities, Competition and Compatibility, 75 AM. ECON. REV. 424 (1985).

95 See Susan Stellin, Compressed Data; Number of New Internet Users is Growing, N.Y. TIMES, Feb. 19, 1990, at C3 (citing a report released by the Pew Internet and American Life Project estimating that the number of American adults with Internet access grew in the last six months of 2000 by 16 million).

96 See Frieden, Multilateral Intervention?, supra note 93, at 363.

97 The author acknowledges that "free rider" opportunities via other ISPs are becoming more scarce, as the Internet becomes more hierarchical and larger ISPs demand and receive payments for providing transit services to ISPs with fewer customers, less bandwidth and limited sources of desirable content. See Rob Frieden, Last Days of the Free Ride? The Consequences of Settlement-Based Interconnection for the Internet, INFO, VOL. 1, NO. 3, 225–38, available at http://
Accordingly, ISPs have had opportunities to tap into the same financial and distance-insensitive service opportunities as telecommunication entrepreneurs that exploit the porousness of telecommunication networks and relative ease in accessing the PSTN. One can consider Internet-mediated telephony in the same context as other technological innovations like call-back, switched hubbing, refile, and international simple resale that provide new, lower-priced alternatives to the "retail" rate for toll telephone services.

Internet telephony shifts the balance of market power from carriers, which traditionally have set prices on a cost-plus basis, to consumers who may emphasize price and consider telephony a commodity business. If telephony minutes of use become fungible, with voice traffic subordinate to an increasing volume of data, then service providers will have limited, if any, ability to saddle users with rates significantly above cost, despite the fact that carriers do plow back a large percentage of any financial surplus to achieve universal service and infrastructure development objectives.

The onset of Internet-mediated telephony has the potential for bringing to a head the long simmering debate over the propriety of pricing telecommunication services above cost, in part to promote a universal service mission. It also may trigger closer examination of what constitutes the actual cost a carrier incurs to route a minute of telecommunication traffic. The 1997 OECD Accounting Rate Study observed:

[A] polarisation [exists] between a group of countries with relatively competitive prices and low accounting rates, and a second group of countries with prices significantly above cost . . . This danger is real, especially between OECD countries and a number of non-OECD countries who have difficulty in envisaging the benefits which they can attain from competitive telecommunication markets.

VIII. INTERNET TELEPHONY THREATENS THE STATUS QUO

Currently, international accounting rates for most routes substantially exceed the total cost in-

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99 "'Callback' is a technology used to provide international telecommunications service from a foreign country through a . . . switch [in the U.S. or other nation with low collection charges and options for private line resale and routing options that reduce or eliminate accounting rate liability]." In re Philippine Long Distance Telephone Co. v. International Telecom, Ltd., Memorandum Opinion and Order, 12 FCC Rcd. 15,001, 15,002, para. 4 n.10 (1997). See also Frieden, Falling Through the Cracks, supra note 69, at 975; Frieden, Impact of Call-Back, supra note 46, at 819 (1997); Organisation for Economic Co-Operation and Development, Committee for Information, Computer and Communications Policy, Refile and Alternative Calling Procedures: Their Impact on Accounting Rates and Collection Charges, OECD/GD(95)19 (Paris, 1995) [hereinafter 1995 OECD Refile and Call-back Report]; Organisation for Economic Co-Operation and Development, Committee for Information, Computer and Communications Policy, New Technologies and Their Impact on the Accounting Rate System, OECD/GD(97)14 (Paris, 1997) [hereinafter 1997 OECD Accounting Rate Study].

100 The FCC defined switched hubbing as "the routing of U.S. switched traffic over U.S. international private lines, whether resold or facilities based, that terminate in equivalent countries and then forwarding that traffic to a third, non-equivalent country by taking at published rates and reselling the international service of a carrier in the equivalent country." In re Policy Statement on International Accounting Rate Reform, Policy Statement, 11 FCC Rcd. 3146, 3147, para. 12, n.9 (1996) [hereinafter 1996 Accounting Rate Policy Statement].

