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INTERNET FEDERALISM

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I. INTRODUCTION

It is common to see diagrams of the internet featuring a computer tethered to a cloud, floating off into cyberspace.[1] It's a nice image, but the colloquial notion embodied in such pictures — that the internet is one singular, ethereal, and interjurisdictional thing — has led policymakers and scholars to overlook some important details. In truth, the internet is a series of discrete components — wires, antennae, towers, and conduits — all of which together constitute a foundational communications network.[2] Seeing the internet as such a combination of separate and preexisting infrastructural components — many of which our legal system has already encountered — helps us to more clearly understand the possibilities for regulation aimed at the internet's infrastructure. States routinely exercise regulatory authority over local aspects of interstate systems in view of local conditions such as geography, safety, regional interests, and market competition.[3] So long as these rules do not discriminate against out-of-state actors, unreasonably burden interstate commerce, or conflict with federal rules, they are routinely affirmed.[4]

Yet a chorus of voices contends that the internet is, somehow, different. In the wake of the Federal Communications Commission's 2017 decision to both rescind its network neutrality protections and simultaneously preempt any state actions seeking to promulgate analogous local rules,[5] policymakers and scholars have suggested that some essential interstate character of the internet renders it immune to local regulatory authority.[6] The breadth of such claims extends far beyond

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1. *See, e.g.*, Prism Techs. v. AT&T Mobility, Nos. 8:12CV122–126, 2013 WL 3930002, at *8 fig.1 (D. Neb. July 30, 2013).

2. *See, e.g.*, JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS 24 (2d ed. 2013) ("The Internet is not some mysterious set of wires."); Brief for 51 Computer Scientists in Support of the Respondent at 9, United States v. Microsoft, 138 S. Ct. 1186 (2018) (No. 17-2) (explaining that "cloud data always has a specific physical location"); Olivier Sylvain, *Broadband Localism*, 73 OHIO ST. L. J. 795, 797 (2012) (noting the "local nature of broadband service" and that the "cloud and space metaphors in vogue today" are "more romance than reality").

3. *See infra* Part III.

4. *See infra* Section III.B.

5. Restoring Internet Freedom, 33 FCC Rcd. 311 (2017) (Declaratory Ruling, Report and Order, and Order). For some examples of state actions, see, for example, California Internet Consumer Protection and Net Neutrality Act of 2018, S.B. 822, 2017–2018 Reg. Sess. (Cal. 2018); H.B. 4155, 79th Leg. Assemb., 2018 Reg. Sess. (Or. 2018); S. 289 Act 169, 2018 Sess. (Vt. 2018).

6. *See, e.g.*, Opening Brief of Plaintiffs-Appellants at 4, ACA Connects v. Becerra, No. 21-15430 (9th Cir. Apr. 6, 2021) (No. 9); First Amended Complaint, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. 2020) (No. 52) (suggesting that the "inherently interstate nature of the Internet" renders them immune to local regulation); Daniel Lyons, *State Net Neutrality*, 80 U. PITT. L. REV. 905, 951 (2019) ("Broadband networks are inherently interstate, placing them beyond the traditional realm of state telecommunications regulation."); Thomas B. Nachbar, *The Peculiar Case of State Network Neutrality Regulation*, 37 CARDOZO ARTS

the example of network neutrality. Several scholars, relying on several cases, suggest an expansive view of federal preemption online — even as the Commission's interest in internet-related regulation reached its lowest ebb.[7] According to such commentators, state authorities have little power to regulate local broadband carriers because internet communications cross state lines, and because the Commission has disavowed its own powers to regulate broadband carriage (e.g., retail consumer access to the internet via, say, Comcast or Verizon).[8]

By contrast, both Justice Thomas and the U.S. Court of Appeals for the D.C. Circuit (as well as some scholars and practitioners) have hinted some doubts about this view.[9] Justice Thomas has suggested that the Commission's disavowal of regulatory power preserves rather than preempts state authority.[10] And the D.C. Circuit vacated (over dissent) the agency's sweeping preemption order — though it conceded that some state rules may conflict with federal standards.[11] And so policymakers and broadband carriers renewed preemption arguments in cases across the country, challenging various state regulatory measures addressing matters such as network neutrality, data privacy, and universal service.[12] Such debates show little sign of abating.[13]

& ENT. L.J. 659, 663 (2019) ("[S]tate network neutrality laws are inherently violative of dormant Commerce Clause restrictions because the markets they actually seek to regulate — content markets — are primarily located outside the relevant states."); *see also* Brief Amicus Curiae of Communications Law Scholars in Support of Plaintiffs' Motions for Preliminary Injunction, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. 2020) (No. 54) (contending that "Congress gave the FCC — and not the individual states — exclusive jurisdiction over interstate communications" including internet-based communications).

7. *E.g.*, Lyons, *supra* note 6, at 951 ("Broadband networks are inherently interstate, placing them beyond the traditional realm of state telecommunications regulation."); Nachbar, *supra* note 6, at 663.

8. *See, e.g.*, Lawrence J. Spiwak, *The Preemption Predicament over Broadband Internet Access Services*, 21 FEDERALIST SOC'Y REV. 32, 42 (2020); *see also* Lyons, *supra* note 6; Nachbar, *supra* note 6.

9. *See* Lipschultz v. Charter Advanced Servs., 140 S. Ct. 6, 7 (2019) (Thomas, J., concurring in the denial of certiorari) ("It is doubtful whether a federal policy . . . of nonregulation [is] 'Law' for purposes of the Supremacy Clause."); Mozilla v. FCC, 940 F.3d 1, 105 (D.C. Cir. 2019); *see generally* Christopher Witteman, *Net Neutrality from the Ground Up*, 55 LOY. L.A. L. REV. (forthcoming); Brief of Professors of Internet Law as Amici Curiae in Support of Opposition to Preliminary Injunction Motions, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. 2020) (No. 70) (contending that the states retain wide powers to regulate broadband carriers).

10. *Lipschultz*, 140 S. Ct. at 7 (Thomas, J., concurring in the denial of certiorari).

11. Restoring Internet Freedom, *supra* note 5; *Mozilla*, 940 F.3d at 86.

12. *See, e.g.*, Transcript of Proceedings, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. Feb. 23, 2021) (No. 77) (preliminary ruling on challenge to California's network neutrality legislation); Order on Cross Motions for Judgments on the Pleadings, Am. Cable Ass'n v. Frey, No. 1:20-cv-00055 (D. Me. 2020) (No. 59) (preliminary ruling on challenge to Maine's privacy legislation); Complaint, N.Y. State Telecomms. Ass'n v. James, No. 2:21-CV-02389 (E.D.N.Y. 2021) (No. 1) (challenge to New York's universal service legislation).

13. *See generally* Opening Brief of Plaintiffs-Appellants, ACA Connects v. Becerra, No. 21-15430 (9th Cir. Apr. 6, 2021), ECF No. 9 (extending litigation over California's network neutrality rules).

In short, there is little agreement over the scope of federal, state, and local regulatory power over broadband carriage. We intercede in this debate with two primary contributions. First, we offer a brief but detailed examination of the internet's internal structure, lifting the fog of the internet's cloud façade and exposing the internet's constitutive components. As we have already suggested, this infrastructure is frequently shaped by local conditions. Second, we offer a close study of prior federal, state, and local communications-network-related regulations — regulations regarding the *same* infrastructure as that which helps to form today's internet. Here, we find that state and local authorities have often regulated this local infrastructure in view of local concerns, notwithstanding its connections to an interstate communications system. And so, even given the distinctions between broadband carriage and cable or telephone service, we conclude that it is appropriate for state regulators to intervene on related or analogous matters of broadband carriage, too.

Consider, for example, the ancient cases regarding the regulation of "inside wiring" — the communications circuitry that lives inside the walls of houses, apartment buildings, and office complexes. For a significant part of its history, the Commission required that telephone companies (like AT&T) own, install, and maintain such wiring (in part to help subsidize the costs of deploying communications networks to remote and rural locales).[14] In short, wire installation and maintenance were closely regulated services — i.e., "common carrier" services. But in 1986, the Commission sought to deregulate these services and thereby open them up to competition.[15] Some states objected to this proposal: Alabama and Michigan, among others, expressed concern that if dominant providers like AT&T were not required to maintain these systems in certain rural areas, then no one would.[16] The Commission, however, was undeterred. It proceeded with its deregulatory plan — and, moreover, "[to] avoid a fragmented approach in relation to [its policy] objectives, [the Commission] gave preemptive effect to [its] decisions deregulating the installation and maintenance of inside wiring."[17]

Several states sued, winning (in part) their challenge to the Commission's preemption order.[18] Inside wiring, the D.C. Circuit explained in *National Association of Regulatory Utility Commissioners v. FCC* (*NARUC*), was a shared infrastructural component, used in connection

14. *See* Nat'l Ass'n of Regul. Util. Comm'rs (NARUC) v. FCC, 880 F.2d 422, 425–26 (D.C. Cir. 1989).

15. Detariffing the Installation and Maintenance of Inside Wiring, 59 Rad. Reg. 2d 1143 (FCC Feb. 24, 1986) (Second Report and Order) [hereinafter *Second Order*].

16. *Id.* at ¶ 9.

17. Detariffing the Installation and Maintenance of Inside Wiring, 1 FCC Rcd. 1190, 1190, ¶ 1 (1986) (Memorandum Report and Order) [hereinafter *First Order*].

18. *NARUC*, 880 F.2d at 431.

with intrastate communications as much as interstate ones. Hence, in view of the overlapping technical and regulatory infrastructures, the states were free to regulate inside wiring — one small, local piece of the telephone network — under their powers to regulate intrastate infrastructure and service (such as local telephone calls). In short, inside wiring-related services were free from federal regulation but could still be subject to the states' relevant local rules — rules that, say, required a dominant provider to continue to service inside wiring where no one else was available to do so.[19]

The Commission tried to save the order's preemptive effect by arguing that the states' regulatory authority was limited to "intrastate common carrier communications services."[20] Since the Commission had now decided to deregulate inside wiring-related services — meaning that they were no longer "common carrier" services — the Commission contended that they were beyond the states' regulatory reach. Under this view, services deregulated by the federal government automatically would fall outside the states' regulatory ambit, simply because the Commission had stopped treating them as common carrier offerings. The D.C. Circuit was unpersuaded. It explained that such a holding would grant the Commission "unchecked authority to force state deregulation of any activity it chose to deregulate at the interstate level."[21] Instead, the Commission's regulation preempted only directly conflicting state regulations, otherwise leaving space for state and local authorities to regulate local services in view of local conditions.[22]

Why bother with a case, over 30 years old, dealing in the minutiae of telephone network technology? Because, in part, these telephone networks help to compose the internet. Though the communications service has been updated, the communications infrastructure remains much the same: Internet data now runs through the wires that were once

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19. *Id.* at 431 (explaining that states may "requir[e] that the local telephone company act as a provider of last resort" notwithstanding the Commission's preemption order).

20. *See First Order*, *supra* note 17, at 1192. In truth, the states' authority extended to "intrastate services" without regard to regulatory status (as we elaborate *infra*). *NARUC*, 880 F.2d at 428 (declining to "countenance the Commission's attempt to rewrite the statute" as limiting state authority to common carrier services).

21. *NARUC*, 880 F.2d at 429.

22. *Id.* at 430–31 (explaining that states might still require incumbent phone companies to act as carriers-of-last-resort with respect to inside-wiring-related services, but also finding that states would be forced to unbundle the rates for such services from other telephone rates).

We readily acknowledge that *NARUC* was decided in an era of telecommunications regulation in transition from dual federalism to cooperative federalism. *See, e.g.*, Lyons, *supra* note 6, at 909–12 (describing the transition from dual federalism to cooperative federalism in communications regulation); *see also* NUECHTERLEIN & WEISER, *supra* note 2, at 35 (noting dual jurisdiction under the Communications Act of 1934). But as we describe throughout the rest of the article, the states retained the power to regulate local services in view of local conditions even under Congress's implementation of a cooperative federalism in the 1996 Act (as well as under the fonts of independent state power that remained after the 1996 Act). *See generally infra* Part III.

dedicated to telephone calls. Indeed, as suggested above, *NARUC* bears a remarkable resemblance to modern debates over federalism on the internet in two important respects.

One, the Commission's inside wiring proceeding highlights the intensely local nature of some aspects of our communications infrastructure. In that proceeding, various states and territories explained that it would be prohibitively expensive or technically infeasible to require that some rural telephone customers bear the costs of installing and maintaining inside wiring. Michigan, for example, explained that there were few qualified service providers in rural regions of the state, and deregulation might adversely affect service quality or lead to wiring that fell short of technical standards.[23] Such comments make clear that local conditions — often the purview of local regulators, who are typically more attuned to local needs and concerns — have real effects on communications technologies and communications markets.

The same can be said for the modern internet. Just as inside wiring is one discrete (and very local) component of a larger communications infrastructure, so too are access networks — cable networks, telephone networks — one local part of the internet's greater schema. States and municipalities thus play an important role in deciding how their residents access the internet. For cable service, state or local authorities issue franchises — essentially, licenses — to carriers seeking to deploy a local communications network.[24] Such authorities also control what entities are eligible to receive federal funds to develop broadband infrastructure in underserved locales, and they issue rules governing monopoly providers and competitive entrants.[25] These decisions are made in view of local geographic and market conditions — conditions that vary from state to state and county to county. Where, for example, population density makes deploying a new wired network infeasible, a state may modify its local easement laws to take advantage of existing infrastructure,[26] or it may designate a wireless carrier as eligible for funding.[27] Where there is no realistic possibility for service competition, a

23. *Second Order, supra* note 15 at ¶¶ 10, 13, 30 (1986).

24. *See infra* Section III.A.2.

25. *See infra* Section III.A.

26. *See, e.g.*, Ind. S.B. 478, 2017 Reg. Sess. (Ind. 2017) (FIBRE Act of 2017) (enacted) (modifying the scope of existing utility easements to expressly include fiber optic cable used to deliver broadband internet access service); Adopt the Broadband Internet Service Infrastructure Act and provide for certain broadband and internet-related services, Neb. LB-992, 106th Leg 2nd Sess. (Neb. 2020) (similar); *Pennsylvania, Louisiana Lawmakers Pass Broadband Bills*, COMMC'NS DAILY (Oct. 23, 2020).

27. WWC Holding Co. v. Sopkin, 488 F.3d 1262, 1272–73 (10th Cir. 2007) ("The states' authority to make [eligible telecommunications carrier] designations extends to wireless carriers seeking federal universal service subsidies.").

local franchising authority might issue rules preventing a service provider from abusing its monopoly power.[28] And where a local regulator has concerns about the nature and quality of service provided by a communications carrier, it might require that such carriers comply with state rules bearing on these local networks.[29] In short, states and localities regulate broadband carriers for the same reasons they exercise power over telephone carriers or cable operators: Local conditions matter.

Two, the debate over the Commission's preemption order highlights the possibility for conflict between state and federal authorities, even in a regulatory space (communications) that has been characterized by cooperative federalism — briefly, a mode of concurrent jurisdiction in which state regulators carry out federal programs under broadly set federal terms.[30] In *NARUC*, such conflicts were resolved by reference to both constitutional and competence values. The Supremacy Clause, its doctrines of preemption, and other related doctrines (such as the dormant Commerce Clause) all confirm that the states may not undermine federal interests — those with nationwide effect — in favor of parochial concerns.[31] But where the Commission's decision to renounce federal power over inside-wiring services suggested only a minimal federal interest in such services, states with a persistent local interest in particular regulatory measures with local effect were free to promulgate such rules. In short, the power to regulate rested with the

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28. *See* HAW. DEP'T. OF COM. AND CONSUMER AFFS., FORM 328 (filed Dec. 4, 2015), https://ecfsapi.fcc.gov/file/60001350735.pdf [https://perma.cc/25N9-EUQL]; MASS. DEP'T. OF TELECOMMS. AND CABLE, FORM 328 (filed Dec. 8, 2015), https://ecfsapi.fcc.gov/file/60001352672.pdf [https://perma.cc/5WQN-L6L2]. The Commission subsequently decided that the cable operators in these locales were subject to effective competition, and thereby revoked these local authorities' powers to rate regulate. *See* Petition for Determination of Effective Competition In 32 Massachusetts Communities and Kauai, HI (HI0011), FCC No. 19-110, MB Docket No. 18-283, 2019 WL 5558896 (Oct. 25, 2019) (Memorandum Opinion and Order).

29. *E.g.*, *WWC Holding*, 488 F.3d at 1272–73 ("[T]he Telecommunications Act permits states to impose some additional eligibility requirements on carriers seeking an [eligible telecommunications carrier] designation."); *see also Embracing States at NARUC, Rosenworcel Finds 'Utility' in ETCs*, COMMC'NS DAILY (July 23, 2020) (paraphrasing Commissioner Rosenworcel as explaining that state power over eligible telecommunications carrier designations "keeps state and local governments involved in telecommunications, protects consumers, and obligates providers to serve everyone").

30. *See, e.g.*, Philip J. Weiser, *Chevron, Cooperative Federalism, and Telecommunications Reform*, 52 VAND. L. REV. 1, 3 n.6 (1999) [hereinafter Weiser, *Chevron*] (defining "cooperative federalism" as federal regulatory schemes that "charge state agencies — as well as federal ones — with the responsibility of interpreting and implementing federal law"); Philip J. Weiser, *Federal Common Law, Cooperative Federalism, and the Enforcement of the 1996 Act*, 76 N.Y.U. L. REV. 1692, 1695 (2001) [hereinafter Weiser, *Federal Common Law*]. As we noted above, *supra* note 22, interjurisdictional conflicts existed both before and after the enactment of the Telecommunications Act of 1996.

31. *See* Franchise Tax Bd. v. Hyatt, 136 S. Ct. 1277, 1283 (2016) (collecting examples of such cases across constitutional doctrines).

policymaker accountable to the most immediately relevant constituency — federal regulators for nationwide concerns, local regulators for local ones.

The debates over the Commission's decision to repeal network neutrality rules echo these same concerns. Under the Telecommunications Act of 1996, broadband carriage may be deemed either a "telecommunications service" or an "information service." [32] The consequences of this choice are significant: Services classified as a "telecommunications service" may be subject to the "complete panoply" of the agency's regulatory power, while services classified as an "information service" are largely beyond the agency's regulatory jurisdiction.[33] After the Federal Communications Commission chose the latter, renouncing most regulatory power over broadband carriage (including the power to issue network neutrality rules), several states stepped into that void and issued their own rules, citing concerns about competition and harms to local consumers.[34] As in *NARUC*, the federal Commission argued that its reclassification decision divested both federal and state authorities of regulatory power. But, again, the D.C. Circuit disagreed — correctly, we think, echoing *NARUC*'s explanation that the agency's decision to divest itself of authority does not also automatically "force state deregulation" of those services.[35]

So state and local regulators have in fact exercised authority over aspects of the national communications grid—with implications for state and local power over local aspects of the nation's broadband infrastructure. But *should* states and localities exercise regulatory power over broadband carriers? Yes. Broadband internet access (i.e., broadband carriage — the retail service that connects its subscribers to the internet) is a local service that serves local interests. It is bound up with, for example, questions of state property law. Competition among broadband carriers is local, not national. And when carriers fall short of their promises, they fail local populations in local markets. Hence, state local regulators should regulate local broadband carriers in view of this wide range of local concerns, implicating questions of local geography,

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32. *See* Telecommunications Act of 1996, Pub. L. No. 104-104, 11 Stat. 56 (codified in scattered sections of 47 U.S.C.) [hereinafter "1996 Act"]; 47 U.S.C. § 153.

33. Tejas N. Narechania, *The Secret Life of a Text Message*, 120 COLUM. L. REV. F. 197, 209 (2020).

34. *See* Defendants' Opposition to Preliminary Injunction Motions 4–5, 8–10, 13, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. 2020) (No. 57).

35. Nat'l Ass'n of Regul. Util. Comm'rs (NARUC) v. FCC, 880 F.2d 422, 429 (D.C. Cir. 1989); *NARUC*, 880 F.2d at 429; *see* Mozilla v. FCC, 940 F.3d 1, 80 (D.C. Cir. 2019) (explaining that the Commission "cannot completely disavow Title II with one hand while still clinging to Title II forbearance" (and the concomitant preemption) "authority with the other"); *see also* Transcript of Proceedings at 65–66, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. Feb. 23, 2021) (No. 77) (explaining that the Commission's decision "placed [broadband internet access service] outside the FCC's regulatory ambit" and thus can have "no preemptive effect").

market competition, consumer protection, and public safety (among others).

We do not, of course, mean to imply that states can regulate all aspects of broadband carriage or that the Commission can never (or should never) preempt state and local regulation: Aspects of some internet services and infrastructure operate, by necessity, interjurisdictionally.[36] But we do not think that federal regulators may make state power disappear entirely by invoking some "inherently interstate" nature of the internet.[37] Nor can they do so by pointing to the lack of federal regulatory jurisdiction over — and a corresponding absence of a federal interest in — local broadband carriage and a related "brooding" deregulatory policy preference.[38] Instead, the appropriate scope of federal and state authority depends on technical specifics and regulatory effects. Where does the regulated service or facility sit? Where does relevant expertise lie? Does state regulation undermine federal power? Questions such as these should inform federalism online, just as they inform federalism elsewhere in our tiered regulatory apparatus.[39]

To clarify, our goal here is not to assess the merits of the Commission's network neutrality rules, its inside wiring regulations, or any other such decisions.[40] Our examination is instead grounded in the constitutional and institutional competence concerns that have, in our view,

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36. One example is the domain name system, or DNS, which operates interjurisdictionally by design. *See* CRICKET LIU & PAUL ALBITZ, DNS AND BIND 4–9, 11–36 (5th ed. 2006) (describing DNS's distributed architecture). Another example, which we elaborate at greater length below, is interconnection. *See infra* text accompanying notes 190–204.

37. First Amended Complaint, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. 2020) (No. 52); *see generally* Opening Brief of Plaintiffs-Appellants, ACA Connects v. Becerra, No. 21-15430 (9th Cir. Apr. 6, 2021) (No. 9).

38. *See, e.g.*, Va. Uranium, Inc. v. Warren, 139 S. Ct. 1894, 1901 (2019) (plurality opinion); Lipschultz v. Charter Advanced Servs., 140 S. Ct. 6, 7 (2019) (Thomas, J., concurring in the denial of certiorari); *see also* Pinney v. Nokia, Inc., 402 F.3d 430, 453–54 & n.4 (4th Cir. 2005). *But see* Minn. Pub. Utils. Comm'n v. FCC, 483 F.3d 570, 581 (8th Cir. 2007) (holding that the Commission's decision to place certain services outside its regulatory jurisdiction has the effect of requiring state deregulation, too). As we describe *infra*, we believe that the Eighth Circuit's decision in *Minn. Pub. Util. Comm'n* is in tension with *NARUC* and the D.C. Circuit's decision in *Mozilla*, among other cases. And, as between those competing views of the effect of the changing scope of federal power on state regulation, *NARUC* and *Mozilla* have the better of the argument, descriptively and normatively. See *Lipschultz*, 140 S. Ct. at 7 (Thomas, J., concurring in the denial of certiorari), and, well, the rest of this article.

39. *Cf.* Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEG. F. 207, 207–09.