101 Refile or the hubbing of traffic is using one coun-
occurred by two or more “foreign correspondents” to switch and route a call from originator to recipient. The onset of higher capacity submarine cables and satellites, coupled with digital signal processing and switching and circuit multiplication technologies, have significantly reduced per-mile and per-call costs, although the cost savings may not be the same for nations lacking the traffic volumes and funds available to support new technologies having lower per unit costs. However, absent competitive or regulatory pressure to reduce accounting rates and retail collection charges to levels commensurate with such lower costs, carriers that terminate more calls than they originate want to maintain the status quo. Accordingly, accounting rates continue to overstate cost and overcompensate some operators:

The pace in introducing competition in international telecommunication markets and the reform of these markets is slow, and there is an apparent reluctance in many cases by governments to accelerate reform in this area. It therefore cannot be expected that significant changes in prices (collection charges) and accounting rates will take place given present attitudes and policy frameworks.

In the absence of competitive necessity, an aggressive campaign by regulators in sufficient numbers or widespread use of Internet telephony and other arbitrage tactics, many carriers continue to benefit from traffic retardation strategies that reduce outbound calling and expand asymmetry between inbound and outbound traffic volumes. For some nations, purposefully high accounting rates and commensurately high collection charges accrue financial dividends by reducing the volume of outbound traffic that otherwise would offset at least a portion of the settlement surplus. Even as they may reduce some high-profit operator-assisted outbound international calls, call-back and other call-reorigination services increase the volume of inbound calls, at least some of which trigger an accounting rate settlement.

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105 Carrier correspondents “match” half-circuits to erect a complete link from call originator to call recipient. The half-circuit concept operates on the presumption that carrier correspondents achieve a “whole circuit” by linking two half-circuits at the theoretical midpoint of a submarine cable, or at the satellite providing the transmission link. In the submarine cable scenario, each carrier has responsibility to secure access to circuits linking transmission facilities on its territory to the location where the cable makes its landfall (referred to as the cablehead), possibly located in a different nation, and onward to the midpoint. For more background on international telecommunications operations and policy, see Rob Frieden, Managing: Internet-Driven Change in International Telecommunications (2001); Rob Frieden, International Telecommunications Handbook (1996).

106 See Informal Expert Group on International Settlements, Int'l Telecomm. Union, The Cost of International Telephone Calls, at http://www.itu.int/search (last visited May 16, 2001) (reporting that the per minute cost for routing an international telephone call via an INTELSAT satellite including operating expenses is US $0.02 and that factoring all switching, routing, interconnection and administrative costs, including license fees, advertising and taxes “the average per minute cost of an international call is probably around $0.25”). Using a total service long run incremental cost methodology, which factors in a reasonable contribution to common costs, the FCC established “upper end” settlement rate benchmarks of 15.4¢ for carriers in upper income nations; 19.1¢ for carriers in middle-income nations and 25.4¢ for carriers is lower income countries. See In re International Settlement Rates, Notice of Proposed Rulemaking, 12 FCC Rcd. 6184, 6203, para. 47 (1996). The Commission proposed a 9–22¢ upper range for benchmark settlement rates for carriers in upper income nations; 12–26¢ for carriers in middle income nations and 13–33¢ for carriers in lower income nations. Id. at 6203, para. 48. In its 1997 international settlement policy order the Commission responded to foreign carrier and government opposition to its proposed timetable by creating a fourth income category and by extending the transition period. See In re International Settlement Rates, Report and Order, 12 FCC Rcd 19,806, 19,809, para. 6 (1997) [hereinafter 1997 Accounting Rate Report and Order]. The FCC established the following benchmarks and timetables for compliance: U.S.-licensed carriers operating on routes to upper income countries have one year from the effective date of this Order (until Jan. 1, 1999) to reach the applicable benchmark rate of 15¢ with carriers in upper income countries. Id. at 19,815–16, para. 19. U.S.-licensed carriers have two years, or until Jan. 1, 2000, to reach the applicable rate of 19¢ with upper middle income countries, and until Jan. 1, 2001, to reach the same rate with lower middle income countries. Id. at 19,881, para. 157. They have until Jan. 1, 2002, to reach the applicable 23¢ rate with low income countries, and an additional year, until Jan. 1, 2003, to do so with countries with a telephone line penetration rate (teledensity) of less than one. Id.