40. In candor, we note that both of us have advocated in favor of network neutrality rules to varying degrees and in various contexts. But we also think, as we explain *infra*, that our approach to federalism may yield policy outcomes that we disagree with. Under our approach, the states might be free, for example, to prescribe rules that are inconsistent with network neutrality principles. Or, ranging beyond network neutrality, the states may be free to constrain the scope of easements in ways that limit competition among broadband carriers. *But see* 47 U.S.C. § 541(a)(2). Likewise, as we explain *infra* notes 277–280 and accompanying text, we are skeptical that the states should regulate network interconnection — no matter how closely it is related to network neutrality concerns. *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 2, at 287–90 (describing the similarity between these two policy problems).

traditionally informed federalism in communications regulation. In matters of communications regulation (as elsewhere), principles of federalism have been grounded in the pragmatic realities of infrastructure, varying local conditions, and overarching federal interests. Access to the internet in rural Montana is meaningfully different from access in downtown Los Angeles along a variety of related dimensions, including, e.g., the physical environment and competitive conditions. State and local authorities are typically better attuned to these local nuances than federal regulators.[41] Indeed, state regulators may be held to account for various internet-related policy issues that resonate locally, including disaster response and support for local lower-income and rural communities, among others.[42] But internet data also traverses a series of interstate transit networks for which varying state regulations might be unfairly protectionist or unduly burdensome. Determining whether state regulators or federal authorities (or both) may govern requires paying close attention to the service and infrastructure at issue — e.g., internet access versus internet transit — and the concerns — e.g., state versus federal — that shape it. Our description of the internet's technical and regulatory infrastructure thus has implications for a variety of questions regarding state and local power over broadband carriage — network neutrality and beyond.[43]

This article proceeds in three major parts.

First, we set out a brief description of the internet's architecture, focusing on three primary market segments for internet data transport: broadband carriage, internet transit, and content delivery. Our description is, by necessity, somewhat simplified (though, where salient, we

41. *See* Brian Whitacre & Roberto Gallardo, *State Broadband Policy: Impacts on Availability*, 44 TELECOMM. POL'Y, OCT. 2020, at 102026 (empirical study finding "that state-level policies have gotten more popular over time, and that they matter for increasing broadband availability"); *see also* GA. DEP'T OF CMTY. AFFS., *FCC vs GBDI Broadband Comparison,* GA. BROADBAND DEPLOYMENT INITIATIVE, https://broadband.georgia.gov/fcc-vs-gbdi-broadband-comparison [https://perma.cc/YEW8-JGP3], (describing the vast accuracy gains in mapping broadband access by local authorities).

42. *See, e.g.*, Danielle Echeverria, *Fearing Fire Season Blackouts, California Regulators Require Cell Towers To Add Backup Power*, S.F. CHRON. (July 16, 2020), https://www.sfchronicle.com/california-wildfires/article/Fearing-fire-season-blackouts-California-15413495.php [https://perma.cc/MXT2-26HB] (describing state regulations to require backup power at local facilities to sustain wireless networks, including for internet access); PUB. UTILS. COMM'N OF THE STATE OF CAL., Rulemaking 18-03-011, ORDER INSTITUTING RULEMAKING REGARDING EMERGENCY DISASTER RELIEF PROGRAM (2020) (considering similar backup power requirements for wireline providers); *States Seek to Update USF, COLR Rules for Internet Age*, COMMC'NS DAILY (Aug. 12, 2020).

43. *See supra* note 12; *cf.* Mass. Dept. of Telecomm. & Cable v. FCC, 983 F.3d 28, 30 (1st Cir. 2020) (regarding the power of state regulators to set rates for local cable companies); Altice USA v. N.J. Board of Pub. Utils., No. 20-1773 (3d Cir.) (regarding the power of state regulators to enforce a consumer protection law against cable companies).

aim to offer some technical but legible detail). Even this simplified description of the internet makes one thing plain: Place matters.[44] Local conditions drive critical decisions about how access to the internet is deployed and how broadband carriage markets operate. But in other segments, more than just local conditions matter: a wider range of jurisdictions and considerations will shape the relevant market.

Second, we offer a tidied account of state and federal power over "traditional" (i.e., pre-internet) communications platforms. This account, we believe, is both doctrinally defensible and normatively sound for its focus on institutional competence along the vertical dimension (that is, across local, state, and federal regulators). In particular, we emphasize how considerations of place have mattered in a range of agency decisions pertaining to these infrastructural systems. We explain how this consideration of place aligns with conceptualizations of federalisms that view state and federal governments as (at times, uneasy) collaborators rather than dueling sovereigns, and that acknowledge a meaningful role for local regulators in our federal system. In short, policymakers have preferred (though incompletely and inconsistently) to vest decisional authority with the most immediately salient local jurisdiction: Local authorities for local matters, and federal authorities for nationwide concerns.

Third, we apply this theory of concurrent regulatory authority to more recent debates over internet regulations. Here, we see that the colloquial oversimplification of the internet's "inherently interstate" nature and an inattention to the extant regulatory apparatus governing the internet's constitutive infrastructure (along with some confusion over the consequences of the Commission's classification decisions) have, taken together, led scholars and policymakers astray. We thus argue in favor of a regulatory approach that permits local regulators to address matters of local concern in view of local knowledge (e.g., how to address concerns of monopoly power in non-competitive local markets, or how to advance internet access in underserved locales). Indeed, the Telecommunications Act of 1996 expressly gives "state commission[s]" the power to regulate to advance the development of local internet infrastructure.[45] This understanding of federalism's intersection with the internet has specific consequences for a range of state and local regulatory initiatives, including network neutrality, universal service, municipal broadband, and even, still, inside wiring.

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44. As we set out at the beginning of Part II, we use the term "place" to encompass a wide range of local concerns.

45. *See* 47 U.S.C. § 1302.

II. PLACE AND THE INTERNET'S INFRASTRUCTURE

We begin with a general description of the internet and the importance of "place," the term we use to encompass a wide range of local considerations relating to geography, climate, safety, regional markets, and state law. While we use the term expansively, our discussion is distinct from the term's use as an explanatory metaphor for the application of regulations to the internet. Some scholars have ably demonstrated the limits and unfortunate consequences that flow from treating the "cyberspace as place" analogy too literally."[46] As Julie Cohen has observed, one tonic for this loose conceptualization is to reconcile it with the world outside of cyberspace, including the "real-world geographic distribution of quantifiable network components such as backbone cables and routers, major nodes, and . . . hosting domain[s]."[47] Our effort here is similar: To avoid the vague terms of the cloud metaphor and turn, instead, to a concrete description of the internet's infrastructure; that is, to unpack the colloquial (mis)understanding of the internet as a "mysterious set of wires" and to detail the internet's inner workings.[48] Or, put in terms of Orin Kerr's "problem of perspective," we aim to ground the debate over the regulation of internet traffic in the "external perspective" of "the physical reality of how the network operates."[49]

We are not, of course, the first to describe the internet's general architecture.[50] Nor are we the first to connect the physical location of internet infrastructure to the question of who should regulate that infrastructure and the services that rely on it.[51] But in our telling, we aim both to highlight the identity between some of the internet's constitutive networks and traditional communications networks, and, in so doing, describe how those networks are intensely local infrastructure subject to local regulation.

Consumers find their way online through a variety of distinct physical facilities — cable systems, copper wires, and wireless spectrum, among others. No matter how one accesses the internet, however, the

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46. *See, e.g.,* Dan Hunter, *Cyberspace as Place and the Tragedy of the Digital Anticommons*, 91 CALIF. L. REV. 439, 509–13 (2003) (linking the cyberspace as place metaphor to the propertization of cyberspace).

47. Julie E. Cohen, *Cyberspace As/And Place*, 107 COLUM. L. REV. 210, 238 (2007).

48. NUECHTERLEIN & WEISER, *supra* note 2, at 24.

49. Orin S. Kerr, *The Problem of Perspective in Internet Law*, 91 GEO. L. REV. 357, 357 (2003). For a concise and helpful discussion of scholarship on the place-based metaphor and the problem of perspective, *see* Blake E. Reid, *Internet Architecture and Disability*, 95 IND. L. REV. 597, 604–08 (2019).

50. NUECHTERLEIN & WEISER, *supra* note 2, at 175–86.

51. *See, e.g.*, Sylvain, *supra* note 2, at 802 ("[T]he multitudes of facilities through which Internet transmissions pass at any given moment are located in some physical place in which locally contingent stakeholders have conflicting interests to negotiate.").

same internet-connected content is available: You can send an invitation to a friend using iMessage on a device plugged into Comcast's cable network and its recipient might read it on an iPhone connected wirelessly to the internet via Verizon.[52] Hence, these different physical networks must be, in some way, interconnected.

This interconnectedness suggests a technical structure for the varied networks that compose the internet. How do users access the internet (and connect with each other)? How, that is, do local access networks connect with each other? We work through these details in the following sections, focusing on the three discrete infrastructural sectors that typically inform expositions of the internet's infrastructure.[53] We begin with access networks and broadband carriage — the internet infrastructure and service, respectively — that most consumers know best. The term "access networks" describes the portion of the internet's infrastructure that connects its edges — consumers, devices, and content providers — to the rest of the network.[54] These networks are intensely local, shaped by their place at the edges of the internet's infrastructure. Second, we describe backbone networks — the long-distance data hauling networks that, among other things, interconnect the various local access networks. These networks are, by contrast, shaped by a wider range of interjurisdictional considerations. Finally, we describe content delivery networks (or CDNs for short), a comparatively recent innovation that blurs the distinction between long-haul traffic and local delivery.

A. Access Networks

Consumers access the internet through a variety of means. Many, for example, subscribe to cable modem service and so connect to the internet on the physical networks that also deliver cable television broadcasts to their homes. Others rely on a digital subscriber line ("DSL") service (such as the one AT&T is winding down) or on a more modern fiber optic cable network, and so may rely on the telephone's network.[55] And when we access the internet from our cell phones, we do so by way of wireless spectrum. Each of these facilities describes a distinct *access network*, a local means of connecting to the rest of the internet. We emphasize that our understanding of these networks encompasses not only the bare infrastructure (e.g., cables and equipment),

52. *See* Narechania, *supra* note 33, at 203.

53. *E.g.*, NUECHTERLEIN & WEISER, *supra* note 2, at 175–86.

54. Similarly, broadband carriage refers to the subscription service that provides such connections over that infrastructure. *See supra* text accompanying note 8.

55. *See* Rob Pegoraro, *AT&T Shelving DSL May Leave Hundreds of Thousands Hanging by a Phone Line*, USA TODAY (Oct. 20, 2020) (noting AT&T's intent to "phase out outdated services like DSL").

but also the varied services that are offered over such infrastructure (e.g., broadband carriage, radio and television, and voice telephony). Such distinctions, across network types, matter in the technical and regulatory details: For example, many regulated entities have long contended that regulators should limit their attention to matters of physical infrastructure (e.g., assigning radio frequencies to various channels) and eschew service regulation (e.g., rules governing the content broadcast over such channels).[56] But policymakers have largely rejected such suggestions to relegate the federal and state commissions to mere "traffic officers," instead vesting such regulators with substantive powers over communications services to advance a wide range of social goals, including access, competition, localism, and speech (among others).[57]

1. Cable and Cable Modem Service

We start with cable systems, given their leadership position among broadband carriers: Cable providers account for nearly 80 percent of all wired broadband connections, far outpacing other wired competitors, such as DSL service (which has been long been declining in its market share).[58] One possible, if partial, explanation for cable's dominance is its traditional reliance on high-capacity facilities: The cable companies' wires must be capable of transmitting high volumes of video data (such as multiple television channels), and so are comparatively well-suited to transmit high volumes of internet data, too.[59] These cables — typically, coaxial cables — run from homes and businesses to neighborhood nodes, which are best understood as a sort of collection site for small communities. And from there, several nodes connect to the cable's headend — a fenced and secured cable building surrounded by satellite dishes and radio towers.

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56. *See, e.g.*, Nat'l Broad. Co. v. FCC, 319 U.S. 190, 215 (1943) ("[W]e are asked to regard the Commission as a kind of traffic officer, policing the wave lengths to prevent stations from interfering with each other. But the Act does not restrict the Commission merely to supervision of the traffic.").

57. *See, e.g.*, *id.* ("The Act itself establishes that the Commission's powers are not limited to the engineering and technical aspects of regulation of radio communication."); *see also* Witteman, *supra* note 9, manuscript at 63–66 (extending this view to broadband carriage).

58. *See* FED. COMM'N, WIRELINE COMPETITION BUREAU, INTERNET ACCESS SERVICES: STATUS AS OF DECEMBER 31, 2017, at 21 (Aug. 2019), https://docs.fcc.gov/public/attachments/DOC-359342A1.pdf [https://perma.cc/N4Q8-3YHT]. When reporting statistical figures, we use the Commission's current definition of broadband service (25 Mbps downstream, 3 Mbps upstream), except as otherwise noted. *See* Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, 30 FCC Rcd. 1375, 1377, ¶ 3 (2015) (2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment).

59. Richard R. Green, *Cable Television Technology Deployment*, *in* THE UNPREDICTABLE CERTAINTY: INFORMATION INFRASTRUCTURE THROUGH 2000, NATIONAL RESEARCH COUNCIL COMPUTER SCIENCE AND TELECOMMUNICATIONS BOARD 263 (1997).

The headend is a critical focal point: It is where the cable system connects to the rest of the communications infrastructure. For television purposes, the headend is where a cable company integrates a variety of signals and transmits them to its local subscribers.[60] At the headend, cable companies may capture local broadcast stations (such as the local NBC or ABC affiliate), receive remotely produced and satellite-transmitted content (such as a live sports broadcast on ESPN), and store and transmit other locally produced content (such as a recording of a recent town hall meeting). The headend also receives local emergency alerts, so that the cable company may, as needed, broadcast emergency information across channels.[61]

The headend serves a similar technical function for internet purposes, connecting individual subscribers to the rest of the internet. This is because cable companies typically install a "cable modem termination system" ("CMTS") at the headend facility. On one side of the CMTS, regular coaxial cable or fiber-optic cable runs out to the cable company's local subscribers; on the other side, the cable company connects with backbone providers, content delivery networks, and the other distinct components of the rest of the internet's infrastructure. Hence, across both services — television and internet — the headend plays an important role, connecting local subscribers to a greater ecosystem of content.

There are about 4,000 cable headends across the country (for an average of about 80 per state), suggesting that the network's branches stemming from each headend are typically local systems.[62] This makes sense, given cable companies' need to be responsive to local conditions.[63] For one, granularity and segmentation in these networks enable cable companies to transmit emergency alerts only to relevant, affected populations.[64] They also help cable companies meet their various commitments to local regulators — franchising authorities — by, say, guaranteeing access for a range of local communities, or distributing cable channels of local interest (such as local government programming or even the high school's winter play via public access television).[65] Moreover, by deciding what signals to receive at what headends, cable

60. WALTER CIRCIORA ET AL., MODERN CABLE TELEVISION TECHNOLOGY 14 (2d ed. 2004) ("Signals are received [at the headend] from off-air antennas, parabolic satellite antennas, terrestrial microwave links, or coaxial links from local sources.").

61. Report: October 3, 2018 Nationwide WEA and EAS Test, 2019 WL 1529991 (F.C.C. Apr. 1, 2019), at 5.

62. *Id.* at 8 n.42.

63. *Cf.* Fox Television Stations, Inc. v. AereoKiller, LLC, 851 F.3d 1002, 1013 (9th Cir. 2017) (describing headends as "location-sensitive").

64. *See* Report: October 3, 2018 Nationwide WEA and EAS Test, *supra* note 61, at 4–5.

65. Manhattan Community Access Corp. v. Halleck, 139 S. Ct. 1921, 1926, 1929 (2019) (describing the local interests that inform public access programming).

companies can implement important business decisions about, for example, what programming to offer in each market. Such decisions are often made by reference to local conditions, such as relevant sports affiliations: Comcast may decide, for example, to offer the PAC12 Network on the West Coast and the BIG10 Network in the Midwest. In short, the large number of widely distributed headends across the country allow cable companies to deploy networks that comply with local rules, that serve local safety interests, and that deliver locally responsive content to distinct communities nationwide. Indeed, commentators have sometimes suggested that even more headends would be better: "A more desirable number of headends . . . would perhaps lie between 20,000 and 50,000."[66]

Similar concerns attend to the internet-related services that ride atop these cables. For one, the geography- or weather-related concerns that drive infrastructure design seldom vary across cable television service and internet service. Whether service providers require access to, say, underground easements rather than aboveground poles because of local wind conditions does not depend on whether those wires will be used to deliver ESPN or to access espn.com. Such place-based concerns extend beyond the design of the bare infrastructure to also shape aspects of the broadband carriage service itself. For example, cable companies cache data that they expect will be relevant to various local markets in their respective headends.[67] Just as local regulations and business logic drive the cable companies' television-related decisions at the headend, local factors drive their internet-related decisions.

2. Telephone and DSL Service

Broadband services offered by telephone companies are quite similar to cable in relevant respects. The physical facility, of course, is different: cable systems use predominantly coaxial cable; telephone systems have historically employed copper wire. But the overall network design — and the concomitant importance of local conditions — remains.

If we take our cable system network architecture — but replace "nodes" with "local switches" and "headends" with "central offices" —

66. *Regulation of CATV — 1969: Hearings Before the Subcomm. on Communications and Power of the H. Comm. on Interstate and Foreign Commerce*, 91st Cong. 417 (1969) (statement of Nathaniel E. Feldman, Consultant, The RAND Corp.).

67. *Electronic Commerce: Hearings Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the H. Comm. Commerce*, 105th Cong. 58 (1998) (prepared statement of Milo Medin, Senior Vice President for Engineering and Chief Technology Officer, @Home Network) ("In order to move data as close to the subscriber[s] as possible . . . the headends employ high-performance caching servers that store frequently accessed content locally.").

then we would get a good approximation of a local telephone network.[68] As in the case of headends, the central office represents the main junction between the local network and the rest of the telephone system. It is at the central office where other phone companies (say, Verizon) might seek to interconnect their network with the local provider's (say, AT&T) so that AT&T's subscribers can call Verizon's customers, and vice versa.[69] And the central office plays a similar role for internet interconnection. Carriers typically install their "digital subscriber line access multiplexers" ("DSLAMs") — the rough analogue to CMTSs, but for DSL service — in central offices.[70] And even as copper wires are gradually retired and replaced with fiber optic cables — leading to the suspension of DSL service and the provision of fiber-based internet access — this basic network structure has remained intact.

As with headends, the access network that begins at the central office and extends through a carrier's subscriber base is local. The Commission estimates that there are about 25,000 central offices in the nation — an order of magnitude more than the number of cable headends.[71] And the nature and quality of the network vary by local conditions, too. We noted above that telephone systems have historically relied on copper wires to provide service. But those copper wires offer comparatively little bandwidth and may degrade over time. So, some carriers have replaced those copper facilities with higher-capacity fiber optic cable. Such fiber is relatively common in large commercial centers. But whether such high-capacity and high-speed service is available to residential subscribers "is less predictable because the economic calculus varies so much from place to place."[72] This is because the costs to replace the existing infrastructure vary significantly across locales: Terrain, population density, and local regulatory conditions can

68. *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 2, at 27 (explaining that the central office is the "rough equivalent" of a headend). While central offices may play different or even multiple roles in a fiber-to-the-home network (as compared to a copper-based network), it still figures prominently in the network's topology. *See generally* COMMSCOPE, KEY TECHNICAL DECISIONS WHEN PLANNING FIBER-TO-THE-HOME NETWORK (2017), https://www.commscope.com/globalassets/digizuite/2787-key-technical-decisions-when-planning-ftth-wp-110969-en.pdf [https://perma.cc/VF6R-BE7A].

69. *See, e.g.*, Narechania, *supra* note 33, at 202 (briefly describing telephone and messaging interconnection).

70. *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 2, at 72–73.

71. *See* Improving 911 Reliability, 28 FCC Rcd. 17476, 17520 n. 319 (2013) (Report and Order); *see also* Review of Section 251 Unbundling Obligations, 18 FCC Rcd. 16978, 17322 n.1649 (2003) (Report and Order and Order on Remand and Further Notice of Proposed Rulemaking) (explaining that one carrier alone, Covad, "has deployed DSLAMs . . . in nearly 2000 central offices — reaching 45% of the country in 35 states").

72. *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 2, at 26.

all drastically affect the costs of deploying new broadband infrastructure.[73] The benefits vary, too: In regions where incumbents face little competition from other broadband carriers, they may have little incentive to invest in infrastructure improvements. In short, both local geographic and competitive conditions (among other concerns) shape broadband infrastructure.

3. Wireless Broadband Access

To the extent consumers subscribe to multiple internet access providers, they typically choose one of the two options already discussed — cable-based access, or telephone-company-provided DSL (or fiber) — as well as one wireless internet access provider (typically, a cell phone company).[74] In short, many consumers choose one provider to serve their computers, smart televisions, and other home-bound devices, and another to serve their phones, tablets, and other mobile devices.

So how do mobile devices connect to the internet from almost anywhere? Spectrum — the electromagnetic waves that carry radio and television broadcasts — helps to bridge the gap between a mobile device and the rest of the internet's infrastructure. A vast network of antennae and towers receives and transmits information on frequencies — essentially, stations — that are authorized for broadband communications. We highlight two features of these wireless access networks.

First, only part of the access network is wireless — usually, the connection between the device and the most local antenna. Once a signal is transmitted to an antenna, it is "normally routed through a wireline connection . . . to one of the carrier's centralized switches."[75] In short, the wireless service relies upon (and often supplements) existing wireline infrastructure to complete its communication. Hence, place-related concerns affect wireless networks just as they shape the design of these existing wireline networks.

Second, the network structure of these wireless antennae is itself shaped by local conditions.[76] For example, in rural locales, carriers of-

73. *See, e.g.*, Implementation of Section 224 of the Act, A National Broadband Plan for Our Future, 26 FCC Rcd. 5240, 5241–42, ¶ 3 (2011) (Report and Order and Order on Reconsideration).

74. To clarify, then, we do not mean to include services like residential Wi-Fi in our discussion of wireless broadband access. Instead, we see residential Wi-Fi as a residence-specific implementation of the other broadband carriage services described above — though, as we will see, there are some notable similarities in these services (namely, that the wireless connection is largely a bridge to a wireline connection).

75. NUECHTERLEIN & WEISER, *supra* note 2, at 128–29.

76. *See* Geoffrey A. Fowler, *The 5G Lie: The Network of the Future Is Still Slow*, WASH. POST. (Sept. 8, 2020, 8:29 AM), https://www.washingtonpost.com/technol-

ten prefer to install powerful antennae atop radio communication towers. And, as explained, these radio towers are connected to an existing wireline infrastructure. But in dense, urban locales, real estate for large towers may be at premium, and so carriers may instead install several small antennae atop utility poles, streetlights, or apartment buildings. Indeed, in urban regions, network architects may decide to forego direct connections to wired infrastructure from every local antenna (as suggested above), using instead a wireless relay — data are sent from, say, a phone, to an antenna, then "relayed" wirelessly to another antenna, and so on, until one antenna in the chain is connected to the carrier's wireline infrastructure.

The regulations governing the installation of these antennae — the "tower siting" rules — confirm the importance of place when it comes to wireless networks. The 1996 Telecommunications Act preserves the local authorities' power to influence the shape of these wireless networks in view of local concerns — effects on property values, local environmental concerns, wind conditions, and even property owners' desires to protect their views, among others.[77]

4. Other Access Networks

Cable, DSL and telephone company fiber, and mobile facilities account for the vast majority of broadband access networks. But these are not the only options. Consumers might, for example, access the internet via satellite-based broadband carriers. Others might get online by way of their power company.[78] Or some municipalities might decide to offer residents broadband carriage (usually by way of fiber optic cable) themselves directly, forgoing private providers altogether.[79]

While these varied networks are wildly different in many respects, at least one factor is constant across all of them: Place matters. And place matters for reasons that extend beyond topographic variation. Differing population densities, reliance on municipally supported utilities, or local preferences influence how localities ensure broadband services for residents. This is most obvious in the context of municipally

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ogy/2020/09/08/5g-speed/ [https://perma.cc/TM97-UQB4] (explaining that "every neighborhood . . . can shape download performance" and that the most "crazy-impressive" aspects of 5G connectivity are crazy-local because signals "can't travel very far, so require lots and lots of equipment close by").