109 Many international carriers have objected to the FCC's campaign to reduce international accounting rate tactics on fairness and jurisdictional levels. However, an appellate court has ruled that the FCC’s settlement rate prescription did not violate domestic or international law, nor did it impose its jurisdiction extraterritorially. See generally Cable and Wireless P.L.C v. FCC, 166 F.3d 1224 (D.C. Cir. 1999).


For nations requiring carriers to route return traffic proportionate with what they received inbound, carriers from other nations with more outbound traffic than inbound traffic face the potential for expanding settlement deficits if outbound calling continues to grow even as demographic characteristics or regulatory policies elsewhere continue to dampen demand for inbound calling. Carriers with inbound traffic surpluses typically operate in small and developing countries, but others operate in nations that appear to have a strategy of deliberately maintaining high accounting and collection rates.

Outbound international call retardation strategies create pent up demand and stimulate accounting rate and collection arbitrage opportunities and incentives by users and entrepreneurial carriers to find ways to route traffic that reverse the accounting rate settlement or avoid triggering one entirely. A settlement surplus generates a source of hard currency for telecommunications infrastructure development, and such transfer payments from users in developed nations to carriers in developing ones can enhance consumer welfare and promote networking externalities. On the other hand, no guarantees exist that only developing countries will pursue an outbound call retardation strategy or that beneficiaries of settlement surpluses will use the funds for infrastructure development as opposed to funding the general treasury or stock dividends. Likewise, reduced outbound international calling may retard trade, industry and integration of a nation regionally and globally.

In the accelerated pace of product and service life cycles common to the Internet, telephone services have quickly evolved from an awkward personal computer-mediated curiosity to a commercial service available not just from computers but from conventional telephones as well. Internet telephony has the potential to serve as a major threat to the international accounting rate regime and possibly as well to how telecommunication carriers price retail long distance services for two primary reasons:

1. the Internet architecture provides for efficient facilities loading, including the ability of telecommunications networks dedicated for the data services to handle voice traffic at near zero cost, absent congestion; and

2. regulatory policies throughout the world largely exempt providers of Internet services from having to subject their traffic to accounting rate settlements and having to pay the interconnection charges and contributions to universal telecommunications service funding imposed on telecommunications carriers.

Internet telephony constitutes a formidable vehicle for compressing telecommunication carrier margins on telephone services. ISPs can easily add telephony traffic onto their data lines and technological innovations provide ways to inject Internet voice traffic into the PSTN for the "last mile" delivery to call recipients. Given the large difference between ISPs' costs incurred in providing Internet telephony and the retail charges for counting rate settlement that would overcompensate the carrier for terminating the call.

114 See Frieden, The Incentive to Cheat, supra note 36, at 118–19.
115 A thriving international "dial-a-porn" industry has developed in such diverse and unpredicted places as Guyana, Russia and Tuvalu in part because operators can tap into a share of comparatively higher accounting rates well above the FCC's settlement rate prescription. See Kenneth R. Propp, Eroding Structure of International Telecommunications Regulation: The Challenge of Call-Back Services, 37 HARV. INT'L L.J. 493, 519 (1996).
116 Many facilities-based carriers offer services with lower per minute charges than conventional, up International Direct Distance dialing. While such carriers do not want to cannibalize high margin services, they recognize the need to compete with call-back operators.
118 See, e.g., EFFICIENT NETWORKS, VOICE OVER ATM: INTEGRATING VOICE AND DATA TRANSMISSION IN DSL SERVICE, at
conventional telephone services, especially international rates, ISPs can profit handsomely by pricing service well below the preexisting retail toll charge. This exploitation of a wide pricing differential constitutes a type of arbitrage as the ISP can make a business case for delivering services to consumers at significantly lower costs. ISPs have plenty of margin from which to work due to the difference between their actual costs and the imputed cost established by route specific accounting rates based on conventional telephony.