77. 47 USC § 332(c)(7)(A); NUECHTERLEIN & WEISER, *supra* note 2, at 130–31 (quoting PrimeCo Commc'ns v. City of Mequon, 352 F.3d 1147, 1149 (7th Cir. 2003)).

78. *See* Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband Over Power Line Systems, 21 FCC Rcd. 9308, 9309, ¶ 2 (2006) (Memorandum Opinion and Order).

79. *See infra* Section IV.C.

provided broadband access, as Olivier Sylvain has explained.[80] For example, before a town can offer its residents broadband access, it must raise the funds (usually through taxpayer-approved bonds) to build out the fiber infrastructure.[81] Similarly, the degree to which power companies can extend their existing infrastructure to support broadband carriage often depends on the scope of their existing access easements — a question of state law. And so, in response, some states have amended state law to clarify that utility easements encompass broadband carriage — while other states have resisted such efforts, based, in part, on local attitudes regarding easements and property.[82]

In short, the structure and design of these access networks has always been responsive to local concerns. Cable systems were designed from the start to be responsive to varying local needs and priorities (including regulatory conditions) — and those systems continue to implement these differences. So too with the telephone networks, as well as with other, more recent networks developed and advanced to help get consumers online. The importance of place is an intentional feature of our communications infrastructure, in particular, the access networks that connect the edges to the interconnected networks' core.

B. Backbone Networks

We have, so far, described various sorts of access networks — the networks that deliver data from one's home to a headend or central office. But what happens beyond that terminus of the local access network? In many cases, the data continues on, but on a different network — a "backbone network."[83] Backbone networks are long-dis-

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80. Sylvain, *supra* note 2, at 797–98.

81. *See, e.g.*, Trevor Hughes, *Town Creates High-Speed Revolution, One Home at a Time*, USA TODAY (Nov. 14, 2014, 8:39 PM), https://www.usatoday.com/story/news/nation/2014/11/19/longmont-internet-service/19294335/ [https://perma.cc/5AA6-AR8Z] (explaining that Longmont, Colorado voted to fund a municipal internet access network through a bond measure).

82. *Compare, e.g.*, Ind. S.B. 478 (FIBRE Act of 2017) (modifying the scope of existing utility easements to expressly include fiber optic cable used to deliver broadband internet access service), Neb. LB-992 (similar), *and Pennsylvania, Louisiana Lawmakers Pass Broadband Bills*, COMMC'NS DAILY (Oct. 23, 2020) (citing similar law in Pennsylvania, HB-2438), *with* Barfield v. Sho-Me Power Coop., 852 F.3d 795, 799–803 (8th Cir. 2017) (concluding that, under Missouri law, easements granted for, e.g., "electrical power utility and related communication purposes" do not encompass "the right to use fiber-optic cables installed on the easement land for commercial telecommunications purposes unrelated to supplying electricity").

83. *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 2, at 180. As we note above, most data connections leave the access network. But not all. Imagine, for example, a peer-to-peer connection between you and your neighbor for the purposes of sharing a file (say, the complete text of the Bible). *See* Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications (Memorandum Opinion and Order), 23 FCC Rcd. 13028, 13028 (2008) (Memorandum Opinion and Order). In that

tance data hauling networks, connecting the various local access networks described above and routing information to and from distant senders and recipients.[84] These networks carry substantial loads. They must, after all, carry all data sent by every active subscriber across multiple access networks. Because of these intense bandwidth demands, these networks typically employ high-capacity fiber optic cables, transmitting data long distances — over mountains, across plains, and even under water. And though this geography is important, these networks are largely interstate in character and serve national and regional markets.

Moreover, not all backbone networks are alike. Though they share characteristics in terms of distances traveled or physical facilities used, competing backbone networks may vary in the volume of traffic they carry or the economic arrangement they employ. Tier 1 Networks — the networks that carry the most traffic — typically benefit from a low-friction economic arrangement known as settlement-free peering. Other, lower-tier providers may have to pay transit charges to deliver their long-distance data to its destination.[85]

1. Transit

Transit is, in essence, long-distance data carriage for hire. Imagine a connection between Jane, an average consumer in New York, and CatTube, a provider of cat-related videos in California. Jane might connect to the internet via DSL service provided by LocalTel, a local telephone company serving residential subscribers in New York. CatTube might host its cat content with business services provided by CableCo, a regional cable television service and broadband carrier serving both residential and business customers. For Jane to ask for a new cat video (and for CatTube to deliver it) the data request might travel the following path: From Jane, over LocalTel's network to the central office; then, on the other side of the DSLAM, over the network of a transit provider like Cogent; then, wherever Cogent's infrastructure might end (say, Chicago), to CableCo's broadband provider, say, Lumen; then, over

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case, the access network should recognize the connection as on its network, and relay traffic over its own network, without needing to involve any other network. *Cf.* United States v. Schaefer, 501 F.3d 1197, 1198 (10th Cir. 2007) (striking down federal conviction for possession of child pornography images because the Government failed to prove that the illegal images had crossed state lines).

84. Yotam Harchol et al., *A Public Option for the Core*, SIGCOMM '20: PROCEEDINGS OF THE ANNUAL CONFERENCE OF THE ACM SPECIAL INTEREST GROUP ON DATA COMMUNICATION ON THE APPLICATIONS, TECHNOLOGIES, ARCHITECTURES, AND PROTOCOLS FOR COMPUTER COMMUNICATION 1.

85. *See generally* Kevin Werbach, *Only Connect*, 22 BERKELEY TECH. L.J. 1234 (2007) (describing the importance of interconnection among competing backbone networks as well as various access networks).

Lumen's network to CableCo; and, finally, back again over the same path (in reverse).

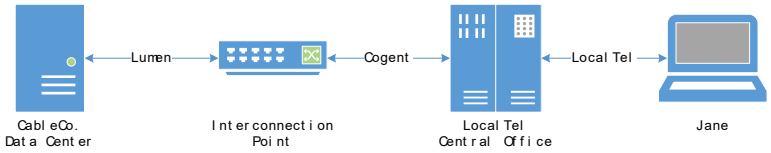

Figure 1.

In this example, LocalTel needs some help getting Jane's request across the internet, and it has hired Cogent to provide it. Cogent transmits Jane's request — and other data from LocalTel's DSL access network — across the country where, eventually, it is transferred to a network that can take it to its destination (in this case, to Lumen, for eventual delivery to CableCo). That data trafficking service is known as transit. LocalTel pays Cogent to deliver data long-distance, from New York to Chicago.

2. Peering

By contrast, peering is a direct exchange system, where the connecting peers exchange data that is "generally limited to that between the customers of the two systems."[86] Under this system, two networks agree to exchange data as needed — historically, at no cost; but now, paid peering agreements are increasingly common. Such data exchanges might occur at one of two places inside the internet.[87]

First, peering relationships might be found in the middle of the internet. To continue to draw from our prior example, Cogent and Lumen exchange data in Chicago, and do so at the request of their respective customers (Cogent's customer, LocalTel, would like to reach Lumen's customer, CableCo).[88]

Second, peering relationships might also be found at the so-called edge, closer to where access networks meet the rest of the internet. For

86 . ROBERT KENNY, COMMC'NS CHAMBERS, THE ATTACK ON SETTLEMENT-FREE PEERING AND THE RISK OF 'ACCESS POWER' PEERING 5 (2013), https://www.ccianet.org/wp-content/uploads/2013/08/Access-Power-Peering.pdf [https://perma.cc/9KPK-8RAW] (explaining the distinction between peering and transit by defining peering as limited to exchanges of data "between the customers of the two networks" but transit as encompassing exchanges "beyond this, for instance providing onward delivery to a network's peers and *their* customers"); *see also* NUECHTERLEIN & WEISER, *supra* note 2, at 180–81 (similar).

87. *See* Harchol et al., *supra* note 84, at 6.

88. By contrast, the relationship between LocalTel and Cogent is not a peering relationship because LocalTel is not trying to reach Cogent's customer. Instead, it is trying to reach Cogent's *peer* — Lumen.

instance, let's replace LocalTel and Cogent in our example with a single provider — say, AT&T.[89]

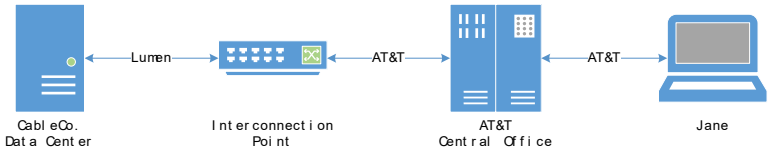

Figure 2.

The connection between AT&T and Lumen is still a peering relationship (since AT&T's customer, Jane, would like to contact Lumen's customer, CableCo). But now, that point of interconnection involves, more directly, Jane's access network (since AT&T participates in two distinct markets — the local access network market as well as the long-distance data hauling market). Such points of interconnection might also be made subject to peering agreements.

These two kinds of peering arrangements are also suggestive of the two sorts of economic arrangements that characterize peering.

To return to our original example (described in Figure 1), if both Cogent and Lumen are Tier 1 providers, then it's likely that these two companies do not exchange payments when Jane's request traveled to California, or when CatTube's video traveled back to Jane. This is because the two Tier 1 providers each send roughly the same volume of traffic, in total, to the other as each receives. Given this symmetry, it makes little sense for these parties to send each other regular invoices for about the same amount of money. Instead, the parties agree to settlement-free peering, with such agreements sometimes governed only by norms among network engineers, rather than by formal contract.[90]

But where traffic is not balanced (as is the case in most residential broadband networks) or perhaps where one provider has some power over the other (such as a large subscriber base), these agreements have increasingly been made subject to economic terms known as paid peering.[91] The term's meaning is plain — the arrangement is still peering

89. *See* Harchol et al., *supra* note 84, at 5, 7.

90. Bill Woodcock & Marco Frigino, *2016 Survey of Internet Carrier Interconnection Agreements*, PACKET CLEARING HOUSE 3 (2016), https://www.pch.net/resources/Papers/peering-survey/PCH-Peering-Survey-2016/PCH-Peering-Survey-2016.pdf [https://perma.cc/6JUF-MPJR] (survey finding that 99.93 percent of peering agreements among network operators in OECD countries were "handshake" agreements with no written contract).

91. Matthew S. Schwartz & Erin Mershon, *Paid Internet Peering on the Rise, Disputes Possible*, COMMC'NS DAILY, July 1, 2013, at 1. Although paid peering arrangements are common among large incumbent access network operators, the vast majority of peering agreements are still settlement-free. *See* BILL WOODCOCK & MARCO FRIGINO, PACKET CLEARING HOUSE, 2016 SURVEY OF INTERNET CARRIER INTERCONNECTION AGREEMENTS 12 (2016) (noting that 99.98% of peering agreements had symmetric terms).

(the providers' customers are trying to reach each other) — but one pays the other to carry its traffic the rest of the way. To draw on the modified example above, AT&T might demand payment from Lumen to deliver CatTube's video content to Jane. This might be because Lumen is sending more traffic to AT&T's subscribers than AT&T's subscribers are sending to Lumen: consumers send comparatively low-bandwidth *requests*; content providers send comparatively high-bandwidth *video content*.[92] Or it might be because AT&T controls the path to Jane and its millions of other subscribers in New York, and so is in a position to demand payment: If Lumen doesn't pay AT&T, the files won't be timely delivered, the video content's performance may suffer, and CatTube may lose Jane as a customer.[93] Or it might be both. No matter the reason, the arrangement is for paid peering.

Backbone networks — no matter the specific economic arrangement (transit, settlement-free peering, or paid peering) employed — carry large volumes of data long distances. A single transit connection might, for example, extend over the Rocky Mountains, across the Great Plains, and through the Ohio River.[94] Compared to residential broadband networks, both the markets and the infrastructure of backbone networks are more properly understood as regional, national, or even global. In other words, as the number and range of local variations increases, the relevance of any single local regulator's specialized knowledge and competence diminishes. Accordingly, local conditions are less likely to influence the operation and administration of these interconnecting networks, and the case for the utility or relevance of local knowledge or local sensitivities is harder to make.

C. Content Delivery Networks

Continuing with our modified example, say that Lumen agrees to pay AT&T, and that those charges eventually result in higher prices for

92. Of course, this makes sense only in contexts where retail consumers consume video content but do not produce it. Where, by contrast, retail consumers produce more video content — through, say, videoconferencing services — this rationale may seem less persuasive.

93. Some readers may wonder how Lumen's failure to pay AT&T bears on Jane's desire to subscribe to a cat video service. In short, if the files aren't delivered, then Jane won't want to subscribe to the service. If CatTube sees that it is losing customers because of technical issues, it might well drop CableCo as its supplier of data hosting services and choose a competitor. And if CableCo sees that it is losing customers (like CatTube) because of data delivery issues, then CableCo might drop Lumen as its supplier of transit services and choose a competitor, like Cogent. So, Lumen is forced to choose between paying AT&T or the prospect of losing CableCo's business.

94. *See* Ramakrishnan Durairajan, Paul Barford, Joel Sommers & Walter Willinger, *InterTubes: A Study of the US Long-Haul Fiber-Optic Infrastructure*, COMP. COMMC'N REV., PROCEEDINGS OF THE ANNUAL CONFERENCE OF THE ACM SPECIAL INTEREST GROUP ON DATA COMMUNICATION ON THE APPLICATIONS, TECHNOLOGIES, ARCHITECTURES, AND PROTOCOLS FOR COMPUTER COMMUNICATION 565, 569 (2019).

CatTube (via increased transit prices for CableCo, for example). CatTube might seek a cheaper route to Jane (and its other customers in New York). In such a situation, CatTube might decide to enlist instead the services of a content delivery network, such as Akamai or Limelight.[95]

Content delivery networks ("CDNs") vary from backbone networks (and access networks) in one major respect: CDNs are predominantly networks of computer servers, rather than of wires.[96] Of course, these servers are connected by wire; but their chief innovation is that CDN servers keep local caches of content all over the internet in order to reduce the costs of transmitting traffic from, say, CatTube's headquarters in California all the way to Jane in New York.[97] Instead, a local server owned by the CDN and housed in a New York headend or central office will store copies of content of local interest to New Yorkers so that that data traffic can arrive more quickly and more cheaply to nearby subscribers.[98]

But how do those distributed CDN servers get copies of the relevant local content? Content is "advanced" there at times when transit costs are lower (because it is typically cheaper to send data in the middle of the night, when demand is comparatively low, than it is at seven o'clock in the evening, when demand (and network congestion) is relatively high). Or, in rare cases, content might be mailed on hard drives to be physically installed at various locations.[99] In this way, CDNs mimic the considerations that drive cable modem providers to cache content locally — but CDNs do so for a wider range of private entities, and typically for those that sit atop the network infrastructure (i.e., websites, internet applications, and other so-called "edge providers") rather than for network operators themselves.[100] Hence, CDNs are local infrastructure, but that competes in the market for interstate transit services,

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95. *See generally* Limelight Networks v. Akamai Tech., 572 U.S. 915, 918 (2014).

96. *But see* Harchol et al., *supra* note 84, at 7 (explaining that Akamai has built proprietary transit networks).

97. *See Limelight Networks*, 572 U.S. at 918 (describing CDNs).

98. *See, e.g.*, Boettger et al., *Open Connect Everywhere: A Glimpse at the Internet Ecosystem Through the Lens of the Netflix CDN*, 2018 SIGCOMM '18: PROCEEDINGS OF THE ANNUAL CONFERENCE OF THE ACM SPECIAL INTEREST GROUP ON DATA COMMUNICATION ON THE APPLICATIONS, TECHNOLOGIES, ARCHITECTURES, AND PROTOCOLS FOR COMPUTER COMMUNICATION 7 (2016).

99. *Netflix Open Connect Deployment Guide,* NETFLIX (Aug. 3, 2020), https://openconnect.netflix.com/deploymentguide.pdf [https://perma.cc/BB4F-QDJ8] (explaining that the amount of time for a CDN's initial "burn in" increases if the CDN is installed much later than it is shipped, suggesting that some data is preloaded on to the server and the magnitude of the changes to such preloaded data increases with time).

100. *See, e.g.*, Annemarie Bridy, *Remediating Social Media: A Layer-Conscious Approach*, 24 B.U. J. SCI. TECH. L. 193, 199 (2018) (describing the layer stack that distinguishes network infrastructure from internet content).

thus further complicating the roles for federal, state, and local regulators.[101]

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In short, as we have already suggested, the internet is neither magic, nor a "mysterious set of wires," nor a cloud.[102] It is, instead, a communications platform that builds upon existing communications networks — networks that can be located and localized, and that have themselves been shaped by a range of place-specific considerations. This is especially so for access networks: local content preferences, among other concerns, influence cable networks; local geographic and competitive conditions affect the facilities that telephone networks use; and factors such as population density or city planning shape the design of wireless networks. Backbone networks and CDNs, too, are shaped by place, but in this part of the network, a wider range of interjurisdictional considerations affect the markets for internet transit.

III. FEDERALISM AND THE INTERNET'S INFRASTRUCTURE

The internet mimics a wide range of interstate systems. Like the system of highways and local roads, the internet is an interconnected system of discrete components — some local, some interjurisdictional — shaped by their place and role in the larger system and governed accordingly.[103] Aspects of such systems have long been subject to local control. In 1876, for example, the Supreme Court ruled that Illinois could lawfully regulate the rates charged by grain elevators — storage facilities used for grain sold in interstate markets.[104] The warehouses were inside the state's borders and were carrying out transactions inside those borders. Hence, so long as the state's regulations did not interfere with federal prerogatives, Illinois was free to "exercise all power of [its] government over them."[105]

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101. *See infra* note 279 and accompanying text.

102. NUECHTERLEIN & WEISER, *supra* note 2, at 24; *cf.* Shira Ovide, *The Global Internet Is a Mirage*, N.Y. TIMES (Aug. 10, 2020), https://www.nytimes.com/2020/08/10/technology/global-internet.html [https://perma.cc/4Q9X-6MQ3] (explaining that local rules — here, in an international context — have always shaped the development of the internet and related technologies).

103. *See* Durairajan et al., *supra* note 94, at 570 (finding that a "significant fraction of all the physical [long-haul] links are co-located with roadway infrastructure" and that "it is more common for fiber conduits to run alongside roadways than railways, and an even higher percentage are co-located with some combination of roadways *and* railway infrastructure").

104. Munn v. Illinois, 94 U.S. 113, 123 (1876).

105. *Id.* at 135 ("[U]ntil Congress acts in reference to their inter-state relations, the State may exercise all the powers of government over them . . . We do not say that a case may not arise in which it will be found that a State, under the form of regulating its own affairs, has encroached upon the exclusive domain of Congress in respect to inter-state commerce, but

The Court has long said similar things about the authority of state and federal regulators over communications systems. In *Louisiana PSC*, for example, the Court explained that the Communications Act of 1934 "establishes . . . a system of dual state and federal regulation over telephone service," each operating in its own "distinct spher[e] of regulation."[106] In other words, *Louisiana PSC* clarified that communications regulation presents one exemplar of dual federalism. Indeed, as *NARUC* suggests, the states' powers over intrastate services using intrastate facilities — local telephone service over inside wiring, say — were insulated, at least in part, from changes to the federal regime governing interstate services using related — and in some cases, the same — infrastructure.[107]

Since then, however, Congress has enacted various amendments to the communications statutes that changed this governance regime — most notably, the Telecommunications Act of 1996.[108] The 1996 Act reflects Congress's efforts to transition communications regulation from a system of dual federalism — one which emphasizes separate and distinct spheres of regulation — to a system of cooperative federalism — one which relies on local regulators to implement a broadly stated federal scheme. As Phil Weiser has explained, the 1996 Act's new provisions shift focus away from the strict jurisdictional lines emphasized in *Louisiana PSC* and instead "charge state agencies . . . with the responsibility of interpreting and implementing federal law."[109] Congress's new regulatory design was motivated, in part, by the difficulties attending to delineating the difference between state and federal communications architecture, and the related conflicts that would arise among state and federal regulators:[110] It was often difficult to discern

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we do say that, upon the facts as they are represented to us in this record, that has not been done."); *see also* HAROLD FELD, THE CASE FOR THE DIGITAL PLATFORMS ACT 48–55 (2019) (explaining how *Munn* also serves as an important basis for sector-specific state regulation of important interstate industries).

106. La. Pub. Serv. Comm. v. FCC, 476 U.S. 355, 360, 375 (1986) [hereinafter *Louisiana PSC*].

107. See *supra* text accompanying notes 14–22.

108. *See, e.g.*, Lyons, *supra* note 6, at 911 (describing the "shifting technological and legal developments [that] eventually prompted Congress to replace [a] [d]ual [f]ederalism model with a [c]ooperative [f]ederalism regime.").

109. Weiser, *Chevron*, *supra* note 30, at 3 n.6; Weiser, *Federal Common Law*, *supra* note 30, at 1752–65 (setting out a proposed allocation of remedial authority between federal and state regulators describing it as a "federal floor with state supplementation"); *see also* Richard J. Pierce, Jr., *Regulation, Deregulation, Federalism and Administrative Law: Agency Power to Preempt State Regulation*, 46 U. PITT. L. REV. 607, 643 (1985) ("Congress is not limited to a choice between allocating all power to regulate an area of conduct to state or federal agencies. It can combine federal and state regulatory power through any form of cooperative or creative federalism it finds appropriate to a particular field of regulation.").

110. *See* Weiser, *Federal Common Law*, *supra* note 30, at 1735 ("Perhaps mindful of the flaws of the old dual federalism model, Congress began looking at new approaches for assigning telecommunications regulation functions to federal and state agencies.").

whether some aspect of a communications network was purely intrastate or interstate, giving rise to serious "jurisdictional tensions."[111] Hence, in the 1996 Act, Congress shifted to a new mode of concurrent regulation.

But Congress's regulatory design gives rise to another question: Why preserve local authority at all? Indeed, if the line-drawing problems attendant to dual federalism gave rise to interjurisdictional tension and conflict, it might seem easiest to vest all decisional power with federal authorities. The answer is that the design of the 1996 Act offers "flexibility and variation" through the exercise of local competence and expertise, as we elaborate in the following sections.[112] We should not overstate the case: Under the 1996 Act, the federal Commission has broad authority to set terms for communications regulations, even as to some matters of intrastate competition.[113] But because local tailoring is, as we have already described, critical to the design of communications networks, the 1996 Act "rejects a preemptive federalism with a single set of rules" in favor of one that aims to preserve local discretion in the implementation of federal standards.[114]

Hence, as we describe in detail below, this mode of concurrent policymaking applies across the many platforms that constitute the modern internet — to telephone networks, to cable service, and to wireless service, among others. In short, there is no "clean parceling of responsibility" between federal, state, and local regulators.[115] And it is hardly sufficient for, say, the federal government to claim complete (and preemptive) authority simply because some communications technology might "become connected with inter-state" systems.[116] Instead, the negotiation between competing regulators depends on a close examination of the states' comparative competence, the federal government's powers, the physical, technical, and market characteristics of the service and infrastructure at issue, and the specific policy question at issue (among other possible concerns). In the following sections, we examine how policymakers have resolved the continuing jurisdictional tensions between these authorities, focusing on concerns of competence and constitutional authority, with an eye to discerning how past practice can help address tensions over broadband regulation in particular. Specifically, we begin with questions of local power, turning first to state authorities and then to localities. Second, we turn to questions of federal

111. *Louisiana PSC*, 476 U.S. at 375.