IX. TECHNOLOGY PROVIDES ARBITRAGE OPPORTUNITIES

Internet telephony uses the digital, packet-switched nature of the Internet, along with its routing and addressing standards to provide real time, audio conferencing. Internet switching and routing technology manages the transmission and processing of text, graphics, data, audio or video. The Internet’s TCP/IP protocol provides a standard vehicle for subdividing content, such as a voice conversation, into a stream of packets that are routed via any available path between the sender and intended call recipient. Each packet has space reserved for destination information so that intermediary call routing facilities can read “header” data to determine how and where to send the packets toward their intended destination. Headers include a sequence of digits that correspond to an Internet address, much like the numbering sequence in direct distance dialing via telephone. However, IP addresses do not correspond to a specific geographical region as provided by telephone area codes. Packet switching efficiently uses available switching and routing capacity. Likewise, it can operate despite outages, blockages and busy conditions because the Internet Protocol addressing scheme makes it possible for multiple efforts to route traffic onward in the event that initial efforts fail. Resending misdelivered or unreceived packets and routing them via different


120 The common denominator for e-mail communications is the use of a standard programming protocol, TCP/IP-Transmission Control Protocol/Internet Protocol—upon which inter-computer communications are based. The TCP protocol divides messages into packets, which are marked with a sequence number and the address of the recipient. TCP also inserts error control information. The packets are then sent over the network to the addressee. The routing of the individual packets varies, with IP controlling the transport of the packets to the remote host computer. At the remote host, TCP receives the packets and checks for errors. When an error occurs, TCP asks for the particular packet to be re-sent. Once all the packets have been received, TCP will then use the sequence number to reconstruct the original message. It is the job of IP to get the packets from one place to another; it is the job of TCP to manage the flow and insure that the data are correct.


123 Packets are network message fragments including the message fragment itself, a header with identifying information about the message fragment, error control data, and addressing data. As a message fragment travels along the network, each layer or gateway adds routing information to the packet before passing it to the next destination. Packets are not full messages; each message a user sends (for example, a typical e-mail communication) is broken up into packets and transmitted across the Internet via the best available routes.


125 In any system of networked computing, there has to be some mechanism enabling one computer to locate another. If I want to send e-mail to a buddy in Boise, the system needs to have some way to find his mail server so that it can direct the information there. Internet engineers came up with this solution: Each “host” computer connected to the Internet was assigned an Internet protocol (IP) address, which consisted of a unique 32-bit number, usually printed in dotted decimal form, such as 128.127.50.224. Dr. Jon Postel of the University of Southern California’s Information Sciences Institute (ISI) assumed the task of assigning blocks of IP addresses to computer networks. Because no two computers had the same IP address, it was possible to locate any computer on the Internet simply by knowing its IP address. TCP/IP made possible a system of routing that permitted a user to dispatch a message onto the Internet, knowing only the IP address of the computer he wished to reach, with confidence that the message would eventually reach its intended destination.

126 The Internet is a network of networks, communicating
and possibly circuitous links requires software processing to reassemble the packets in proper order. For traffic and services that do not require immediate, real-time delivery—such as electronic mail—possible delays and reassembly present little problem. However, Internet telephony requires immediate, real-time delivery of the packets in their proper order. Any delay, loss or improper sequencing of packets will result in distortion, or the temporary loss of the audio stream.

Hence, Internet telephony has lacked the quality, reliability and security to be considered comparable to conventional telephone services. Traditional telephone services use circuit switching that sets up a dedicated link between call origination and call recipient. This technology provides high-quality service and reliability because a dedicated pathway exists, as opposed to the virtual, "on the fly" links provided via the Internet. However, a dedicated pathway may be technologically wasteful in the sense that switching, routing and transmission capacity lies dormant during pauses in a conversation. Packet switching technology efficiently fills in gaps with other traffic so that traffic may traverse different routes and arrive at different times in getting to the same destination. In circuit switching, all parts of a traffic stream traverse the same pathway, which provides greater quality assurance.

What Internet telephony lacks in quality of service and reliability it makes up in lower costs and the ability to narrow the gap between carriers’ costs and retail charges. However, some users may care more about reliability of service and less about savings. Currently, Internet traffic cannot be easily classified by priority of service or by type of application. Best efforts at routing of traffic may not provide the security, safety and reliability a user may require. For those willing to take the qualitative risk, the financial savings are significant. However, Internet telephony consumers have to incur some initial, up-front costs. Unlike

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126 See generally Friedlen, Dialing for Dollars, supra note 98; Dennis W. Moore, Jr., Regulation of the Internet and Internet Telephony Through the Imposition of Access Charges, 76 TEX. L. REV. 183, 184–85 (1997).


128 When you place a phone call, your instrument connects to a local switch. If this is a long distance call, the switch puts the call onto an appropriate trunk, and at the other end another switch connects you to the other local number. For the duration of that call, you are in control of that circuit. This is therefore called circuit switching.

129 See Barbara Eshin, Internet Over Cable: Defining the Future in Terms of the Past, 7 COMM.LAW CONSPECTUS 57, 50 (1999).

130 Circuit switching may require the use of several different telecommunication network facilities along the link from call originator to call recipient. However, no uncertainty exists as to who provides the switching and traffic routing functions as would be the case for Internet traffic. Conventional dial up telephone traffic traverses as few as one carrier’s network while Internet traffic can transit an indeterminate number.


132 Even when Internet-mediated telephone services are accessible from conventional telephones, in lieu of personal computers, the cost savings are significant. For example,
conventional telephone service, the cheapest types of Internet-mediated telephony require a significant initial capital outlay of about $2,000 for a personal computer, modem, sound card, speakers, microphone, software and Internet access. Conventional telephone services use a telephone handset, an inexpensive, "dumb" terminal, but users incur per minute charges that can exceed $1.00 a minute for many international destinations. Internet telephony provided on a conventional dial up basis requires an ISP to install devices that can convert circuit switched telephone traffic into packets and vice versa. Additionally, these devices must provide a routing function, using the Internet Protocol to bring traffic to a facility (commonly referred to as a point of presence) in the vicinity of the call recipient.

X. FINANCIAL AND REGULATORY ARBITRAGE AND THE POTENTIAL IMPACT ON TELECOMMUNICATIONS PRICING

Internet telephony provides profitable opportunities for incumbents and newcomers alike to offer services functionally equivalent to conventional telephony, but treated in a manner that subjects the service to little or no regulation and accurses lower operational costs. Entrepreneurs savor the opportunity to exploit financial and regulatory anomalies and asymmetries in telecommunications. Internet telephony has the potential to migrate traffic from conventional telecommunications networks. Incumbent carriers surely do not want to encourage such a migration as it will create downward pressure on all telephone toll rates and cannibalize retail rates. On the other hand, incumbent carriers probably will determine that they are better served financially by providing the transmission capacity for Internet telephony, albeit at lower margins, than if they lose customers' traffic entirely. The massive increase in domestic and international broadband telecommunication capacity reflects the view that carriers can make up in volume what they will lose in margin.

XI. THE PROBLEMS IN REGULATORY ASYMMETRY

Any regulatory regime applied exclusively to Internet applications runs the risk of creating a dichotomy in regulatory rights and responsibilities between providers of functionally equivalent services. Many of the services available via the Internet provide a faster, better, cheaper and smarter option to preexisting services. The Internet provides a convenient, user-friendly medium for acquiring news and entertainment and engaging in all sorts of commercial transactions. A bias or intention not to regulate or to regulate such activities lightly may contrast significantly with a preexisting and more intrusive regulatory model. Governments should not automatically extend the application of legacy regulatory regimes to Internet-mediated equivalent services. Also, governments should not deregulate incumbent services simply because Internet options have become available, while governments have opted to apply a less burdensome regulatory regime to Internet services.