112. Weiser, *Federal Common Law*, *supra* note 30, at 1741.

113. *See* AT&T v. Iowa Utils. Bd., 525 U.S. 366, 397 (1999).

114. Weiser, *Federal Common Law*, *supra* note 30, at 1741, 1744 (explaining that the Commission "enjoys full residual authority to implement all of the Act's market-opening provisions").

115. *Louisiana PSC*, 476 U.S. at 360.

116. Munn v. Illinois, 94 U.S. 113, 135 (1876).

power and preemption, beginning with constitutional concerns and then turning to questions of statutory and regulatory detail.

A. State and Local Power, State and Local Competence

As we explained above, access to the internet is typically provided over discrete, local networks that predate — and now constitute — the modern internet, including cable and telephone networks. These networks are shaped by their place, and so states and localities have long exercised regulatory power over them, in view of the networks' bearing on matters of local concern (and vice versa) and local regulators' comparative local competence.

1. Local Competence and State Powers

State and local power over elements of interstate communications networks flows from such regulators' superior competence regarding local infrastructure and local concerns. We begin our discussion of such power with utility poles — a foundational element of these networks' infrastructure.[117] Carriers depend on utility poles to deploy cables for new communications networks, and pole-access costs can account for twenty percent of the total costs of deploying new communications networks.[118] Hence, utility pole regulation is immensely consequential to the availability of communications network technology. Moreover, utility pole regulation implicates questions of intensely local concern, as there is little more local than a street-side pole about a foot-and-a-half in diameter.[119] We have already suggested that such local matters — the scope of utility easements, or the siting of wireless towers, among others — shapes communications network infrastructure and service,[120] and that such power is vested with state and local authorities with good reason, given their comparative expertise.[121]

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117. *See* Time Warner Ent'mt-Advance/Newhouse Partnership v. Carteret-Craven Elec. Membership Corp., 506 F.3d 304, 313 (4th Cir. 2007) (referring to utility poles as "essential resources"). Consistent with the scope of utility pole regulation, our reference to utility poles includes analogous easements such as ducts, conduits, and rights-of-way. *See* 47 U.S.C. § 224(a)(4) (defining "pole attachment" to include any "pole, duct, conduit, or right-of-way owned or controlled by a utility").

118. FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN 109 (2020), https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf [https://perma.cc/4GNZ-XMQ7].

119. Fourteen inches, actually. One of us measured.

120. *See supra* Section II.A.

121. *See* Daniel A. Lyons, *Protecting States in the New World of Energy Federalism*, 67 Emory L. J. 921, 957–58 (2018) ("While federalism scholars have identified a wide range of rationales for the preservation of state autonomy, three stand out in the electricity context: diversity and local knowledge, experimentation, and state capacity and expertise."); *see also* Robert D. Cooter & Neil S. Siegel, *Collective Action Federalism: A General Theory of Article I, Section 8*, 63 STAN. L. REV. 115, 144 (2010).

Before 1978, the Commission disclaimed authority to regulate the terms on which power and telephone utilities leased pole access to then-newcomers like cable operators.[122] The telephone companies' unregulated power over these poles kept new competitors from local markets: Telephone companies could, for example, insist on unreasonable rental rates for pole attachments, or place usage restrictions in pole attachment contracts prohibiting cable operators from competing with their own offerings.

To fill this regulatory gap, Congress granted the Commission authority to address these anticompetitive practices in the Pole Attachment Act ("PAA").[123] The PAA required utilities to provide cable systems and other telecommunications carriers with "non-discriminatory access to any utility-owned pole, duct, conduit, or right-of-way"[124] and directed the Commission to set "just and reasonable" rates, terms, and conditions for such pole attachments.[125] As noted, these regulations are very important to ensuring that emerging services and providers can access the physical space necessary to deploy new networks.[126]

Though the statute conferred significant power on the Commission, Congress also recognized that poles and various other rights-of-way are intensely local infrastructure. Congress thus allowed states not only to depart from Commission rules and procedures, but also to divest altogether the Commission of its power to regulate this local infrastructure in those states.[127] Activating such "reverse preemption" requires only that a state certify to the Commission that it regulates pole attachment rates, terms, and conditions in consideration of "the interests of the subscribers of the services offered via such attachments, as well as the interests of the consumers of the utility services."[128] Indeed, nearly half

122. *See, e.g.*, *In re* California Water and Telephone Co., Tariff FCC No. 1 and Tariff FCC No. 2 Applicable for Channel Service for Use by Community Antenna Television Systems, Docket Nos. 16928, 16945, 17098, FCC 77-219, Memorandum Opinion and Order, 64 F.C.C.2d 753, 754 (1977).

123. *See* Pub. L. No. 95-234, 92 Stat. 33 (1978). The PAA, which is part of the Communications Act Amendments Act of 1978, has been codified at § 224 of Title 47 and was subsequently amended in 1982 (primarily to remove a sunset provision) and again in the Telecommunications Act of 1996.

124. 47 U.S.C. § 224(f).

125. § 224(b).

126. *See, e.g.*, *Policies Affecting High-Tech Growth and Federal Adoption of Industry Best Practices: Hearing Before the H. Comm. on Oversight and Gov. Reform*, 112th Cong. 16 (2011) (statement of Milo Medin, Vice President of Access Services, Google) (explaining the importance of pole attachments to Google Fiber broadband deployments).

127. *See* § 224(c)(1).

128. § 224(c)(2). We are aware of only one other example of such reverse preemption: the McCarran-Ferguson Act, 15 U.S.C. § 1012.

the states — twenty-two (and the District of Columbia) — have certified that they regulate pole attachments, stripping the Commission of the power to do so in those regions.[129]

Congress permits the states to divest federal authorities of regulatory power because the states are, in many respects, the more competent utility pole regulator. The Senate Report to the PAA, for example, expressly declares "the matter of . . . pole attachments to be essentially local in nature," and consequently concludes that "state and local regulatory bodies . . . are better equipped to regulate . . . pole attachments."[130] That report notes that "familiarity with the specific operating environment . . . as well as the needs and interests of state or local constituents, is indispensable to efficient and equitable regulation."[131] And because these conditions vary widely across jurisdictions, Congress gave state and local regulators "maximum flexibility to develop a regulatory response to pole attachment problems in accordance with perceived state or local needs and priorities" because "no federal formula could accommodate all the various local needs."[132] Indeed, state pole regulations vary widely (and these state-level experiments sometimes feed back into the Commission's default pole attachment rules).[133] In short, Congress trusted state and local regulators to set rules, based on local conditions, that could significantly affect the shape of competition in communications markets.

Pennsylvania — the most recent state to opt out of the federal regulatory scheme — echoed these concerns in its own pole attachment

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129. *See States That Have Certified That They Regulate Pole Attachments*, FCC WC Docket No. 10-101, Public Notice, DA 20-302 (Mar. 2020), https://docs.fcc.gov/public/attachments/DA-20-302A1.pdf [https://perma.cc/MC39-ZWH9].

130. S. REP. NO. 95-580, at 16 (1977).

131. *Id.* at 18.

132. *Id.* at 17.

133. *Compare* Cal. Pub. Utils. Code, § 767.5(c)(2) (taking a prescriptive approach to pole attachment rate setting), *with* Idaho Stat. § 61-538, *and Next Century Cities' Guide to Pole Attachments*, NEXT CENTURY CITIES (Feb. 1, 2017), https://nextcenturycities.org/next-century-cities-guide-to-pole-attachments/ [https://perma.cc/V47K-6TBD] (describing Idaho as preferring an approach that minimizes "government interference"). Moreover, in many jurisdictions, incumbent telecommunications providers began to use the process of making poles ready for new attachments — the "make-ready" process — to delay new installations and increase competitors' overall costs by having *each* owner of preexisting attachments separately contract and charge for the cost of modifying or relocating the equipment already on the pole. To counteract these tactics and to expedite new infrastructure buildouts, Louisville (Kentucky), Nashville (Tennessee), and West Virginia have all adopted "one-touch make-ready" (OTMR) ordinances and statutes. Louisville, Kt., Ordinance No. O-427-15, § 116.72(D)(2) (Feb. 25, 2016); Nashville, Tn., Ordinance No. BL2016-343, § 13.18.020(A) (Sep. 21, 2016); W. Va. Code § 31(G) (2017). OTMR ordinances allow the new attacher to perform all necessary make-ready work in one step, including work related to existing attachments owned by others, using contractors certified by the utility pole owner. Citing these existing state and local OTMR regulations, the Commission adopted its own OTMR rules in 2018. Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, 33 FCC Rcd. 7705, 7709–10, ¶ 8, 7793–7802 (Appendix A) (2018) (Third Report and Order and Declaratory Ruling).

rulemaking proceeding. In its analysis of its new pole attachment rules, the Pennsylvania Public Utility Commission ("PPUC") explained that local regulatory control over pole attachments has at least two benefits. One, it provides disputants with a local forum for resolving pole-related disputes — a forum that is likely to be cheaper and faster than the Federal Communications Commission.[134] Two, moving these disputes in-state gives the PPUC the opportunity to "develop precedent relevant to the challenges of broadband deployment in Pennsylvania."[135] Other states have made similar findings.

Congress's allocation of regulatory authority over this aspect of communications network infrastructure seems, then, to draw upon the states' comparative advantage regarding local property laws, values, and market and geographic conditions: As explained above, the states have wide authority to scope, for example, existing local easements to make private rights-of-way available to communications carriers,[136] as well as to control where and how wireless network antennae are deployed.[137] In these contexts, the states' power is not unlimited — for example, the Commission may constrain (and has constrained) the states' power over antennae siting by requiring that local regulators approve or deny a wireless provider's application on a timely basis.[138] This is cooperative federalism in action: Local regulators tend to local concerns within a system that provides guidance to achieve national policy objectives.[139]

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134. *See* Pa. Pub. Util. Comm'n, Proposed Rulemaking re Assumption of Commission Jurisdiction Over Pole Attachments from the Federal Communications Commission (Sept. 13, 2018), at 4, http://www.irrc.state.pa.us/docs/3214/AGENCY/3214PRO.pdf. [https://perma.cc/3HXG-BGX6].

135. *Id.*

136. As mentioned above, different states have reached different conclusions on whether existing easements apply to broadband infrastructure. *See supra* note 82 and accompanying text. Further, what property rights may be required is not always clear. *Cf.* Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 450 (1982) (Blackmun, J., dissenting) (describing the constitutional and property questions that arise when a company passes an "electronic signal through [a] cable" on another's property as a sort of "metaphysical struggl[e] over whether or not an individual's property has been 'physically' touched").

137. 47 U.S.C. § 332(c)(7)(A); H.R. REP. NO. 104-458, at 208 (1996) (Conf. Rep.); NUECHTERLEIN & WEISER, *supra* note 2, at 130–31 (quoting PrimeCo Communications v. City of Mequon, 352 F.3d 1147, 1149 (7th Cir. 2003)); *see* Witteman, *supra* note 9, manuscript at 32.

138. *See, e.g.*, City of Arlington v. FCC, 569 U.S. 290, 294–95, 307 (2013).

139. *Cf.* Benjamin W. Cramer, The Moral Hazard of Lax FCC Land Use Oversight for Advanced Network Infrastructure (Dec. 1, 2020), at 17, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3740626 ("The basic structure of American telecommunications law is for the FCC to manage land usage by telecom firms as a matter of national policy, leaving local governments to object to high-level policy decisions on a case-by-case basis.").

Likewise, the states have long held vast powers over local public-safety-related communications matters.[140] Indeed, the Communications Act takes care to preserve such local authority, insulating from federal preemption the states' power over public safety and welfare. For example, though 47 U.S.C. § 253 aims to foster market competition by forbidding local regulations that "have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service," that statute nevertheless includes several exceptions, including one for "requirements necessary to . . . protect the public safety and welfare."[141]

Consider Verizon's plan to decommission parts of its copper telephone network in favor of a fixed wireless service in the wake of Superstorm Sandy. Sandy, which struck the northeastern United States in 2012, caused 70 deaths and over $60 billion in damage — including damage to much of the landline telephone network serving Fire Island, New York.[142] Verizon saw in the destruction of its copper facilities serving the barrier islands in New York an opportunity to replace that infrastructure with its "Voice Link" fixed wireless service — a service that Verizon believed would be, among other things, less expensive to deploy and maintain.[143] And so it filed concurrent applications (formally, tariff amendments) with both the New York Public Service Commission (NYPSC) and the federal Commission to replace its existing telecommunications service with Voice Link.[144]

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140. *See, e.g.*, DELOS F. WILCOX, 1 MUNICIPAL FRANCHISES 304, 309 (1910) (showing that, even in the earliest days of telephone regulation, municipalities imposed conditions to protect public safety operations). We do not mean to suggest, of course, that safety concerns are solely the province of local regulators. Congress, after all, created the Federal Communications Commission to, *inter alia*, "promot[e] safety of life and property," 47 U.S.C. § 151, and has since granted the federal agencies wide authority to set rules related to FirstNet — a nationwide first-responder network — and 911 emergency calls. *See* 47 U.S.C. § 1421; 47 U.S.C. § 615. But these examples help to prove the point, elaborated below, that in cases of nationwide networks or nationwide standards, a national regulator may be better for reasons of expertise or political accountability (among others).

141. 47 U.S.C. § 253(a)(c); *see also* BellSouth Telecomms., Inc. v. Town of Palm Beach, 252 F.3d 1169, 1187 (11th Cir. 2001) (explaining that "these exceptions are 'safe harbors,' functioning as affirmative defenses to preemption of state or local exercise of authority that would otherwise violate [§ 253(a)]"). As Senator Fritz Hollings explained during the floor debate on the Senate version of the Telecommunications Act, Congress "did not want and had no idea of taking away that basic responsibility for protecting the public safety and welfare and also providing and advancing universal service." 141 Cong. Rec. 15594 (1995).

142. *See The Phone Network Transition: Lessons from Fire Island*, PUBLIC KNOWLEDGE, at 1 (Mar. 7, 2014), https://www.publicknowledge.org/documents/the-phone-network-transition-lessons-from-fire-island/ [https://perma.cc/F4CW-Z7AZ].

143. *Id.*

144. *See* Letter from Keefe B. Clemons, General Couns. Northeast Region, Verizon, to Hon. Jeffrey Cohen, Acting Sec'y, Pub. Serv. Comm'n, State of New York (May 3, 2013), http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={4AB392F2-7E92-44BA-B3A4-9266F3EC74AA} [https://perma.cc/K575-DXGB]; Comments Invited on Application of Verizon New Jersey Inc. and Verizon New York Inc. to Discontinue Domestic

Both regulators opened public dockets in response to Verizon's respective applications — but the NYPSC docket was far more active, soliciting participation from various state and local agencies, public interest organizations, and individuals.[145] The NYPSC also opposed Verizon's application in the Commission's federal proceeding, explaining that while it had granted Verizon temporary approval to replace wireline service with Voice Link under Sandy's exigent circumstances, Verizon had failed to demonstrate that Voice Link was a reliable long-term alternative to wireline services.[146] The state regulator's comment in the federal proceeding synthesized public comments filed in its own state proceeding, expressing "concerns over reliable access to emergency services during bad weather, or heavy usage situations."[147] Verizon itself conceded that congestion could block or slow completion of 911 calls via Voice Link, and Verizon's terms of service attempted to limit its own liability for failing to complete 911 calls.[148] Verizon eventually abandoned its plan to replace the damaged landline network with Voice Link, agreeing instead to rebuild its wired infrastructure with fiber optic cable and thereby avoiding a negative final decision from either the Commission or the NYPSC.[149]

As we noted above, an access network's design can be shaped by myriad local factors, including, for example, terrain and competitive conditions. Here, both those considerations led Verizon to prefer a cheaper and less reliable alternative: Voice Link was cheaper to deploy given Fire Island's difficult-to-reach locale, and, absent any competitive threat, it seems Verizon felt free to offer a less reliable service and to demand that subscribers agree to limit its liability for failed 911 calls. But the NYPSC's intervention and, in particular, its attention to these local safety concerns proved critical to ensuring that Verizon's local service satisfied local public safety standards.[150] Again, Congress's decision to insulate local public safety regulations (among others) from

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Telecommunications Services, 28 FCC Rcd. 9198, 9198–9200 (2013) (Public Notice) (inviting comment on application to discontinue domestic telecommunications service).

145. There were 156 comments filed in the Commission's proceedings, whereas the NYPSC's had over 1,750 public comments. *Id.*

146. N.Y. Pub. Serv. Comm'n, Comment Letter on Section 63.71 Application of Verizon New York Inc. and Verizon New Jersey Inc., at 2 (July 29, 2013), https://ecfsapi.fcc.gov/file/7520934180.pdf [https://perma.cc/79RY-JWBL].

147. *Id*.

148. *See* Letter from Joseph A. Post, Deputy General Couns. — New York, Verizon, to Hon. Jeffrey C. Cohen, Acting Sec'y, N.Y. State Pub. Serv. Comm'n (June 12, 2013), http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={0241FDFA-D31F-4063-B9B9-988D97C1AADA} [https://perma.cc/MMW7-PBU3].

149. Patrick McGeehan, *Verizon Backing Off Plans for Wireless Home Phones*, N.Y. TIMES (Sept. 12, 2013), https://www.nytimes.com/2013/09/13/nyregion/verizon-abandons-plans-for-wireless-home-phones-in-parts-of-new-york.html [https://perma.cc/8S69-TFU6].

150. We noted that Verizon filed tariff amendments with both state and federal regulators. In the federal docket, many commenters focused on the impact that Verizon's decision might have nationally. Across the nation, telecommunications providers (including Verizon) sought

federal preemption seems well-founded: State regulators may be better suited to address such matters of local concern and ensure that providers offer services that satisfy local standards — even where market competition won't do it.[151]

Further examples of such state regulation of local matters abound. Phil Weiser, for example, has detailed the wide role that states play in mandating interconnection between two telephone providers operating in the same market.[152] The states arbitrate disputes between parties that fail to reach a negotiated interconnection agreement and may even determine when small incumbent carriers may be exempt from such interconnection obligations altogether.[153]

Similarly, provisions of the Cable Act allow states to enact and enforce "any consumer protection law, to the extent not specifically preempted by this subchapter," thus reflecting a regime in which state and federal regulators hold concurrent jurisdiction over matters such as cable operators' billing practices.[154] Under this regime, federal policymakers — Congress and the Commission — resolve tensions between federal and state powers and prerogatives by setting broad terms for state consumer protection laws to telecommunications providers, rather

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permission to retire their copper facilities in favor of networks based on other technologies. Some commenters expressed concern that Commission approval in this instance would set a precedent for others, allowing carriers to deploy services presenting similar reliability and safety concerns without adequate oversight. *See, e.g.*, Public Knowledge, Notice of Ex Parte Meeting Regarding Application of Verizon New Jersey Inc. and Verizon New York Inc. to Discontinue Domestic Telecommunications Services, at 1, 3 (June 12, 2013), https://ecfsapi.fcc.gov/file/7022425542.pdf [https://perma.cc/KAP6-YPDL]. Verizon contended that its discontinuance petition was limited to the unique circumstances present on Fire Island (and related areas) and resisted any suggestion that it would leverage a favorable outcome elsewhere. Verizon, Opposition to Public Knowledge's Motion to Remove Application of Verizon New Jersey Inc. and Verizon New York Inc. to Discontinue Domestic Telecommunications Services, at 1 (July 24, 2013), https://ecfsapi.fcc.gov/file/7520933287.pdf [https://perma.cc/H5ZF-SUQ2].

Notably, the Commission relied primarily on the NYPSC's proceeding for relevant insights when taking account of local safety concerns. *See* Wireline Competition Bureau, Letter and Information, Data, and Document Request, *Section 63.71 Application of Verizon New York Inc. and Verizon New Jersey Inc.*, WC Docket No. 13-1760 (Aug. 14, 2013), https://ecfsapi.fcc.gov/file/7520937612.pdf [http://perma.cc/X2JY-62E3] (asking Verizon to submit to the Commission its responses to the NYPSC proceeding, suggesting that the Commission's understanding of local conditions, needs, and priorities depended at least in part on the NYPSC proceeding).

151. *See, e.g.*, *Lumen Might Have to Pay Washington State $7.2 Million for 911 Outage*, COMMC'NS DAILY (Dec. 24, 2020) (explaining that Washington State proposed a fine fourteen times greater than the fine proposed by the federal Commission for a 911 outage that affected 7.4 million residents and approximately 24,000 emergency calls to 911).

152. *See* Weiser, *Federal Common Law*, *supra* note 30, at 1738–43.

153. *Id.* at 1738.

154. 47 U.S.C. § 552(d)(1); *see also* Time Warner Ent. Co. v. FCC, 56 F.3d 151, 193 (9th Cir. 1995).

than displacing state and local regulation altogether.[155] As examples, the Cable Act expressly allows states to enforce laws against various unfair billing practices, and the Telephone Consumer Protection Act sets a federal floor for telemarketing regulation, while allowing the states to impose more restrictive requirements and regulate how telemarketers may use local telephone networks (by, say, prohibiting autodialers, prerecorded messages, or unsolicited fax advertisements, among others).[156]

Altogether, the states have long regulated local components of interstate communications networks. Since the beginnings of the telephone and cable networks, state authorities exercised power over providers both as owners of critical infrastructure (e.g., public rights-of-way) and as public regulators.[157] This regulatory power encompassed a range of powers, including the authority to set safety, competition, and consumer protection rules. Moreover, even as Congress moved some power over communications regulation from the states to the federal government through the 1996 Act — "the most ambitious cooperative federalism venture yet" — Congress preserved key loci of state authority, granting (or preserving) the states' power to supersede federal rules or even strip federal authorities of regulatory jurisdiction.[158] And the prevailing rationales for such rules derive from expertise, competence, and accountability concerns. States know these matters better, and state and local governments are both likely to be more responsive to the constituents most directly affected by certain decisions.[159]

2. Local Competence and Pragmatic Subsidiarity

Our examination so far has primarily focused on the relationship between federal and state regulators: Should federal or state authorities set pole attachment rates? How have federal and state regulators addressed matters of public safety?

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155. *See* H.R. REP. NO. 102-628, at 105 (1992) ("Overall, these [federal] standards should be flexible in nature and should allow a local franchising authority to tailor the requirements to meet the needs of the local cable community.").

156. *See* § 227(f)(1); *see also* Patriotic Veterans, Inc. v. Indiana, 736 F.3d 1041, 1047–48 (7th Cir. 2013).

157. *See generally* WILCOX, *supra* note 140, at 252–396 (describing the provisions in municipal franchise contracts).

158. *See* Weiser, *Federal Common Law*, *supra* note 30, at 1694, 1742 ("The [1996] Act's cooperative federalism design affords flexibility to states on procedural issues as well as substantive matters."); *see also supra* notes 127–129 and accompanying text (discussing reverse preemption in the pole attachments context).

159. *See* Weiser, *Federal Common Law*, *supra* note 30, at 1699–1700; *see also* Sylvain, *supra* note 2, at 805 (explaining that "local governments are best suited to appreciate the characteristics or 'terroir' that distinguish their constituents from others").

But we do not stop at the states. As we have hinted throughout the preceding subsection, local expertise typically rests with the next-nearest decisional authority: federal policymakers for nationwide concerns, state authorities for statewide matters, and local regulators for local needs (including, say, some local property concerns). Hence, "governance should occur at the lowest level at which it is expedient[.]"[160] Communications regulation has at times embodied this principle, a sort of pragmatic subsidiarity where regulatory authority vests in local rather than state or federal regulators in view of the local regulators' superior institutional competence (including concerns such as expertise and accountability, among others) over local elements of communications infrastructure.[161]

Indeed, as noted above, the power to confer and regulate communication franchises often rests with a local, rather than state, franchising authority.[162] For regulation of cable operators in particular, Congress

160. Barry Friedman, *Valuing Federalism*, 82 MINN. L. REV. 317, 379 n.268 (1997); Witteman, *supra* note 9, manuscript at 94 n. 245 (collecting sources). Bob Cooter and Neil Siegel articulate a somewhat similar "default" toward local regulation in their "internalization principle" of federalism, which "assign[s] power to the smallest unit of government that internalizes the effects of its exercise." Cooter & Siegel, *supra* note 121, at 144. However, Cooter & Siegel conclude that "the federal government is the smallest unit of government that internalizes the effects of interstate public goods . . . and markets[.]" *Id.* To be sure, regulation of communications networks affects interstate markets. However, as we discuss below, *infra* Part IV (especially note 254 and accompanying text), broadband access markets are properly understood as local, and the effect of broadband regulation on out-of-state content providers survives review under the dormant Commerce Clause.

161. Our use of "subsidiarity" here differs slightly from its more common use, primarily in discussions on European federalism, as a principle that limits the power of the federal regulator to act "only if and insofar as the objectives of the proposed action cannot be sufficiently achieved by the Member States, ether at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at the Union level." Treaty of Lisbon Amending the Treaty on European Communion and the Treaty Establishing the European Community art. 3b, Dec. 13, 2007, 2007 O.J. (C 306); *see also* Yishai Blank, *Federalism, Subsidiarity, and the Role of Local Governments in an Age of Global Multilevel Governance*, 37 FORDHAM URBAN L. J. 509, 533 ("[S]ubsidiarity is a principle of government which roughly says: governments need to delegate their powers, authorities, and duties to the smallest (or the closest-to-the-citizens) jurisdiction that can efficiently perform them."). To draw on Yishai Blank's formulation of subsidiarity, we understand "efficient[] perform[ance]" to encompass not only speed and cost, but also the many dimensions of comparative institutional competence — including, e.g., expertise and accountability — that might distinguish local, state, and federal regulators. This subsidiarity bears some relation to Heather Gerken's use of the concept of "federalism-all-the-way-down," referring to institutional arrangements that move beyond (or, perhaps, below) the level of state or municipality to reach school boards or similar special-purpose administrative units that function within interdependent state and federal regimes. Heather K. Gerken, *The Supreme Court, 2009 Term—Foreword: Federalism All the Way Down*, 124 HARV. L. REV. 4, 9 (2010). Our more pragmatic use of subsidiarity similarly prefers local regulation, where that preference is based on their superior competence relevant to local matters rather than a default rule that power must always vest with the smallest possible governmental body.

162. 47 U.S.C. § 541(a)(2); *see also* WILCOX, *supra* note 140, at 256–398 (describing early municipal franchise contracts).

has long recognized that "[l]ocal franchising authorities, who are closest to the consumers, would be in the best position to effectively address inequitable billing practices, unreasonable responses to cable outages, rebates during outages, time frames for installation and telephone answering services provided by the operator to handle consumer complaints."[163] As Olivier Sylvain has explained, cable regulation began as a subject of mostly local concern, as federal and state regulators "ceded the regulatory ground in this early period to community cooperatives and governments."[164] Even as Congress amended the Communications Act to transfer authority over cable operators to the Commission, those amendments "enshrined [a] vestigial localist approach . . . substantially accommodating a regulatory and operational role for local authorities."[165] This "limited but essential role for local ownership, administration, and regulation"[166] both acknowledges the unique competence of local authorities to tailor regulation to local conditions and suggests that the many values federalism serves — e.g., accountability and experimentation — may be better served by looking beyond, or perhaps below, the states.[167]

Such local competence encompasses a wide range of economic and competition regulation concerns, helping to explain local regulators' power to regulate entry into local markets, to set rates, and establish competition and consumer protection rules.[168] As the Communications Act itself recognizes, local authorities have long held the general power to franchise — i.e., license, as noted earlier — communications service providers. This authority arises out of the power to grant communications providers with access to the public ways to deploy physical infrastructure (e.g., wires and cables), so that these providers need not

163. S. REP. NO. 102-92, at 21 (1991).

164. Sylvain, *supra* note 2, at 826.

165. *Id.* at 827; *see LFAs Still Have Broad Franchise Fee Authority, FCC Tells 6th Circuit*, COMMC'NS DAILY (Oct. 30, 2020).

166. Sylvain, *supra* note 2, at 828.

167. *See, e.g.*, Gerken, *supra* note 161, at 8 (noting that many federalism scholars have called for federalism to look beyond the states but often stop at cities and ignore special purposes institutions "because of the hold that state sovereignty exerts on our collective imagination"); *see also* Erwin Chemerinsky, *The Values of Federalism*, 47 FLA. L. REV. 499, 528 (1995) ("[I]f the real concern is with responsiveness, the concern should be with protecting *local* governments much more than state governments.").

168. *See* H. REP. NO. 102-628, at 30 (1992) ("The Committee believes that it is necessary to ensure that states and franchise authorities have the ability to monitor and, where necessary and appropriate, enforce compliance with regulations and agreements concerning the levels of customer and technical service required to be provided by cable operators."); S. REP. NO. 102-92, at 21 (1991) ("Local franchising authorities, who are closest to the consumers, would be in the best position to effectively address inequitable billing practices, unreasonable responses to cable outages, rebates during outages, time frames for installation and telephone answering services provided by the operator to handle consumer complaints.").

negotiate thousands of private easements with individual landowners.[169] Local governments control and limit access to these public ways on at least two theories.

One, local franchising authority can be traced back to the notion that communications carriers are — and consequently have been regulated as — local natural monopolists, trading the promise of the monopoly franchise for "a commitment to provide reasonable service at reasonable rates."[170] And so this tradition of franchising has helped local regulators ensure that carriers' rates are not set inefficiently high but rather reflect the costs of service (costs which are, as we have said, shaped by local conditions), and that their services are responsive to local concerns.[171] Such local concerns may resist competing federal priorities, such as competition policy concerns: Local communications regulation is immune from federal antitrust scrutiny when in furtherance of clear state policies.[172] At one point, municipalities could even grant monopoly power to exclusive franchisees.[173] Congress has, to be sure, since preempted much local rate-setting authority (a foundational element of natural monopoly regulation) as well as the authority to award exclusive cable franchises.[174] But these prior examples are nevertheless suggestive of a tradition of local power.

Two, on a wide range of other franchise-related matters, local regulators continue to act as "the representatives of the consumers," setting the terms on which carriers offer service to their constituents, sometimes without regard to competing federal priorities.[175] Hence, even as the natural monopoly theory of entry regulation has faded away — even as local franchising authorities have lost the power to grant exclusive franchises to putative natural monopolists and have retained only limited power to set rates — local authorities may nevertheless remain concerned that public roads and other rights-of-way could be choked

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169. *See, e.g.*, Omega Satellite Prods. v. City of Indianapolis, 694 F.2d 119, 121 (7th Cir. 1982) (explaining the City Council's role in granting franchises under local regulation); *see also* 47 U.S.C. § 541(a)(2).

170. *Omega Satellite Prods.*, 694 F.2d at 126. We take no view here regarding whether such carriers are indeed natural monopolists. Rather, we mean only to point out that some regulations were motivated by a view — sometimes later upended — that such infrastructural platforms were indeed natural monopolies.

171. *See* H. REP. NO. 102-628, at 30 ("The Committee believes that it is necessary to ensure that local authorities have the ability to protect consumers from unreasonable rates."); *see also* 12 EUGENE MCQUILLIN, THE LAW OF MUNICIPAL CORPORATIONS § 34.34 (3d ed. 2020).

172. Cmty. Commc'ns Co. v. City of Boulder, 455 U.S. 40, 52 (1982) (reasoning that local regulation of communications networks may be immune from federal antitrust scrutiny if it "constitutes municipal action in furtherance or implementation of clearly articulated and affirmatively expressed state policy").

173. *See Omega Satellite Prods.*, 694 F.2d at 125 (holding that franchising decisions that result in exclusive franchises may be consistent with the Sherman Act).

174. 47 U.S.C. § 541(a)(1) (eliminating the power of local regulators to award exclusive cable franchises).

175. *See Omega Satellite Prods.*, 694 F.2d at 125.

by the cables, wires, conduits and poles necessary to operate multiple communications networks, "render[ing them] of little use for other purposes," like, say, driving or wastewater runoff.[176]

Local regulators thus regulate and limit entry into communications and other utility markets, providing access to these public resources by conditioning such access on the satisfaction of some public service. Hence, to competently regulate entry and service, local municipalities must be closely attuned to their constituents' communications-related demands. Local authorities thus sometimes require that telephone providers offer discounted services to local schools and libraries or require that cable operators make channels available for locally relevant content. Or, in some exceptional cases, municipalities may forgo these private intermediaries altogether and decide to provision service themselves. In Minnesota, for example, a municipally owned cable system captured three-quarters of the local market, spurring private competitors to cut prices by nearly two-thirds.[177] In view of such successes, Congress has expressly affirmed the ability of any "local or municipal authority" to operate its own cable system, sustaining a default preference in favor of local power.[178]

But, as noted, the implementation of this subsidiarity theory of communications regulation has been imperfect and incomplete. And so, while local franchising authorities have long held substantial power to set communications policy — sometimes, even, at the expense of federal competition-related concerns — the Supreme Court has limited the ability of federal authorities to defend local policymaking against state-imposed constraints. In *Nixon v. Missouri Municipal League*, the Court limited the Commission's power to interpose itself between a state and its municipalities.[179] The Telecommunications Act of 1996 gives the Commission the express power to preempt any state laws that have the effect of "prohibiting the ability of any entity" to offer telecommunications services, such as telephone service. Missouri, however, had promulgated state rules restricting the ability of its own cities and towns to offer telephone services directly to residents via municipally owned facilities, citing the state's costs for insuring against the risk that municipally provided services go bankrupt.[180] The Commission issued an Order arguing that municipal entry into telecommunications markets would advance the 1996 Act's goal of facilitating competition among telecommunications providers and, notably, that municipalities may be well-placed to decide whether they can use existing public resources to

176. *Id.* (quoting State *ex rel.* Evansville Indep. Tel. Co. v. Stickelman, 182 Ind. 102, 107 (1914)).

177. *See* H. REP. NO. 102-628; *see also* S. REP. NO. 102-92.

178. § 541(f)(1).

179. Nixon v. Mo. Mun. League, 541 U.S. 125, 125 (2004).

180. *See id.* at 133–35; *see also infra* notes 320–321 and accompanying text.

effectively and efficiently deliver communications services.[181] But the Court explained that the Commission — and indeed the federal government — may not "[threaten] to trench on the States' arrangements for conducting their own governments," including by establishing and devolving powers to municipalities.[182]

In short, states and localities have long exercised regulatory power over the design and deployment of access network infrastructure, as well as over the services provisioned over those networks. They do so for the same reasons that we preserve local and state autonomy elsewhere in our federal system — to promote "the accountability . . . to their citizens, the ability . . . to serve as regulatory innovators, and [to combat] the corrupting effects of consolidated national authority."[183] Indeed, the cooperative design of communications federalism allows regulators to realize both national and local telecommunications policy objectives, suggesting that federalism's value is not only as a limitation on federal power but also as a means of empowering "lower" levels of government.[184] Specifically, policymakers have often — though not always — implemented subsidiarity principles through a default rule in favor of local and state regulatory power, consolidating power at "higher" levels of government only when the costs of diffuse policymaking outweigh the benefits of local tailoring and experimentation. Hence, local authorities can select local communications providers and set rates in the absence of competition (even as municipalities may sometimes be barred from entering communications markets themselves), and state authorities can undertake initiatives to broadly protect public safety and ensure connectivity across communities.

B. Federal Power and Local Competence

We do not, of course, mean to imply that state and local regulators do, or should, enjoy unlimited regulatory power over communications network providers. Indeed, in many contexts, federal authorities play the more pronounced role. And when the federal government steps in, it often (though not always) limits what the states may do. This is for

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181. *See* Missouri Municipal League, 16 FCC Rcd. 1157, 1162–63, ¶ 10 (2001) (Memorandum Opinion and Order).

182. *Nixon*, 541 U.S. at 140.

183. Friedman, *supra* note 160, at 363 (discussing rationales for federalism advanced in *New York v. United States*, 504 U.S. 144 (1992)). Edward Rubin and Malcolm Feeley have observed that these values are more clearly served by decentralization than recognizing state sovereignty. *See generally* Edward L. Rubin & Malcolm Feeley, *Federalism: Some Notes on a National Neurosis*, 41 UCLA L. REV. 903 (1994). We take a pragmatic approach, premised on subsidiarity. In the context of municipal broadband, for example, local regulators may have a better understanding of local conditions and be accountable to local constituencies in ways that state regulators are not. *See infra* notes 315–323 and accompanying text.

184. *See* Chemerinsky, *supra* note 167, at 539 ("[Federalism] should be seen as based on the desirability of empowering multiple levels of government to deal with social problems.").

two sound reasons. One, for reasons that date back to the constitutional convention, states may not undermine the federal prerogative or plan, either by issuing rules that conflict with federal laws or by issuing rules that tend to discriminate against other states.[185] And two, some systems (or components of systems) are intrinsically interstate in character and thereby require federal intervention or oversight.

1. The Federal Plan and Constitutional Concerns

We begin with constitutional limits on state power, focusing on two primary provisions — the Supremacy Clause and the Commerce Clause. The courts' unwillingness to find that the federal government has occupied the entire field of telecommunications regulation has elevated the dormant Commerce Clause as the preferred route for challenges to state and local regulations. But the concerns that motivate such regulations often permit state and local rules to survive dormant Commerce Clause challenges, too. Even when such regulations result in disparate treatment of in-state and out-of-state providers, courts have found such rules to be valid exercises of state and local authority.

We start with the Supremacy Clause, which provides the foundation for preemption doctrines — conflict preemption and field preemption, among other formulations. In short, these doctrines provide that where federal and state rules clash, the federal authorities win. This is so in cases of direct conflict between federal and state rules, as well as in more indirect contexts. Where, for example, a state rule poses an obstacle to some federal objective, then the state rule is set aside. So too when the federal government has "occupied the field" of regulation, so as to leave no room for state interventions.

In communications regulation contexts, conflict preemption has bite. Courts have set aside several state actions on grounds that they are inconsistent with federal rules.[186] But federal authorities have had somewhat less success with field preemption. This is because, as we have already described, states play a pervasive role in communications regulation — one expressly contemplated and confirmed throughout Title 47.[187] And so, given the states' wide powers, courts have occasionally but rarely concluded that state rules undermine federal objectives or that the federal government has occupied the whole field of

185. *See, e.g.*, THE FEDERALIST NO. 22 (Alexander Hamilton) (explaining that we are not a union of "[fifty] different Legislatures, and as many different courts of final jurisdiction," and so "the laws of the whole" must not be "contravened by the laws of the parts").

186. *E.g.*, Time Warner Cable v. Doyle, 66 F.3d 867, 878 (7th Cir. 1995) (preempting application of state's negative-option billing prohibition to cable operator); Kansas v. FCC, 787 F.2d 1421, 1423 (10th Cir. 1986) (preempting state commission alteration of sampling periods for allocating equipment costs between intrastate and interstate service).

187. *See, e.g.*, Time Warner Ent. Co. v. FCC, 56 F.3d 151, 194 (9th Cir. 1995) ("Congress did not intend to 'preempt the field' of consumer protection in the cable industry.").

communications regulation.[188] Hence, in the communications context, state regulatory power is typically preempted only where it directly conflicts with federal rules.

Looking beyond the Supremacy Clause, commentators have suggested that hidden aspects of the Commerce Clause — the dormant Commerce Clause doctrine — can supersede state communications regulations that facially "discriminate against interstate commerce" or that impose a "burden . . . on such commerce [that] is clearly excessive in relation to the putative local benefits."[189] And we agree that, for such matters of interstate or national effect, individual states may not be the appropriate regulator: States should not attempt to "regulate communications occurring wholly outside [their borders]" or "expor[t] [their] domestic policies" to other states, especially when such state action might give rise to irreconcilable conflict or evince some hostility for other states' policy choices.[190] For example, there may be little basis for state regulation of distant satellite broadcast transmissions, particularly for signals not originated or terminated within the state.

But such conditions rarely describe state communications regulation.[191] Rather, most state communications regulation regards the relationship between a communications provider and some local concern — local property, local customers, or local services. Indeed, parties have had very little success challenging state communications regulation under the dormant Commerce Clause.[192] For example, state rules requiring disability accommodations (e.g., closed captioning) over and above those mandated by federal rules have withstood such challenges on the grounds that, though they may impose a burden on an out-of-state actor (such as an out-of-state cable channel provider),

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188. *See, e.g.*, Southwestern Bell Wireless Inc. v. Johnson Cnty. Bd. of Cnty. Comm'rs, 199 F.3d 1185, 1193 (10th Cir. 1999) (finding the field of regulation of radiofrequency interference to be occupied exclusively by federal regulation).

189. South Dakota v. Wayfair, Inc., 138 S. Ct. 2080, 2091 (2018); *see* Nachbar, *supra* note 6, at 663.

190. Am. Library Ass'n v. Pataki, 969 F. Supp. 160, 167, 174 (S.D.N.Y. 1997); *see* Nachbar, *supra* note 6, at 689–93; *cf.* Franchise Tax Bd. of California v. Hyatt, 136 S. Ct. 1277, 1283 (2016) (holding unconstitutional a Nevada law that "evince[d] a 'policy of hostility'" to the political and administrative controls of other states).

191. The district court's decision in *Pataki* suggests that some state rules might be understood as regulating content wholly outside their borders. *Pataki*, 969 F. Supp. at 174. But *Pataki*'s construction of the scope of such state laws seems in tension with the Ninth Circuit's decision in *GLAAD v. CNN*, 742 F.3d 414, 433 (9th Cir. 2014) (rejecting a dormant Commerce Clause challenge to a state closed captioning mandate for websites).

192. One federal district court in Mississippi did hold the state's "Caller ID Anti-Spoofing Act" invalid under the dormant Commerce Clause. TelTech Sys., Inc. v. Barbour, 866 F. Supp. 2d 571, 576–77 (S.D. Miss. 2011). On appeal, the Fifth Circuit held the state law conflict-preempted by the federal Truth in Caller ID Act and so declined to consider the statute's validity under the dormant Commerce Clause. TelTech Sys., Inc. v. Bryant, 702 F.3d 232, 239 (5th Cir. 2012). There is also one similar unreported opinion from the Southern District of Florida. *See* TelTech Sys., Inc. v. McCollum, No. 08-61664, 2009 WL 10626585, at *8 (S.D. Fla. July 16, 2009).

they do not, in purpose or in substantial effect, actually discriminate against out-of-state interests.[193] States have a legitimate interest in such rules, given the relationship between the cable channel and the local viewer, and so any incidental effect on interstate commerce is forgiven.

Even state taxes that apply only to out-of-state entities — and that exclude in-state providers of comparable services — have survived review. In *DIRECTV v. State of North Carolina*, the satellite cable company challenged a five percent sales tax that applied to consumers' satellite television bills.[194] Why five percent? Because though the state's sales tax rules did not apply to cable television providers, the state did collect a five percent "franchise fee" (the maximum allowed by federal rules) from cable providers. And so, to put cable and satellite providers on equal footing, the state imposed a sales tax on the latter.[195] Satellite providers challenged the tax as impermissible under the dormant Commerce Clause — every satellite provider in the nation resided outside the state, while in-state cable providers (including affiliates of the national providers) were exempt from the special sales tax (though, of course, still subject to the franchise fee). The North Carolina Court of Appeals disagreed. In its view, the tax neither was facially discriminatory, because satellite providers could relocate to the state and still be subject to the tax, nor did it impose an interstate burden outweighed by its local benefits.[196] The local benefit of leveling the local field of competition among competing providers of the same service, together with the recoupment of revenue lost from customers who switched from cable to satellite, outweighed any incidental effect on interstate commerce.[197]

In all, to protect the federal government's power to govern matters of interstate effect, the Constitution places some important limits on the states' power to regulate. The states may not, for example, issue regulations that undermine the federal plan or contravene federal rules. In communications regulation, however, these limits have mattered only occasionally, where states attempt direct challenges to federal rules founded on federal interests. But federal authorities and regulated entities have had comparatively less success challenging state rules on grounds that federal regulation is all that matters, or that local rules unduly burden the interstate character of these networks. This is because state and local regulation of the relationship between communications

193. *See, e.g.*, *GLAAD*, 742 F.3d at 433; *see also* Nat'l Fed'n of the Blind v. Target Corp., 452 F. Supp. 2d 946, 961 (N.D. Cal. 2006).

194. 632 S.E.2d 543, 543 (N.C. Ct. App. 2006).

195. We do not discount the role played by advocates and lobbyists acting on behalf of cable providers. *See* DIRECTV v. Levin, 941 N.E.2d 1187, 1196 (Ohio 2010).

196. DIRECTV, Inc. v. State, 632 S.E.2d at 543–45.

197. *Id.*; *see also Levin*, 941 N.E.2d at 1196 (holding that a similar law in Ohio did not protect local industries or treat out-of-state companies differently).

providers and local concerns does not typically undermine federal communications priorities. Rather, consistent with the design of the 1996 Act, it supplements federal standards with local competence.

2. Cooperative and Interjurisdictional Schemes

While state and local communications regulations are typically not inconsistent with the constitutional plan of a supreme federal government and equality among the states, we agree, of course, that some state rules have undermined federal communications priorities. But those priorities are set by federal statute and regulation, which are generally more specific than the constitutional text, and hence many challenges are often resolved either under conflict preemption principles (focusing on specific federal laws and regulations),[198] or through cases interpreting the power of the Federal Communications Commission to issue commands to state and local regulators under the 1996 Act. These cases help to illuminate the zones of exclusion, authority, and cooperation in modern communications federalism.

Consider, for example, cases related to the 1996 Act's provisions related to telephone interconnection.[199] The 1996 Act gives state commissions the power to arbitrate such interconnection agreements between telephone companies — but state regulators are limited to the schemes set forth by federal policymakers.[200] Why does the statute require such forced arbitration? When one consumer calls another, say Harry calls Sally, Harry imposes a burden on Sally's telephone network. This is because Sally's network must, under the interconnection mandate, agree to accept the call from Harry and dedicate a portion of its network capacity to Harry. So, Harry's provider has traditionally paid "reciprocal compensation" or an "access charge" to Sally's provider for imposing such a burden.[201] This sort of scheme — one which has applied to a range of communications networks, from telephone service

198. *See, e.g.*, TelTech Sys. v. Bryant, 702 F.3d 232, 235 (5th Cir. 2012) (avoiding dormant Commerce Clause and First Amendment challenges to state anti-spoofing law by holding the state statute conflict-preempted by federal law).

199. For context, we note that the 1996 Act sought to promote competition in various communications markets, including, most importantly for our present purposes, the local telephone service market. *See* Reno v. ACLU, 521 U.S. 844, 857–58 (1997). Doing so required creating paths of entry for competitive carriers — such as by requiring that established, incumbent telephone carriers (typically, the entities spun out of AT&T's monopoly) interconnect their network with competitors' networks (because the competitors' success in the market depended on their customers' ability to call everyone, no matter their telephone service provider). *See* Werbach, *supra* note 85, at 1240–41.