The onset of Internet-mediated services does
present a regulatory challenge to governments, particularly those disinclined to treat Internet-mediated services as equivalents to services transmitted and delivered via traditional media. The juxtaposition of different regulatory regimes typically also creates an asymmetry that has the potential for tilting the competitive playing field in favor of the less regulated service.\textsuperscript{140} To the extent regulation can impose financial and operational burdens, the service provider subject to greater regulation typically suffers a competitive disadvantage vis-a-vis the less regulated operator.\textsuperscript{141} Governments should generate compelling justifications for establishing different regulatory regimes in view of the potential for such asymmetry to impact the marketplace attractiveness of one service vis-a-vis others.

Regulatory dichotomies work best when technological categories remain discrete and absolute.\textsuperscript{142} But they surely do not work when technological convergence results in porous service categories and diversification by operators.\textsuperscript{143} When cable telephone and ISPs offer telephone services functionally similar to that available from telephone companies, regulators cannot sustain preexisting service dichotomies. Heretofore, government regulators have assumed that incumbent telephone service providers, which have dominant market shares, should operate as common carriers and offer the best technologies and wherewithal to achieve universal service goals.\textsuperscript{144} Regulators typically assume that market entrants, like ISPs, other enhanced service providers and resellers of basic transmission capacity, do not have the potential to acquire a dominant market share, or that they offer ancillary, non-common carrier services.\textsuperscript{145} While incumbent telephone companies incur significant financial duties to serve costly remote areas, the newcomers enjoy exemptions from having to pay charges for accessing the PSTN and from contributing to universal service funding.\textsuperscript{146} These ventures qualified for such exemptions on grounds that they did not offer telephone service even though their offerings might require access to the PSTN.\textsuperscript{147}

When ISPs offer consumers telephone service

\textsuperscript{140} Kasey A. Chappelle, Comment, The End of the Beginning: Theories and Practical Aspects of Reciprocal Compensation for Internet Traffic, 7 COMMLAW CONSPECTUS 393, 406 (1999) ("For convergence to be a reality, diverging regulatory structures cannot exist for communications systems that provide essentially the same service.").

\textsuperscript{141} See Francois Bar et al., Defending the Internet Revolution in the Broadband Era: When Doing Nothing is Doing Harm, Economy, at http://economy.berkeley.edu/publications/wp/ewp12.html (1999) (supporting symmetrical regulatory requirements for Internet access between common carriers and cable television systems).

\textsuperscript{142} For example a regulatory dichotomy may impose greater regulatory burdens on an incumbent to promote market entry by competitors using new technologies. Advocates for asymmetric regulation may insist on the need to counterbalance the competitive advantages enjoyed by the incumbents by virtue of the favorable position assured them by the monopoly conditions reigning in the [current] market . . . . [It] will be necessary to compensate for the advantages enjoyed by the incumbent by way of a series of compensatory measures in favour of the newcomers.


\textsuperscript{143} Currently many cable television operators have upgraded their networks to provide access to the Internet. Consumers typically do not perceive a significant difference between the types of Internet access provided by cable television companies on a non-common carrier basis and that provided by telephone companies still regulated as common carriers.

\textsuperscript{144} See James H. Lister, The Rights of Common Carriers and the Decision Whether to Be a Common Carrier or a Non-Regulated Communications Provider, 53 FED. COMM. L. J. 91, 96 (2000).


The rules that emerged from the Computer Inquiry proceedings drew a distinction between 'basic' and 'enhanced' telecommunications services. Basic services were those that involved only the transmission of sound or data unchanged from beginning to end. Enhanced services were all other services that 'acted on the format, content, code, protocol, or similar aspects of the subscriber's transmitted information; provided the subscriber with additional, different, or restructured information; or involved subscriber interaction with stored information.' Basic transmission services were subject to the 1934 Act's common carrier regulations; enhanced services were exempt from regulation under the 1934 Act.

\textsuperscript{146} Id. (emphasis added).