200. *See* Weiser, *Chevron*, *supra* note 30, at 16–17 (explaining the local telephone market entry provisions in the 1996 Act).

201. The difference between "reciprocal compensation" and "access charge" is that the former term is generally (though not exclusively) used to refer to such payments in the context of local calls, the latter in the context of long-distance calls. *See In re* FCC No. 11-161, 753 F.3d 1108, 1110 (10th Cir. 2014).

to postal mail — is known as sending-party-pays (or calling-party-pays). Arbitration helps to settle exactly how much the sending party must pay, and where the handoff between the two networks takes place.

In 2011, the Commission decided to overhaul the framework for intercarrier compensation in view of several regulatory problems. Under the prior framework, for example, state authorities set rates for local calls while federal authorities set rates for interstate calls. But where federal rates exceeded local ones, carriers would sometimes spoof long-distance calls to make them appear local, qualifying for the lower rate.[202] In short, in the context of interconnection, intercarrier compensation rate-setting by local authorities — even for local calls — had the effect of undermining the national scheme. And so, to avoid such opportunities for arbitrage or fraud, the Commission abandoned the sending-party-pays framework in favor of a so-called "bill-and-keep" model, applying that model to long-distance and local calls alike.[203] This regime mimics settlement-free peering — no payments are exchanged between the carriers. This reduces opportunities for regulatory gaming — and, moreover, seems consonant with regular telephone use: Harry might call Sally, and Sally might later call back, and so traffic is likely to be balanced between two networks. The Commission thus concluded it made little sense to devote so much time to such intercarrier accountings, and that the system of diffused rate-setting undermined the federal power to regulate interstate communications.

In response, the states complained that this shift essentially set the price for all interconnection agreements to zero dollars, thereby divesting the states of their congressionally conferred power over local interconnection agreements. But the U.S. Court of Appeals for the Tenth Circuit disagreed, concluding that the Commission was empowered to select a bill-and-keep framework for all interconnection agreements in order to protect the Commission's national objectives (including the elimination of such wasteful regulatory arbitrage).[204]

Moreover, the Tenth Circuit explained that the cost of interconnection is best characterized as having at least two dimensions: price, the amount exchanged between providers; and place, the location of the exchange. And, even under the Commission's new bill-and-keep regime, the states — consistent with their comparative competence advantages — retained power over place, deciding the location of the exchange.[205]

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202. NUECHTERLEIN & WEISER, *supra* note 2, at 248–52.

203. Connect America Fund, 26 FCC Rcd. 17663, 17673–74, ¶¶ 33–34 (2011) (Report and Order and Further Notice of Proposed Rulemaking) (explaining that, among other reasons, pervasive regulatory arbitrage under the calling-party-pays frameworks counseled in favor of a shift to bill-and-keep).

204. *In re* FCC No. 11-161, 753 F.3d at 1126.

205. *Id.* at 1126–27.

In short, the federal government has a significant amount of power to set the basic terms for communications policy matters with interstate or national effects. Such federal power, however, is tempered by at least two features: local knowledge and the scope of federal jurisdiction.

One, while the federal authorities set terms for federal policy, state regulators often tailor those standards to local requirements. As noted, interconnection offers one example: Congress's allocation of regulatory power reflects a judgment that interconnection matters may often have national effects. But even here, Congress and the Commission preserved the states' power to referee specific, context-dependent matters regarding interconnection, such as the location of traffic exchanges. In all, federal law establishes the duties and standards that all participants must comply with — but local regulators can tailor those duties and standards to local conditions.[206]

We can unearth similar examples from the 1996 Act's provisions related to universal service funds — the funds used to support service and deployment for underserved communities, or to subsidize access for lower-income consumers. These funds are, to be sure, federal funds — federal authorities say where they can be spent, and what they can be spent on, among other rules.[207] But even so, the 1996 Act recognizes that state regulators are better positioned than their federal counterparts to understand the needs of local communities and to assess the ability of various carriers to satisfy them. This process is not perfect: State regulators may sometimes impose "overzealous" requirements.[208] But state authorities also, in designating certain carriers as eligible for universal service support, set out consumer protection rules covering matters like "billing[,] service level reporting, installation, late fees, accounting standards, and customer complaint processes."[209] In short, the implementation of these federal schemes depends on local regulators and regional flexibility, notwithstanding the oft-repeated laments regarding "patchworks" of varying local rules.

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206. *See* Weiser, *Chevron*, *supra* note 30, at 23 (identifying individual tailoring as one purpose of the 1996 Act's cooperative federalist scheme); *id.* at 32 ("[C]ooperative federalism regimes allow individual states to tailor solutions to their particular needs and desires where it is appropriate to do so."); *id.* at 42.

207. 47 U.S.C. §§ 214(e), 254(c)(1), 254(f). For an example of federal authorities setting eligibility rules for universal service funds, see Connect America Fund, 29 FCC Rcd. 15644, 15645–56, ¶¶ 3–4 (2014) (Report and Order).

208. *See* Michael O'Rielly, *Removing Unnecessary Barriers and Maximizing Competition in USF Auctions*, FCC BLOG (June 18, 2020), https://www.fcc.gov/news-events/blog/2020/06/18/removing-unnecessary-barriers-and-maximizing-competition-usf-auctions [https://perma.cc/26NF-T2U4].

209. *Id.* Former FCC Commissioner Michael O'Rielly viewed these consumer protection measures as "onerous" and "unreasonable." That may be so for some limited requirements, but, on the whole, we'll have to agree to disagree. *See supra* note 29; *see also* 47 U.S.C. § 254; Texas Off. of Pub. Util. Couns. v. FCC, 183 F.3d 393, 393 (5th Cir. 1999).

Two, the federal government's power to set terms for communications policy hinges on the assertion of federal jurisdiction: The Commission cannot require state regulators to conform to a federal plan where the federal government does not have (or has not claimed) the power to set out such a plan — i.e., the power to regulate.[210] This is so even where the agency has some discretion to set the bounds of its own jurisdiction: When an agency chooses to contract the scope of its jurisdiction, it also contracts the scope of its preemptive powers.[211]

Consider, again, telephone interconnection — this time, in an internet context. Well before consumers could access the internet via broadband connections — by cable or DSL — they could "call" the internet via dial-up access. These dial-up providers (like America Online, or AOL), would set up servers in a variety of locales, using them to bridge the internet to the conventional telephone system. Consumers would use computer modems — which relied on the telephone system's voice channels — to call these servers, and thereby access the rest of the internet. Though these voice channels offered only limited bandwidth, these dial-up providers helped launch the internet's broad public popularity.

Such popularity was partly a function of the access network's relatively low cost. Dial-up servers were deployed locally, and so a call from a modem to a server was a free local telephone call. Moreover, many dial-up providers were willing to give consumers hours upon hours of free service. Others were free, full stop. How could they fund such low-cost or free services? In part, the telephone network's regulatory scheme helped to subsidize the costs of connectivity.[212] As explained above, interconnection agreements used to provide — under

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210. Our argument here does not conflict with traditional views of field preemption: Field preemption is premised on the view that Congress has "occupied the field" through the exercise of its various powers, including cases where Congress has occupied the field with a "legislative purpose . . . dictat[ing] that certain activity 'neither protected nor prohibited' [be] privileged against state regulation" but excluding cases where federal nonregulation preserves the possibility for state regulation. Lodge 76, Int'l Ass'n of Machinists and Aerospace Workers v. Wisc. Emp. Labor Rel. Comm'n, 427 U.S. 132, 140–42 (1976) (drawing a similar distinction in the labor context). Stated in telecommunications-specific terms, we think there is a salient distinction between forbearing from federal regulation and concluding that Congress has deprived the federal regulator of the authority to regulate.

211. *See* Mozilla v. FCC, 940 F.3d 1, 82 (D.C. Cir. 2019) (describing the power to regulate as the "sine qua non for agency preemption"). But this effect may not, as a doctrinal matter, be symmetrical. That is, an agency's power to preempt may not expand with discretionary exercises to grow agency jurisdiction under, say, *City of Arlington v. FCC*. *See* Wyeth v. Levine, 555 U.S. 555, 576 (2009) (declining to "defer to an agency's conclusion that state law is pre-empted" where "Congress ha[d] not authorized [the agency] to preempt state law directly"). Whether the two should be symmetrical is a question we leave for another day. *Cf.* Daniel Walters, *Symmetry's Mandate*, 119 MICH. L. REV. 455, 461 (2020) (arguing in favor of symmetry in administrative law across both regulatory and deregulatory outcomes).

212. *See* Core Commc'ns, Inc. v. FCC, 592 F.3d 139, 142 (D.C. Cir. 2010). Regulatory arbitrage is not, of course, the full story. Many companies subsidized free consumer access

the calling-party pays framework — that the sending network would pay "reciprocal compensation" to the receiving network. Dial-up providers receive lots of calls, but they don't make them. And so dial-up providers, and the specialized telephone service industry that arose to service them, would earn revenue every time an internet subscriber logged on. Moreover, because these were typically local, intrastate calls, the rates earned by AOL's telephone company were set by state regulators (since the Commission had not yet claimed the power to regulate interconnection rates for intrastate calls, as described above).[213]

The Commission worried that these state-set rates were distorting several dial-up internet-related markets, and so it issued an order purporting to strip the states of the power to set interconnection rates for calls made to dial-up providers' servers.[214] It contended that these modem-made calls fell within the Commission's jurisdiction over interstate communications because, viewed end-to-end, each consumer's internet connection was likely to eventually reach some out-of-state internet destinations.[215] In the Commission's view, consumers didn't call AOL to reach some in-state server; rather, they called AOL to access a range of information distributed across multiple states. The Commission here described internet access as one continuous interstate information flow, subject to its exclusive jurisdiction.

But the D.C. Circuit vacated the Commission's first attempt at exercising authority over these dial-up providers.[216] In that court's view, "[t]he issue at the heart" of the Commission's attempt to wrest control over these compensation rules from state regulators was "whether a call to an ISP is local or long-distance," given the Commission's then disavowal of power over local calls.[217] The D.C. Circuit agreed that "[c]alls to [dial-up] ISPs are not quite local, because there is some communication taking place between the ISP and out-of-state websites" — but it

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through a number of means, including behavioral advertising. But a complete discussion of these business models is beside our point.

213. *See* Bell Atl. Tel. Cos. v. FCC, 206 F.3d 1, 9 (D.C. Cir. 2000) (holding that the Commission failed to explain why calls to ISP's are not "local . . . traffic" subject to reciprocal compensation requirements set by state regulators under § 251(b)(5) of the Act). *Compare Core Commc'ns*, 592 F.3d at 144 ("[T]he parties agree that the link between the LEC [local exchange carrier] and the interexchange carrier [for long distance traffic] is *not* governed by the reciprocal compensation regime of § 251(b)(5)."), *with In re* FCC 11-161, 753 F.3d 1108, 1115–18 (10th Cir. 2014) (relying on § 251(b)(5) as authority to set rates for interstate and intrastate traffic).

214. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Intercarrier Compensation for ISP-Bound Traffic, 16 FCC Rcd. 9151, 9152–53, ¶¶ 1–2 (2001) (Order on Remand and Report and Order); *see also Core Commc'ns,* 592 F.3d at 142; WorldCom, Inc. v. FCC, 288 F.3d 429, 431 (D.C. Cir. 2002).

215. *Core Commc'ns*, 592 F.3d at 142. *But cf.* United States v. Schaefer, 501 F.3d 1197, 1198 (10th Cir. 2007) (striking down federal conviction for possession of child pornography images because the Government failed to prove that the illegal images had crossed state lines).

216. *Bell Atl.*, 206 F.3d at 9.

217. *Id.* at 5.

also concluded that such calls "are not quite long-distance, because the subsequent communication is not really a continuation . . . of the initial call to the ISP."[218]

Moreover, the Commission had historically treated these two distinct segments of the internet transmission differently. It had historically classified the local portion of the transmission — the call from the consumer's modem to the dial-up provider's local server — as beyond its powers as an intrastate "telecommunications service." Simultaneously, the Commission had long treated the second part of the transmission — the internet transmission from the dial-up provider's local server to various other internet locations — as subject to the Commission's tightly limited powers over any "information service." These classifications were significant: The Commission has vast regulatory powers over interstate telecommunication services, but it has more limited powers over intrastate communications and information services. And so the two-stage nature of the internet transmission — one that relied on two distinct infrastructural components — together with the Commission's classification decisions undermined the agency's authority to regulate.[219] The first transmission was only local, and so outside the Commission's jurisdiction at the time. The second transmission was made by an information services provider, and so remained beyond the Commission's powers.

By pointing out the Commission's jurisdictional difficulties, we do not mean to endorse the sort of regulatory arbitrage that dial-up providers and their telephone providers profited from. We think the Commission was correct, both as an interpretative matter and as a policy matter, to revisit its decision treating internet transmissions as "information services." In a subsequent order,[220] the Commission concluded that these transmissions, again viewed end-to-end, were interstate *telecommunications* transmissions subject to the Commission's authority.[221] Hence, the Commission could regulate the payments between telephone providers for ISP traffic under its powers over interstate telecommunications.[222]

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218. *Id.*

219. *See id.* at 6–8.

220. There were several intervening procedural machinations between *Bell Atlantic* and the order we discuss here. They are not relevant for our purposes.

221. High-Cost Universal Service Support, 24 FCC Rcd. 6475, 6479–80, ¶ 8 (2008) (Order on Remand and Report and Order and Further Notice of Proposed Rulemaking) ("We find that the traffic we elect to bring within this framework fits squarely within the meaning of 'telecommunications.'").

222. Core Commc'ns v. FCC, 592 F.3d 139, 144 (D.C. Cir. 2010). And, of course, this regulatory outcome was subsumed by the Commission's later proceedings remaking the interconnection regime. *See supra* notes 203–204 and accompanying text (discussing the Commission's transition to bill-and-keep).

In short, the Commission's power to displace state rate-setting power hinged on the scope of its regulatory authority.[223] Where the Commission has disclaimed regulatory power — either over local services or over information services — so too has it relinquished its power over the states.

We concede that this view is somewhat controversial: The Eighth Circuit, for example, has held that "[c]ompetition and deregulation are valid federal interests the FCC may protect through preemption of state regulation" regardless of whether the service in question is classified as a telecommunications service within the Commission's regulatory ambit or an information service beyond its powers.[224] But the D.C. Circuit's approach — one which it has adhered to consistently since *NARUC* (described in the Introduction) — is superior along dimensions of both competence and accountability: In *NARUC*, for example, the D.C. Circuit's approach helped to ensure that, in remote and rural locales, at least one provider would be available to service inside wiring, and that at least one regulator was available to field consumers' complaints about such providers' conduct. So too does some modicum of state power to regulate local access networks enable state regulators to assess and act on local market conditions.[225] To say that competition and deregulation are valid federal interests does not mean that they should or must entirely displace limited local regulation to address adverse local consequences flowing from the pursuit of those federal interests.

We also agree that there are circumstances where federal regulators should preempt state schemes — where competing state regimes give rise to real costs or opportunities for regulatory arbitrage, where states have conflicting regulatory incentives, or where federal authorities can quickly implement best practices.[226] Doing so has, in most cases, required some antecedent federal power — some determination that the matter at issue has interstate or national effects and thus requires federal intervention or oversight. But where the federal government claims simultaneously that it is powerless to regulate and that this lack of authority also preempts state regulation, it has laid claim to a power to preempt that outpaces its power to regulate — a claim that several courts have rejected.

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223. *See, e.g.*, *supra* notes 18–22 and accompanying text.

224. Minn. Pub. Utils. Comm'n v. FCC, 483 F.3d 570, 580–81 (8th Cir. 2007).

225. *Cf.* Mozilla v. FCC, 940 F.3d 1, 97 (D.C. Cir. 2019) (Williams, J., concurring in part and dissenting in part) (explaining that the majority's understanding of the Commission's preemption powers under its classification decision "essentially turned the field over to states and localities, leaving each free to select as prescriptive control over broadband as it might think best").

226. *See, e.g.*, Global Tel*Link v. FCC, 866 F.3d 397, 404 (D.C. Cir. 2017) (explaining that states have little incentive to regulate intrastate inmate calling services because states share in the revenues earned by prison payphone providers).

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In short, the states' power to regulate, though significant, is not unlimited. It is limited by constitutional concerns preventing states from undermining federal prerogatives or those of their sister states. And, under the design of the 1996 Act, the federal government may set bounds on the exercise of local power in order to advance a national agenda. But within the scope of such a national plan, or where no such federal constraints exist, local governments exercise substantial power over local matters: In matters implicating local networks on local lands (such as poles and tower siting), local safety, and even in the regulation of local markets (via, say, franchising, rate-setting, and consumer protection). And such power has long been vested with local authorities throughout Title 47 with good reason: Much of communications infrastructure and the services it provides are rather local, and so local authorities are generally best placed to make informed regulatory decisions on matters of local concern.[227] This has been true for the telephone, for cable television, and for a wide range of wireless spectrum-enabled services. It is true for broadband carriage, too.

IV. FEDERALISM AND THE INTERNET

Given the balance of state and federal power over the internet's constituent communications networks, we turn now to consider the internet itself: Where on the internet might state power end and federal power begin? In our view, the answers online are largely the same as they are off, which is to say that there is no "clean parceling of responsibility" among regulators.[228] Rather, the negotiation between local, state, and federal power depends — as it has before — on the comparative competence of these actors, the scope of the federal government's powers, the physical and technical details of the service and infrastructure at issue, and the purpose and effect of the specific regulation, among other considerations. This means that federal interests will prevail in some instances, and state and local interests in others. No bright-line rule can describe the relative powers of local, state, and federal regulators over broadband carriage,[229] and so we demonstrate how these competing considerations bear on three modern internet policy

227. *See* discussion of pragmatic subsidiarity, *supra* note 161 and accompanying text; Barry Friedman, *Valuing Federalism*, 82 MINN. L. REV. 317, 402 (1997).

228. La. Pub. Serv. Comm'n v. FCC, 476 U.S. 355, 360 (1986).

229. *But see* Matthew R. Christiansen & Joshua C. Macey, *Long Live the Federal Power Act's Bright Line*, 134 HARV. L. REV. 1360 (2021).

debates — network neutrality, universal service, and municipally provided broadband carriage — to describe how local, state, and federal authorities may share power over these — and related — matters.

A. Network Neutrality

Communications federalism has something to say about the several state network neutrality rules issued in the wake of the Commission's decision to rescind similar federal rules. The Commission's decision to renounce regulatory power over broadband carriage might "force state deregulation of [that service the Commission] chose to deregulate at the interstate level," or it might preserve or widen state power to fill the regulatory gap left by federal policymakers.[230] Indeed, as noted, the federal Courts of Appeals have reached different conclusions about the effect of the Commission's classification decisions on state power.[231] But having considered network neutrality's purpose and focus, together with the competence rationales for state power, we come to a more nuanced conclusion: States may replicate many of the Commission's longstanding network neutrality rules, though some of these provisions (specifically, some related to interconnection regulation) pose closer questions when viewed through a lens of local competence and federal cohesion.

We begin with a brief explanation of network neutrality (colloquially, net neutrality). Although there is some disagreement on the policy's precise bounds, most agree that network neutrality primarily encompasses certain access-network-facing rules; namely, prohibitions against blocking access to lawful internet content (e.g., websites or web-delivered services), against banning the use of lawful devices (e.g., computers or wireless routers), and against the unreasonable discrimination against internet content providers.[232] Though advocates have offered myriad policy justifications in favor of such rules, two rationales stand out as most important: one, network neutrality regulation offers a prophylactic rule against anticompetitive carrier conduct; and two, network neutrality operates as an engine for access network demand and deployment.

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230. Nat'l Ass'n of Regul. Util. Comm'rs (NARUC*)* v. FCC, 880 F.2d 422, 429 (D.C. Cir. 1989).

231. *Compare, e.g.*, *id.* at 429, *and* Lipschultz v. Charter Advanced Servs., 140 S. Ct. 6, 7 (Thomas, J., concurring in the denial of certiorari) ("It is doubtful whether a federal policy . . . of nonregulation . . . is 'Law' for purposes of the Supremacy Clause."), *with* Minn. Pub. Utils. Comm'n v. FCC, 483 F.3d 570, 581 (8th Cir. 2007).

232. *See, e.g.*, Protecting and Promoting the Open Internet, 30 FCC Rcd. 5601, 5882–85 (Appendix A) (2015) (Report and Order on Remand, Declaratory Ruling, and Order) (promulgating rules).

We can trace network neutrality's competition rationale to its origins with Tim Wu: In his seminal paper, *Network Neutrality, Broadband Discrimination*, Tim Wu explains that network neutrality rules can help solve the competition conundrums posed by local access network monopolists, who might favor affiliated companies at the expense of competing outsiders.[233] For example, a local telephone carrier might block a competing Voice-over-Internet-Protocol provider to insulate its existing telephone businesses from competition, or Comcast might treat its own video services more favorably than, say, Netflix.[234] At the time of Tim Wu's paper, other scholars and advocates sought even more severe regulation: Some suggested, for example, that access network providers should be required to share their facilities with competing companies, so that consumers could choose from among multiple internet access providers — Comcast, perhaps, but also AOL, Excite@Home, RoadRunner, and Sonic — all of whom would share Comcast's wires.[235] These providers, advocates reasoned, would compete amongst each other to offer ever-better service terms — terms that did not engage in such blocking or discrimination. But in *Network Neutrality, Broadband Discrimination,* Tim Wu replied that such competition offers only an indirect approach with little guarantee of success — and so rules that directly prohibit blocking and unreasonable discrimination, but without the onerous facilities-sharing requirements, are better.[236] *Network Neutrality, Broadband Discrimination* was influential, helping to set the Commission's competition agenda as it began to reject calls for forced facilities-sharing rules that would require Comcast, for example, to lease its cables and wires to competitors.[237]

Moreover, the Commission explained that network neutrality rules would not only advance competition by preventing incumbents from engaging in anticompetitive conduct, they might also help to improve investment in broadband infrastructure and spur competition between network providers themselves. Congress has directed the Commission to use its regulatory power to advance the deployment of broadband networks.[238] During the Obama Administration, the Commission reasoned that network neutrality norms, by avoiding the sorts of harm to

233. Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141, 142 (2003).

234. *See, e.g.*, Tejas N. Narechania, *Network Nepotism and the Market for Content Delivery*, 67 STAN. L. REV. ONLINE 27, 27 (2014).

235. *See* Mark A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. REV. 925, 964 (2001).

236. Wu, *supra* note 233, at 149.

237. Michael K. Powell, *Preserving Internet Freedom*, 3 J. TELECOMM. & HIGH TECH. L. 5, 10 (2004) (citing Wu, *supra* note 233); *see* Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, 20 FCC Rcd. 14986, 14987–88, ¶ 4 (2005) (Policy Statement).

238. 47 U.S.C. § 1302.

competition described above, would help satisfy that mandate.[239] It explained that fair competition among providers of internet applications and content would maximize consumer demand for broadband: If Comcast decided to limit its broadband customers' options for video streaming services to only Peacock (which Comcast owns), some might not subscribe to Comcast's internet access service at all.[240] But if those subscribers could watch Peacock, and Hulu, and Netflix, and Disney+, then they are probably more likely to purchase internet access, and to demand better quality service for their viewing experience. As such demand for broadband capacity would rise, so too would supply. In short, network neutrality rules would lead to greater overall investment in broadband facilities.

Given these views of network neutrality, the case in favor of state regulation is relatively straightforward, particularly when accounting for the segment of the network that network neutrality rules primarily target. The Commission's 2015 *Open Internet Order* defined the regulated service — "broadband Internet access service" — as a "mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints."[241] The Commission clarified that by "mass market" it meant "services marketed and sold on a standardized basis to residential customers, small businesses, and other end-user customers such as schools and libraries."[242] These services excluded, for example, "content delivery networks (CDNs), hosting or data storage services, or Internet backbone services."[243] In short, network neutrality regulation focuses on access networks.[244]

There are at least two reasons for this access network-oriented focus. First, access networks are *the* infrastructural component over which broadband carriers exercise dominion: Carriers can prioritize, throttle, or block traffic over the local access network. But while a broadband carrier can mark internet traffic for prioritization over its own local access network, interconnecting networks, such as transit providers, "have not traditionally honored [such] priority markings."[245] To be sure, standard-setting bodies and equipment manufacturers have

239. Verizon v. FCC, 740 F.3d 623, 634 (D.C. Cir. 2014).

240. *See, e.g.*, *id.* at 644–49.

241. Protecting and Promoting the Open Internet, 30 FCC Rcd. 5601, 5745–46, ¶ 336 (2015) (Report and Order on Remand, Declaratory Ruling, and Order).

242. *Id.* at 5745–46 n.879.

243. *Id*. at 5749, ¶ 340; *see also* Christopher S. Yoo, Wickard *for the Internet? Network Neutrality After* Verizon v. FCC, 66 FED. COMMC'NS L. J. 415, 453 (2014) ("[N]etwork neutrality only applies to how traffic is handled *within* an ISP's network").

244. *See* Transcript of Proceedings, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. Feb. 23, 2021) (No. 77) (California explaining that the target of its network neutrality rules is "just the very … basic terms of accessing the Internet") (on file with authors).

245. NUECHTERLEIN & WEISER, *supra* note 2, at 228.

sought standards allowing for such prioritization across networks. [246] But because various transit and access network providers have different and possibly conflicting incentives regarding prioritization, these priority markers are only inconsistently followed across infrastructural components. By contrast, a broadband carrier providing access to end users has practically untrammeled ability to prioritize or even block traffic over its own network.

Second, the Commission's policy reasoning regarding network neutrality and its effects for broadband competition and deployment has focused primarily on the local access network. In 2015, when the Commission promulgated network neutrality rules, it reasoned that those protections were needed in view of the broadband carriers' power to "control . . . access to the Internet for their subscribers and for anyone wishing to reach those subscribers," and to spur infrastructure deployment and competition to the forty-five percent of households with access to only a single broadband carrier.[247] Likewise, the 2017 Order rescinding those rules focused on the increased number of fixed and mobile internet connections and the percentage of households with access to networks exceeding certain speed thresholds, among other related features, for its policy justification supporting the reclassification of broadband as an information service.[248] Consistent with our description of network neutrality's purpose above, these statistics relate to quality and availability of broadband carriage — a service offered by access network providers to local populations.

This focus on the access network is significant because, as we have described, the states (alongside federal authorities) have long issued rules and regulations governing such local communications markets.

Many states have, for example, modified local easement laws, relaxed rules for wireless antennae, regulated pole attachments, required that providers dedicate network capacity to educational or government functions, and imposed safety-related requirements in ways that significantly affect entry and investment in the access network market. The data on network neutrality's effect on infrastructure investment and market entry is, admittedly, more mixed: Some advocates argue that

246. *See generally* D. Black & P. Jones, *Differentiated Services (Diffserv) and Real-Time Communication*, INTERNET ENGINEERING TASK FORCE (Nov. 2015), https://tools.ietf.org/html/rfc7657 [https://perma.cc/EB8V-BKMR]; *QoS: Policing and Shaping Configuration Guide, Cisco IOS XE Release 3S*, CISCO (Feb. 14, 2019), https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/qos_plcshp/configuration/xe-3s/qos-plcshp-xe-3s-book/qos-plcshp-oview.html [https://perma.cc/WMP2-XUXQ] (explaining how to mark different packets with "IP precedence" in the Cisco router protocol).

247. Protecting and Promoting the Open Internet, 30 FCC Rcd. 5601, 5630–32, ¶¶ 80–81 (2015) (Report and Order on Remand, Declaratory Ruling, and Order) (quoting Verizon v. FCC, 740 F.3d 623, 646 (D.C. Cir. 2014) (alteration in original)).

248. Restoring Internet Freedom, 33 FCC Rcd. 311, 362–63, ¶ 86 (2017) (Declaratory Ruling, Report and Order, and Order).

evidence links positive facilities investment to network neutrality;[249] others argue that the rules deter investment and entry;[250] and still others argue that it makes no difference.[251] But at least some of these disagreements might be ascribed to varying conditions in local markets. Where competition exists, network neutrality may not have a strong effect. Where competition is lacking and monopoly leveraging poses a real threat, the rules may matter more. And, as in the example of the Pole Attachments Act, states and localities are likely better suited to assess competition in local access markets and to decide how to spur investment and entry in broadband carriage markets. Those assessments will account for variations in local markets that are neglected in federal broadband policy debates fixated on national broadband investment figures that, thus far, have yielded no consensus regarding the impact of open internet protections on broadband investment and market entry.[252] State and local regulators may not always get it right, but should have the power to try.

Likewise, state and local regulators have long regulated local access network providers to resolve competition-related concerns, for instance, supervising mergers between local broadband carriers subject to state utility regulation.[253] Indeed, broadband carriers themselves have conceded that the relevant market for access network competition is local: When carriers have sought to merge, for example, they have explained that the relevant market should be understood as "local, not national or even regional," since consumers in Los Angeles are indifferent to the services provided in different markets, such as San Francisco or Boston.[254] And so, to the extent network neutrality rules are

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249. *See* S. DEREK TURNER, FREEPRESS, IT'S WORKING: HOW THE INTERNET ACCESS AND ONLINE VIDEO MARKETS ARE THRIVING IN THE TITLE II ERA (May 2017).

250. *See* Robert E. Litan & Hal J. Singer, *Unintended Consequences of Net Neutrality Regulation*, 5 J. TELECOMM. & HIGH TECH. L. 533, 533 (2007).

251. *See generally* Christopher Alex Hooton, *Testing the Economics of the Net Neutrality Debate*, TELECOMM. POL'Y (2019).

252. We are loath to wade deeply into this debate here but note that some recent reporting shows wireline broadband capital expenditures falling six percent since 2016. Ian Olgeirson, *Wireline Telco, Cable Capex Slowing Despite Broadband Push*, S&P GLOBAL MARKET INTELLIGENCE: MULTICHANNEL TRENDS (Nov. 18, 2020, 4:56 PM) (on file with authors).

253. *See, e.g.*, Comcast Corp., App. No. 14-04-013, at 11, CAL. PUB. UTIL'S COMM'N (Feb. 13, 2015), http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M146/K376/146376008.pdf [https://perma.cc/7YEB-WCA3] (proposed decision granting application with conditions); Comcast Corp., App. No. 14-04-013, at 3, CAL. PUB. UTIL'S COMM'N (Apr. 10, 2015), https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M151/K161/151161163.pdf [https://perma.cc/9D3L-NTRD] (alternate proposed decision denying application).

254. Applications of Comcast Corp. and Time Warner Cable, Inc. for Consent Pursuant to Section 214 of the Communications Act, as Amended, to Transfer Control of Subsidiaries of Time Warner Cable Inc., MB. Docket No. 14-57, Joint Application of Time Warner Cable Inc. and Comcast Corporation, MB Docket No. 14-57, Apr. 8, 2014, at ¶ 158; In the Matter of Applications of Comcast Corp. and Time Warner Cable, Inc. for Consent to Transfer Control of Subsidiaries of Time Warner Cable Inc., MB. Docket No. 14-57, Opposition to Petitions to Deny and Response to Comments, Sep. 23, 2014, at 116 (explaining "[b]roadband

directed to competition concerns caused by a local carrier with significant power, those rules fall well within the states' powers over concentration and competition in local broadband carriage markets. Indeed, the Communications Act itself grants state and local regulators enhanced powers to address harms or conditions attributable to inadequate market competition.[255]

It is true that, in the merger context, the concerns are for competition within the access network market, whereas in the network neutrality example, the concerns are for competition within the content market.[256] But those content-related competition concerns both result from concentration in the local access network market and affect local consumers of content and of access network services. Hence, such competition concerns seem well within the scope of state regulators' traditional powers.

State network neutrality rules also fall within the scope of the states' power to issue consumer protection rules. States have, for example, successfully brought actions against broadband carriers that overstated broadband speeds or service quality and have defended against claims of federal preemption.[257] In 2015, the Commission explained that its network neutrality rules were "intended to serve as a strong consumer protection standard."[258] Indeed, even as it eliminated most of those regulations during the Trump Administration, the Commission explained that its remaining "transparency" rules served an important consumer protection purpose.[259]

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service is sold on a local basis" and "the correct geographic market for broadband services is local, not national or even regional"); *see also* In the Matter of Applications of Charter Communications, Inc., Time Warner Cable Inc., and Advance/Newhouse Partnership for Consent to the Transfer of Control of Licenses and Authorizations, MB Docket No. 15-149, Opposition to Petitions to Deny and Response to Comments, Nov. 2, 2015, at ¶ 32 (explaining that "[t]his consumer market is, of course, local because each consumer selects from options available at his or her location.").

255. *See* 47 U.S.C. § 543(a)(2) (granting local franchising authorities the power to set rates in local markets where cable operators are not subject to "effective competition").

256. *See* Nachbar, *supra* note 6, at 679.

257. *See, e.g.*, New York v. Charter Commc'ns, Inc., 2017 WL 1755958, at *1, *9 (S.D.N.Y. Apr. 27, 2017); People v. Charter Commc'ns, Inc., 81 N.Y.S.3d 2, 3 (N.Y. App. Div. 2018); *see also* Transcript of Proceedings at 69, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. Feb. 23, 2021) (No. 77); Assurance of Voluntary Compliance at 2, 6–7, *In re* Comcast Corporation (Aug. 29, 2008) (No. L07-3-1132), http://myfloridalegal.com/webfiles.nsf/WF/MRAY-7J4RL3/$file/ComcastAVC.pdf [https://perma.cc/N3S6-BFDA]. Moreover, we believe that these actions would be equally lawful under the Commission's present minimalist tack. Even as the Commission's *Restoring Internet Freedom Order* (rescinding its then-extant network neutrality rules) purported to preempt "any state or local measures . . . impos[ing] more stringent requirements" than it had promulgated itself, the Commission acknowledged that the states retain the power to regulate broadband carriers for, say, consumer protection purposes. Restoring Internet Freedom, 33 FCC Rcd. 311, 427, ¶ 195 (2018) (Declaratory Ruling, Report and Order, and Order).

258. Protecting and Promoting the Open Internet, 30 FCC Rcd. 5601, 5662, ¶ 141 (2015) (Report and Order on Remand, Declaratory Ruling, and Order) .

259. Restoring Internet Freedom, 33 FCC Rcd. at 378, ¶ 116.

In short, no matter what rationale for network neutrality one chooses — market entry, competition, or consumer protection — such rules fall within the scope of the states' longstanding powers over infrastructure, competition, and consumer protection in the access networks' local communications markets. Indeed, network neutrality's focus on the local access market suggests that state and local authorities have uniquely relevant expertise — knowledge about local providers, competitive conditions, and practices — that bear on the decision to promulgate such rules.

Moreover, local authorities are receptive and accountable to local concerns in ways federal authorities are not.[260] As noted above, the Communications Act charges the Commission with the responsibility to address public safety concerns.[261] However, the Commission tends to focus on public safety issues that resonate at the national level. For example, in reply to the D.C. Circuit's order to reconsider its decision to deregulate broadband carriage in view of public safety concerns, the Commission adhered to its decision, explaining that its decision did not affect its work implementing federal 911 location-accuracy requirements, or addressing threats to national security.[262] By contrast, it largely dismissed the concerns raised by state and local officials about internet access service quality for first responders. In the Commission's view, the incident highlighted by local governments — throttled internet access during a wildfire response — was a mere "customer service error" of questionable relevance to the classification of broadband service.[263] The very different lenses through which the national and local regulators view this incident suggest the need to reserve space in broadband regulation for local regulators to address local safety concerns.[264]

Hence, the case for an exclusive federal role over broadband carriage is weak, especially when federal regulators disclaim the authority to play any role whatsoever. Some courts and commentators disagree, contending that state rules undermine both the federal plan by exporting one state's domestic policies to the others, as well as a national interest in deregulation.[265] Those who oppose state rules further argue that state network neutrality regulations contravene the dormant Commerce

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260. *See* Sylvain, *supra* note 2, at 809 (observing that municipalities are "familiar with local needs and contingencies and are immediately accountable to voters"). As noted above, the D.C. Circuit's remand order in *Mozilla* stemmed entirely from the failure of the *Restoring Internet Freedom* order to adequately consider issues raised by state and local government representatives. *See* Mozilla v. FCC, 940 F.3d 1, 62 (D.C. Cir. 2019) (rejecting the Commission's efforts to cure this defect as "off-limits *host hoc* rationalization").

261. *See supra* note 142 and accompanying text.

262. Restoring Internet Freedom, 35 FCC Rcd. 12328, 12336–38, ¶ 22 (Order on Remand) (2020).

263. *Id.* at ¶¶ 46–47.

264. *See* Witteman, *supra* note 9, manuscript at 36–37.

265. *See, e.g.*, Minn. Pub. Utils. Comm'n v. FCC, 483 F.3d 570, 580 (8th Cir. 2007); Nachbar, *supra* note 6, at 663.

Clause because "the markets they actually seek to regulate — content markets — are primarily located outside the relevant states."[266]

We take a different view, given this specific context. It is true, of course, that internet-based content providers will reside across many states, just as various cable channels reside across many states. But network neutrality rules regulate the power of local broadband carriers to intermediate a relationship between those out-of-state providers and local customers entitled to the regulatory protections that their state provides. Moreover, as noted, these network neutrality rules are issued in view of concerns for concentration in local access markets. State and local authorities have long lawfully issued rules governing competition among access network services providers as well as rules governing the relationship between local consumers and content providers regardless of their location.[267] Indeed, network neutrality rules generally apply with equal force to all traffic regardless of provenance, and so they fail to contravene the dormant Commerce Clause's "central prohibition . . . on protectionist legislation that discriminates against out-of-staters."[268] Hence, local network neutrality protections are both normatively desirable and doctrinally defensible under the dormant Commerce Clause's balancing test for competitively neutral state regulations, weighing the burden on interstate commerce against local benefits:[269] Content providers — in-state and out-of-state alike — may not purchase preferential access to a state's broadband subscribers, while those subscribers gain the ability to reach the content and services of their choosing without interference from local broadband carriers. States are free to prioritize fair competition on the access network, placing only an incidental burden on content providers that happen to reside out-of-state (especially in view of the sparse interest in prioritized access — except, perhaps, from the carrier's own affiliates).

Others contend that state network neutrality rules conflict with a federal communications policy interest in deregulation. Specifically, some judges and commentators, aligned with the Eighth Circuit's view in *Minnesota PUC*, have concluded that the Commission's decision to classify a communications service an "information service" — a service beyond the agency's regulatory ambit — evinces a federal interest

266. Nachbar, *supra* note 6, at 663.

267. *See supra* notes 193–197 and accompanying text (describing California accessibility rule reaching out-of-state cable channel and North Carolina rule governing access network competition among in-state and out-of-state providers).

268. Jack L. Goldsmith & Alan O. Sykes, *The Internet and the Dormant Commerce Clause*, 110 YALE L. J. 785, 788 (2001).

269. *See* Pike v. Bruce Church, Inc., 397 U.S. 137, 142 (1970). The *Pike* test is applied where local regulation does not facially discriminate against interstate commerce.

in deregulation that the states may not contravene through reregulation.[270] Some proponents of this view contend that the states are statutorily barred from applying common carrier rules, like network neutrality, to information services.[271] But this argument proves too much: As the D.C. Circuit has suggested (contra the Eighth Circuit), the federal Commission's decision to contract the scope of its own powers does not bear on the powers of the states and localities.[272] And, as we described above, the D.C. Circuit's tack is superior along dimensions of both competence and accountability. Hence, state power over network neutrality regulation enables state regulators to assess and act on local market conditions. In short, the Commission does not have, through its classification powers, the "unchecked authority to force state deregulation of any activity it [chooses] to deregulate at the interstate level."[273]

Indeed, the 1996 Act (which, recall, sets out the "information service" and "telecommunications service" classifications at issue in the federal network neutrality debates) expressly recognizes the value of state intervention into internet access markets. Section 706 expressly directs both federal and state authorities to employ a range of "regulating methods" to advance the availability of broadband internet access.[274] And so, as in so much other communications regulation, Congress has constructed a scheme of concurrent jurisdiction over

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270. *Minn. Pub. Utils. Comm'n*, 483 F.3d at 580–81 (reasoning that "[c]ompetition and deregulation are valid federal interests the FCC may protect through preemption of state regulation"); *see also* Spiwak, *supra* note 8, at 41 (explaining and endorsing Judge Williams' dissent in *Mozilla v. FCC*, 940 F.3d 1 (D.C. Cir. 2019), which argued that Congress intended to authorize the Commission to preempt state law in furtherance of establishing an "effective national broadband policy" of deregulation).

271. *See* Verizon v. FCC, 740 F.3d 623, 638 (D.C. Cir. 2014) (explaining that network neutrality rules are tantamount to common carriage); *see also* 47 U.S.C. § 153(51) ("A telecommunications carrier shall be treated as a common carrier under this chapter only to the extent that it is engaged in providing telecommunications services.").

272. *Mozilla*, 940 F.3d at 75–76 (explaining that a federal policy of nonregulation does not confer the power to preempt state law); Transcript of Proceedings at 65–66, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. 2020) (No. 77) (explaining that the Commission's decision "placed [broadband internet access service] outside the FCC's regulatory ambit" and thus can have "no preemptive effect"). *Contra Minn. Pub. Utils. Comm'n,* 483 F.3d at 581 (holding that the Commission's decision to place certain services outside its regulatory jurisdiction places them beyond state authority as well). We base our argument in the statutory language prohibiting common carriage treatment of information services "under this chapter," i.e., under federal law. 47 U.S.C. § 153(51); *see also* 47 U.S.C. § 332(c)(2) ("A person engaged in the provision of a service that is not commercial mobile service shall not, insofar as such person is so engaged, be treated as a common carrier for any purpose *under this chapter*.") (emphasis added). But this language should not be understood to also limit rules promulgated under some other authority, including the states' traditional police powers. Transcript of Proceedings at 63–64, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. Feb. 23, 2021) (No. 77) (ruling that these provisions "only appl[y] to the FCC's authority" and not to the states' powers).

273. Nat'l Ass'n of Regul. Util. Comm'rs (NARUC*)* v. FCC, 880 F.2d 422, 429 (D.C. Cir. 1989).

274. 47 U.S.C. § 1302(a).

broadband carriage.[275] Hence, even if the Commission were to reassert a regulatory interest in broadband carriage — by, for example, reclassifying (yet again) the service a "telecommunications service" subject to the agency's powers — the states would and should be empowered to supplement the Commission's rules or otherwise tailor them to local conditions in consultation with local authorities as appropriate.[276]

We do not mean to suggest, of course, that the Commission may never preempt state decision-making authority: States could not, for example, promulgate rules that were inconsistent with standards set out by federal authorities over matters within their jurisdiction. But the scope of the Commission's preemptive powers is contingent on the scopes of both its regulatory authority and its regulatory interest. As we described above, courts have rightly rejected the Commission's attempts to issue interconnection-related rules for matters over which the Commission has abdicated power. But once the Commission asserted regulatory power over modem-made calls to dial-up ISP facilities, it properly issued interconnection rules that displaced inconsistent state provisions.

We agree, moreover, that federal authorities may have a unique, interjurisdictional interest in internet interconnection regulation (encompassing both backbone networks and content delivery networks). [277] Just as regulatory arbitrage set the stage for the Commission's shift from calling-party-pays to bill-and-keep, broadband carriers and federal policymakers have suggested that state interconnection rules may cause some application and content providers to "engage in arbitrage by routing substantial amounts of their Internet traffic to interconnection points in [regulated states] in an attempt to obtain increased interconnection capacity on ISPs' networks for free, thus causing significant additional congestion and disruption" at those facilities and the concomitant "under-utilization of interconnection [facilities] outside [those regulated states]."[278]

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275. *See* Yoo, *supra* note 243, at 446 (noting that § 706 "seems to accord to state public utility commissions (PUCs) the same regulatory authority that it accords to the FCC").

276. *See* Tejas N. Narechania, *Federal and State Authority for Network Neutrality and Broadband Regulation*, 18 STAN. TECH. L. REV. 456, 487–90 (2015). *But see* Yoo, *supra* note 243, at 447 (arguing that the federal government should be able to preempt state regulation notwithstanding § 706).

277. *See, e.g.*, Applications of Level 3 Communications, Inc., and CenturyLink, Inc. for Consent to Transfer Control of Licenses and Authorizations, 32 FCC Rcd. 9581, 9602, ¶¶ 45–46 (2017) (Memorandum Opinion and Order) (analyzing the market for internet traffic as a national, if not global, market); *see also* John Eggerton, *TWC, Cogent Strike Interconnection Deal*, MULTICHANNEL NEWS (Oct. 8, 2015), https://www.multichannel.com/news/twc-cogent-strike-interconnection-deal-394415 [https://perma.cc/764E-R2YZ] (reporting a Commission request for information on all interconnection agreements with US-based firms). This contrasts sharply with the Commission's treatment of access network providers.

278. First Amended Complaint at 34–35, Am. Cable Ass'n v. Becerra, No. 2:18-CV-02684 (E.D. Cal. Aug. 5, 2020). We can explain this concern by reference to *supra* Figure 2. Imagine that CableCo and Lumen are concerned that AT&T will demand intercarrier compensation to

Hence, we would welcome a regime in which federal authorities assert regulatory power over internet interconnection, transit, and content delivery, setting rules to avoid state-by-state arbitrage.[279] The exercise of federal power over interconnection seems consistent with the scope of the effect of interconnection regulation. But, as we explained above, markets for interconnection are distinct from access network services.[280] And so we are more skeptical of an exercise of federal power that aims to undermine the ability of state and local authorities to tailor access network policy, including network neutrality policy, to local conditions.

In short, the states may promulgate network neutrality rules that pertain to internet access networks and the local markets in which they operate, but rules that apply to transit or interconnection — to those interior parts of the internet's schema — may be best placed beyond the states' reach. Doing so, however, requires not only some "brooding federal interest" in such matters, but also the assertion of some specific federal regulatory power.[281]

B. Universal Service

We turn next to the matter of universal service — the policy, dating back to AT&T's monopoly control of the telephone network, that everyone in the country should have access to the communications networks.[282] Universal access is now primarily funded by an assortment of special taxes levied on telecommunications carriers and then held in state and federal Universal Service Funds (rather than by monopoly

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carry content to Jane. And imagine, further, that Lumen and AT&T can interconnect in any number of locations, including, say, California (which has regulated interconnection to prohibit such charges) and Nevada (which has not). Lumen might decide to route *all* its traffic, regardless of origin, through California, to take advantage of the settlement-free mandate. This decision — together with similar decisions by other transit providers — could leave AT&T's California facilities comparatively congested, and its Nevada facilities underutilized. *See* Jonathan E. Nuechterlein & Howard Shelanski, *Building on What Works: An Analysis of U.S. Broadband Policy*, 73 FED. COMMC'NS L.J. 219, 253 (2021) (describing similar concerns over state interconnection regulation). While we agree with Nuechterlein & Shelanski that state regulation of interconnection is undesirable (in our view, because it is inconsistent with the pragmatic subsidiarity principles we articulate above), we do not agree that *any* state regulation of some aspect of the internet's constitutive networks is undesirable. Rather, as we have described at length above, much access network regulation is well within the appropriate and desirable scope of state and local regulatory authority.