\textsuperscript{147} See Report to Congress, 13 FCC Rcd. at 11,541, 11,545.
equivalents, which link PSTN access with Internet-mediated telephony, preexisting regulatory exemptions tilt the competitive playing field to the ISPs' advantage. Should significant telephony traffic volumes migrate to routings exempt from universal service contribution requirement, the sum of funds available to achieve the universal service mission will decline. The potential for declining universal service funds occurs just as many governments have articulated a broader and more ambitious universal service mission for all citizens to have access to both basic telephone service and advanced Internet services.

XII. Regulatory Opportunism

Some providers of Internet-mediated services enjoy the opportunity to provide competitive, functional equivalents to regulated offerings without the same regulatory burdens. Absent adjustments in the legal and regulatory arena, these ventures, typically market entrants, may achieve commercial success without having developed a faster, better, more efficient and more convenient innovation. They may offer something technologically and operationally awkward, but nevertheless cheaper, because regulatory classifications exempt the operator from having to pay regulator-imposed fees.

Legislative changes in telecommunications laws occur most infrequently, and regulatory lag frequently creates a significant time period, in which changed technological and marketplace conditions increasingly contrast with the regulatory status quo. During such periods of delayed adjustment, the regulatory process may favor one competitor over others. This can most likely occur when marketplace conditions trigger new competitive opportunities and when technological convergence eliminates barriers to market entry or market segmentation.

XIII. Conclusion

The FCC prudently refrains from extending "legacy" regulation to new technologies and services that may resemble something offered by incumbents. Surely regulation can drag and thwart marketplace development, and conversely regulatory forbearance can incubate and nurture new technologies and services. However, at some point newcomers may so develop market share and service functionally equivalent to what incumbents offer but without incurring anything like the regulatory burdens incumbents bear. At this point, regulatory asymmetry provides for less marketplace incubation and more marketplace distortion.

The private carrier, enhanced service provider and interstate service classification each provided rational exemptions from more costly and intrusive regulatory classifications. But regulatory arbitrageurs came to understand that qualifying for these classifications provided "back door" opportunities to acquire market share and profits. It appears that the FCC has emphasized the potential for private carriers, CLEC affiliates of ISPs, call-back operators and Internet telephony providers to provide both service diversity and financial savings to consumers. Yet, the Commission does not assess whether these operators might have generated more consumer welfare enhancements if they had been forced to comply with legacy regulations and been motivated to join with incumbents to streamline or reduce them in view of increasingly robust competition.

Conferring too comfortable an unregulated niche or financial windfall eliminates the incentive for ventures to innovate, become facilities-based operators and diversify. Unless and until an arbitrage opportunity closes, resellers, call-back operators and Internet telephony vendors can possibly do better by conserving capital, not investing heavily in facilities and developing other indicia of similarity with incumbents lest they lose a regulation conferred competitive advantage.

At some point the FCC unwittingly tilts the competitive playing field in favor of players clever enough to craft a service definition that permits aggressive competition with incumbent services, but which qualifies them for a host of arbitrary and anomalous loopholes that exempt or reduce the cost and inconvenience in regulatory compliance. Incumbents may suffer simply because of the legacy regulations that continue to apply rather than because they have greater market share, the ability to exploit a bottleneck or handicap market entrants with price squeezes.\textsuperscript{148}

\textsuperscript{148}In a price squeeze situation, a vertically integrated firm with market power over an essential upstream input.
raises the price of this input to rivals competing in down-
stream retail markets. The increased cost of this essential 
input forces downstream rivals to raise their retail prices. 
The vertically integrated firm is then in a position to un-
dercut the downstream rivals in retail markets and 
thereby increase market share and profits.
Handshake: Connecting Internet Backbones, 23, at http://
www.fcc.gov/opp/workingp.html (2000). See also, United
States v. Aluminum Co. of Am., 148 F.2d 416, 437–38 (2d Cir. 
1945) (articulating a four-part test for price squeeze: (1) a 
firm has monopoly power with respect to one product; (2) its 
price for that product is higher than a "fair price;" (3) that 
product is required to compete in a second market where the 
monopolist itself competes; and (4) the monopolist's price in 
the second market is so low that competitor's cannot match it 
and still earn a "living profit").