279. To be clear, the federal authority we imagine is trained at the internet-based services at issue. But, consistent with our view that regulatory power is shaped by the specific concerns at issue, we think that local regulators may issue rules and regulations aimed at the specific infrastructure deployed by some providers, e.g., content delivery networks' servers, so long as those local rules do not undermine federal priorities. See *supra* note 101 and accompanying text; see also *supra* text accompanying notes 228–229.

280. *See supra* Section II.B.

281. Va. Uranium, Inc. v. Warren, 139 S. Ct. 1894, 1907 (2019) (plurality opinion).

282. *Cf.* TIM WU, THE MASTER SWITCH: THE RISE AND FALL OF INFORMATION EMPIRES 51–52 (2010).

profits and cross-subsidies, as in the past). The administration of those Universal Service Funds — together with their increasing support for broadband infrastructure — offers one clear, if still incompletely realized, example of cooperative federalism in internet spaces.[283]

As noted above, the 1996 Act demands cooperation between federal and state regulators in the administration of the federal funds: State commissions have borne primary responsibility for deciding which carriers (telephone carriers and, now, broadband carriers) are eligible for federal funding support.[284] Moreover, the 1996 Act directs the Commission to establish a Federal-State Joint Board to recommend policies to advance universal access to broadband.[285] While sometimes uneasy, this collaboration makes sense in view of federal and state regulators' shared interest in ensuring broadband carriage for all residents.[286] And state regulators, though far from perfect, are often in a better position to determine whether a carrier is living up to its obligations to provide and advertise service in a given area, and whether deeming a carrier eligible to receive Universal Service Funds is in the public interest.[287]

Now the Commission has sought to shift this funding mechanism, designed originally to ensure universal voice (telephone) service, to one whose central purpose is to deploy broadband infrastructure to underserved areas and communities. The Commission began that undertaking with its 2011 *Universal Service Fund/Intercarrier Compensation Transformation Order* (*USF-ICC Order*), which refocused the use of federal Universal Service Funds on broadband-capable facilities.[288]

Even as the *USF-ICC Order* made broadband carriage both a core purpose and a precondition of federal funding, it preserved the states' role as primary designators of eligible telecommunications carriers

283. The Universal Service Fund comprises four distinct programs: (1) the federal Lifeline and Link-Up programs providing need-based support for low income households; (2) the High Cost Fund to provide service at affordable rates to customers in rural, insular, and other high-cost areas; (3) the E-rate program, which funds broadband and other communications services for schools and libraries; and (4) the rural telehealth program, which provides broadband and communications services to rural health facilities. NUECHTERLEIN & WEISER, *supra* note 2, at 296; *see generally* 47 U.S.C. § 254.

284. 47 U.S.C. §§ 214(e)(2), 254(e).

285. 47 U.S.C. § 254(a)–(b) (setting forth universal service principles and the Joint Board's role in furthering them); *see also In re* FCC 11-161, 753 F.3d 1015, 1036 (10th Cir. 2014) (discussing the Telecom Act's process for adjusting the definition of universal service to accommodate new technologies).

286. *See, e.g.*, 47 U.S.C. § 1302.

287. Bridging the Digital Divide for Low-Income Consumers, Lifeline and Link Up Reform and Modernization, Telecommunications Carriers Eligible for Universal Service Support, 34 FCC Rcd. 10886, 10898–99, ¶ 28 (2019) (Fifth Report and Order, Memorandum Opinion and Order and Order on Reconsideration); *see also* 47 U.S.C. §§ 214(e)(1), (2) (establishing criteria for designation as an eligible telecommunications carrier (ETC)).

288. Connect America Fund, 26 FCC Rcd. 17663, 17669–70, ¶ 17 (2011) (Report and Order and Further Notice of Proposed Rulemaking) [hereinafter *USF-ICC Order*].

(ETCs).[289] And this is for the same reasons that states previously controlled ETC designations: Nothing about broadband makes the state regulators' local knowledge any less relevant than in the context of telephone service. Such regulators are still likely best positioned to assess whether a carrier is actually serving a particular area and are likely more sensitive (and accountable) to consumers in those areas if carriers are not. Indeed, as the Commission explained, state regulators have "filtered out ineligible carriers by refusing designations to those with substandard services and weeded out bad actors by revoking designations for unlawful practices."[290]

Both the federal and state governments play essential roles in collecting and allocating these funds: In many contexts, the federal government gets to decide where the funds may be spent and how they may be used, and the states decide who may deploy broadband infrastructure, and under what service conditions.[291] This precise allocation of authority is by no means perfect: While federal regulators — who define what, exactly, constitutes broadband internet access — may be well-suited to select the sorts of facilities that eligible carriers may purchase with federal funds to ensure that they satisfy this definition, we doubt that federal regulators are better placed to determine which local areas are underserved. Indeed, the federal broadband maps are well-known to be riddled with error, relying on self-reported industry data that considers entire census blocks as "served" with broadband access even if only one subscriber in that block has access.[292] And so we would modify these details of this cooperative scheme to rely primarily on local indicators, defaulting to federal ones only where state or local authorities are unable to map availability.[293] But such details aside, we agree that a cooperative implementation — consistent with so many federal grant programs — makes sense.[294]

But now some outstanding questions from the *USF-ICC Order* — and some new controversies (arising out of *Mozilla*'s remand order[295]) about the Commission's power to offer support for such deregulated

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289. *In re FCC 11-161*, 753 F.3d at 1098. The FCC may designate ETCs if the states decline to do so. *See* 47 U.S.C. § 214(e)(6).

290. Bridging the Digital Divide for Low-Income Consumers, *supra* note 287, at ¶ 2.

291. *See In re FCC 11-161*, 753 F.3d at 1066–67.

292. *See, e.g.*, Carrie Mihalcik, *Microsoft: FCC's Broadband Coverage Maps Are Way Off*, CNET (Apr. 9, 2019, 9:37 A.M.), https://www.cnet.com/news/microsoft-fccs-broadband-coverage-maps-are-way-off/ [https://perma.cc/6WNE-LBFN] (explaining that "the FCC builds its coverage map, which has been widely criticized as inaccurate, using data that internet service providers report twice a year via what's called Form 477" and noting that Microsoft's survey suggests that "162.8 million people aren't using the internet at broadband speeds").

293. *See* Witteman, *supra* note 9, manuscript at 86–87 (describing California's data collection efforts).

294. *See generally* Bridget A. Fahey, *Consent Procedures and American Federalism*, 128 HARV. L. REV. 1561 (2015).

295. Mozilla v. FCC, 940 F.3d 1, 18 (D.C. Cir. 2019)

services as broadband carriage — have undermined this cooperative scheme.[296] One important question for taxed carriers and funding recipients is: "How much?" Historically, the universal service tax levied against carriers has been tied to telephone-related revenue. But voice revenues are rapidly declining. And though the Commission has recognized the need to change its contribution formula, it has yet to settle on a funding mechanism to replace it, thereby threatening the long-term financial stability of the Universal Service Fund.[297]

Moreover, the Commission's decision to deregulate broadband carriage has undermined its power to offer certain universal service funding support for broadband services. Though the Tenth Circuit has concluded that the Commission may distribute funds to carriers for broadband-capable *facilities* in rural and underserved areas so long as they are also used for traditional telecommunications services,[298] the D.C. Circuit, in *Mozilla*, has explained that the Commission may not (under a different, but related, universal service program) have the power to subsidize broadband access *subscriptions* for lower-income consumers.[299] In short, the Commission seems, for now, to have only limited power to fulfill universal service objectives in respect to broadband: It can give funds to carriers to build infrastructure in rural locales, but it cannot give funds to carriers to subsidize access aiming to bridge the digital divide.

Here, too, the states' responses highlight the importance of leaving room for local flexibility and local priorities. Even as the federal Commission has still not — eight years on — decided how to update its contribution model to account for lost voice revenue,[300] states as varied as Maine, Nebraska, New Mexico, and Utah have implemented reforms to stabilize state-level universal service funds — local funds improving

296. *See id.* at 72 (finding that the Commission failed to adequately consider the effect of reclassification on the Lifeline program); Restoring Internet Freedom, 35 FCC Rcd. 12328, 12382, ¶ 91 (2020) (Order on Remand) (concluding that broadband carriers who no longer enjoy common-carrier status can receive Lifeline support).

297. *See* Universal Service Contribution Methodology, 27 FCC Rcd. 5357, 5370–72, ¶ 20 (2012) (Further Notice of Proposed Rulemaking).

298. *In re* FCC 11-161, 753 F.3d 1015, 1048–49 (10th Cir. 2014).

299. *Compare id.*, *with Mozilla*, 940 F.3d at 68–70. The Commission's Order on Remand waved this problem away by noting that so long as ETCs providing broadband service also provided a regulated voice telephony service, it had jurisdiction to issue such subsidies. Restoring Internet Freedom WC Docket No. 17-108 (FCC 20-151 rel. Oct. 29, 2020), ¶ 91 (Order on Remand). The Commission did not explain how USF funds would support broadband once it finishes phasing out support for voice telephony services. *See* Comment by Concerned Berkeley Law Students, In the Matter of Restoring Internet Freedom, WC Docket No. 17-108 (FCC 20-151 rel. Oct. 29, 2020), ¶ 91 (Order on Remand), https://ecfsapi.fcc.gov/file/10421131469714/04-20-2020_BerkeleyLawStudents_Comment.pdf [https://perma.cc/V26Z-6NG5].

300. *See* Universal Service Contribution Methodology, 27 FCC Rcd. at 5360, ¶ 6.

on the federal programs — that offer further support for local service.[301] Indeed, these state funds play a key role in buttressing federal subsidies during this time of federal uncertainty: If support for standalone voice carriers are phased out and standalone broadband carriers are ineligible for support, federal support will be tethered to providers offering an antiquated service for the purposes of funding broadband.

Moreover, states are not bound by the Commission's regulatory classifications or policy determinations in the allocation of their own funds, and so some offer support for lower-income broadband subscribers, notwithstanding the open questions regarding the federal authority to do so. They are likewise free to launch their own investigations into the causes of underinvestment in broadband infrastructure that contribute to the persistent digital divide.[302]

In short, states play an essential role in the scheme for universal service. In addition to determining which carriers are eligible to receive that support, some states have led the way in providing support for broadband service, by providing additional support for devices and consumer premises equipment, by setting terms for state-supported facilities and services to make broadband connectivity more useful to subscribers, or even by setting rates for service to lower-income consumers.[303] The design of the program could be improved, to better rely on local knowledge. Here, especially, then, we see the need for state and local power.[304] But when the federal Commission renounced power over broadband, it also sought to cabin the power of the states. That makes little sense, especially in the context of Lifeline, the universal service program aimed at addressing the affordability concerns

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301. Whitacre & Gallardo, *supra* note 41, at 2 (empirical study finding "a consistently positive impact of state broadband funding on availability"); SHERRY LICHTENBERG, NAT'L REGUL. RSCH. INST., STATE UNIVERSAL SERVICE FUNDS 2018: UPDATING THE NUMBERS 1 (2019) (noting that state USF broadband funding tripled between 2014 and 2017); *see also* Legis.B.992 Sec. 9, 12 (Neb. 2020) (establishing funds to support fiber-based internet access at public libraries, and redirecting profits from leasing access to fiber to state universal service funds).

302. *See* PUB. UTILS. COMM'N OF THE STATE OF CAL. CPUC RULEMAKING 20-09-001, ORDER INSTITUTING RULEMAKING REGARDING BROADBAND INFRASTRUCTURE DEPLOYMENT AND TO SUPPORT SERVICE PROVIDERS IN THE STATE OF CALIFORNIA (Apr. 20, 2021) (announcing investigation into "whether service providers are refusing to serve certain communities or neighborhoods within their service or franchise areas, a practice called redlining").

303. *See Vermont Weighs Response to Comcast Data Caps*, COMMC'NS DAILY (Feb. 16, 2021); *States Seek to Update USF, COLR Rules for Internet Age*, COMMC'NS DAILY (Aug. 12, 2020); *see also* N.Y. State Budget Bill S2506-C, Part NN (signed Apr. 16, 2021) (requiring broadband carriers to provide $15 monthly broadband subscriptions to eligible low-income households).

304. *Cf. AT&T Fails to Ease CPUC Pres. Concerns on DSL Retirement*, COMMC'NS DAILY (Nov. 3, 2020) (indicating close state scrutiny for carrier decisions to retire broadband carriage service).

of local consumers.[305] Here, it is the states — and not the federal government — that seem most likely to ensure that lower-income consumers have access to this critical facility.

C. Municipal Broadband

States have also played a significant role in the development of municipally owned broadband networks. In the broadband context, as in the telephone context, states have occasionally hamstrung the development of such local facilities — even where those networks seem important to federal broadband policy. As before, we advocate for an approach that locates decisional power at the most immediately relevant jurisdiction, granting localities the power to deploy broadband networks where possible.

The Commission has sought to do exactly that: In response to petitions challenging Tennessee and North Carolina statutes restricting the deployment of municipally owned broadband networks, the Commission's 2015 *City of Wilson Order* purported to preempt those state limits on municipally owned and operated broadband networks.[306] Specifically, the Commission reasoned that municipal broadband networks furthered federal broadband policy goals by offering meaningful facilities-based competition to private providers like Comcast and Verizon, thereby improving service quality and rates for broadband carriage. As authority for the Order, the Commission relied on § 706 of the Telecommunications Act to "remov[e] barriers" to the deployment of "advanced telecommunications capabilit[y]" to "all Americans."[307] In particular, the Commission advanced two theories of authority for its preemption order. One, echoing previous assertions in telecommunications and cable contexts, the Commission maintained that because "broadband services are jurisdictionally interstate for regulatory purposes," they fall within the authority of the Commission's traditional powers over interstate services.[308] And two, the Commission explained that the 1996 Act gave it wide authority to define the sorts of "barriers" it could sweep away under § 706's mandates — including barriers that arise directly out of state law: "To put it plainly, section 706 authorizes the Commission to displace state laws that effectuate choices about the

305. Lifeline and Link Up Reform and Modernization, 35 FCC Rcd. 3962, 3978–79, ¶¶ 45–47 (2020) (Report and Order and Further Notice of Proposed Rulemaking) (summarizing the federal Lifeline program).

306. City of Wilson, 30 FCC Rcd. 2408, 2409–10, ¶ 1 (2015) (Memorandum Opinion and Order).

307. *Id.* at 2414, ¶¶ 18–19.

308. *Id.* at 2469, ¶ 146.

substance of communication policy that conflict with federal communications policy designed to ensure 'reasonably and timely' deployment of broadband."[309]

But in a case reminiscent of the Supreme Court's decision in *Nixon*, described above, the Sixth Circuit vacated the Commission's Order.[310] In its view neither the distinction between broadband carriage and telephone service, nor the distinction between a total ban on municipally owned networks and mere restrictions on municipally provided services, was sufficient to overcome the Supreme Court's holding in *Nixon*.[311] As the Court explained in *Nixon*, any reading of federal legislation "threatening to trench on the States' arrangements for conducting their own affairs should be treated with great skepticism, and read in a way that preserves a State's chosen disposition of its own power."[312] Following this guidance, the Sixth Circuit concluded that § 706 does not clearly "limit a state's ability to trump a municipality's exercise of discretion otherwise permitted by FCC regulations" and so "cannot be read to authorize such preemption."[313]

As we suggested in our description of *Nixon*,[314] the Court's decision suggests an imperfection in the implementation of communications federalism. As one of us has written elsewhere:

> [R]esponsibility for determining whether a municipally owned-and-operated broadband network is in the interests of the community should lie, in the first instance, with the community itself. Indeed, communities frequently exercise such "real local legal authority, notwithstanding the nominal rules of state supremacy." As a matter of institutional competence, this is because the municipality is best able to assess the relative benefits of such a network, and is in the best position to determine costs of network deployment given local resources. Furthermore, because the costs and benefits of the deployment will be internalized by the municipality, locating the decision whether to build with the community itself is likely to lead to the most efficient allocation of its resources.[315]

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309. *Id.*

310. Tennessee v. FCC, 832 F.3d 597, 600 (6th Cir. 2016).

311. *Id.* at 611.

312. Nixon v. Mo. Mun. League, 541 U.S. 125, 140 (2004).

313. *Tennessee*, 832 F.3d at 613.

314. *See supra* notes 179–182 and accompanying text.

315. Narechania, *supra* note 276, at 494 (quoting Matthew Dunne, *Let My People Go (Online): The Power of the FCC to Preempt State Laws that Prohibit Municipal Broadband*, 107 COLUM. L. REV. 1126, 1141–42 (2007)).

Because municipalities internalize the costs and benefits of deploying broadband access networks, they should retain the authority to determine whether and how to provide such access.[316] In many ways, municipal broadband networks — local access networks, after all — resemble local quasi-public goods that local officials have strong incentives to supply.[317] Moreover, the federal-local regulatory scheme for cable service shows that there are benefits to granting municipalities autonomy within a system of federal broadband regulation.[318] Municipalities are well-equipped to identify communities left on the far side of the digital divide and have strong incentives to bridge that gap, as "connectivity … bring[s] greater benefits to the local community at large."[319] Hence, though states can limit municipal participation in local broadband markets under *Nixon* and *Tennessee*, they should take care before wielding this power. Communications federalism, after all, has been founded, at least in part, on local competence.

And so, in the example of municipal broadband and beyond, the default allocation of regulatory power should favor local authorities, consolidating authority at higher levels of government only where the costs of diffuse policymaking (e.g., the costs of complying with a so-called patchwork of rules) outweigh the benefits of local tailoring. We do not, of course, suggest that such costs will never outweigh such benefits. Municipalities may ignore the risk of bankruptcy when those costs are insured by the state—and so states may undertake actions to protect the public fisc from this moral hazard.[320] But states should do so consistently, treating broadband carriage akin to analogous services, including power and water (which, while presenting similar risks, are frequently municipally provided). And while state laws protecting the public fisc find support in our pragmatic application of subsidiarity principles, state laws that artificially increase the costs of municipally provided service to shield private providers from public competition seem unjustified.[321] In all, to the extent states devolve powers to municipalities to empower them to offer local service (including, say, power and water services) and to issue local regulations based on local

316. Whitacre & Gallardo, *supra* note 41, at 4 (empirical study finding "municipal broadband restrictions tend[s] to lower availability and broadband competition"); *see also* Cooter & Siegel, *supra* note 121, at 137.

317. Cooter & Siegel, *supra* note 121, at 138.

318. Sylvain, *supra* note 2, at 823.

319. *Id.* at 837. The Commission has acknowledged the ability of municipal governments to better identify households struggling to afford broadband access during the pandemic. Emergency Broadband Benefit Program, WC Docket No. 20-445, Report and Order, 65, ¶ 138 (Feb. 26, 2021).

320. *See* Narechania, *supra* note 276, at 494. We note, however, that the concern presented here — about the risks of municipally provided service to the state's fiscal stability — do not sound in the oft-repeated laments regarding patchworks or "crazy quilts" of competing rules. *See, e.g.*, Nixon v. Mo. Mun. League, 541 U.S. 125, 136 (2004).

321. Tennessee. v. FCC, 832 F.3d 597, 615 (6th Cir. 2016) (White, J., concurring in part).

competence, so too should states entrust municipalities to offer broadband carriage and to regulate broadband carriers. Encouragingly, some states have started to take steps in such a direction.[322] Federal and state authorities should take similar steps in other areas of broadband regulation, too.[323]

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In short, the same concerns and competencies that grant states and localities a meaningful role in the regulation of a wide range of communications services and infrastructure also justify a role of these regulators in the context of broadband internet access, no matter whether federal regulators declare themselves incapable of or uninterested in the regulation of broadband carriers. With their greater attentiveness to the needs of local consumers and competition or lack of competition in local markets, states may enact limited open internet protections so long as those protections focus on the local access network. Their superior understanding of local needs and local providers also justifies the states' role in determining eligibility for federal universal support for broadband and, where necessary, supplementing that support. And, consistent with a design of subsidiarity in communications federalism, municipalities should generally be empowered to operate their own broadband networks, or regulate existing providers, where neither local competition nor federal support meet local needs.

Indeed, the COVID-19 pandemic helps to illuminate striking examples of the value of local responsiveness. As the country's civic and economic infrastructure moved online in response to public health warnings, the need for — and importance of — affordable broadband access became clearer than ever.[324] But the Commission's classification orders under the Trump Administration imperiled its own ability to subsidize broadband access for lower-income consumers. It was bad policy — and bad law — to say that the Commission's choice preempted or limited the states' powers over broadband carriers. Likewise, the same municipal broadband network that state legislators sought to hobble in *Tennessee v. FCC* announced that it would provide free broadband service to local school children whose families qualified

322. *See NJ Assembly Panel Clears Muni Broadband Study Bill*, COMMC'NS DAILY (Aug. 12, 2020); *see also* H.B. 1336, 67th Leg., Reg. Sess. (Wa. 2021) (enacted legislation granting municipalities and other public entities unrestricted authority to provide telecommunications services to end users).

323. *Cf.* Rural Broadband and Digital Infrastructure Video Competition Reform Act of 2021, S.B. 28 § 11, 2021-2022 Reg. Sess. (Cal. 2021) (devolving some (limited) authority to local franchising authorities).

324. *See Pandemic Stirs Up Broadband Regulation Debate in States*, COMMC'NS DAILY (Sept. 22, 2020).

for other forms of federal assistance.[325] In short, devolving regulatory power to the most immediately salient local jurisdiction can help preserve and advance broadband internet access.

V. CONCLUSION: INSIDE WIRING AND THE INTERNET

We end where we began — with inside wiring. As we noted above, control over the wire that connects a consumer to the network is a prized commodity: It confers a monopoly — specifically, a terminating access monopoly — over access to that consumer that both telephone and cable operators have protected intensely.[326] And this monopoly control has invited regulatory responses by federal, state, and local authorities.

Consider, for example, Congress and the Commission's deliberations over whether to grant communications service providers mandatory access to the wiring that serves "multiple tenant environments" — e.g., apartment buildings. In laying the foundation for federal regulation of cable services, Congress declined to include such mandatory access provisions.[327] But several states already had such provisions in place.[328] And those state laws — often benefiting only franchised cable operators — drew opposition from competing video service providers who did not qualify for mandatory access. Despite this longstanding opposition, the Commission has repeatedly declined invitations to preempt those requirements.[329] While acknowledging some drawbacks to these unequally applied requirements, the Commission concluded that states were uniquely "well-positioned to decide whether the need for mandatory access laws outweighs the anti-competitive effects[.]"[330] To be sure, the Commission encouraged states to use their powers to

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325. Monique Brand, *EPB to Provide Internet for Hamilton County Schools Students at No Charge for Low-Income Families*, CHATTANOOGA TIMES FREE PRESS (Jul. 29, 2020), https://www.timesfreepress.com/news/local/story/2020/jul/29/epb-provide-internet-hamilt county-schools-stu/528574/ [https://perma.cc/JK44-FNFD].

326. NUECHTERLEIN & WEISER, *supra* note 2, at 220 n.* (describing the terminating access monopoly problem).

327. *See* AMSAT Cable Ltd. v. Cablevision of Connecticut Limited Partnership, 6 F.3d 867, 875–76 (2d Cir. 1993) (discussing legislative history of the 1984 Cable Act); Exclusive Service Contracts for Provision of Video Services in Multiple Dwelling Units and Other Real Estate Developments, 22 FCC Rcd. 20235, 20259 n.151 (2007) (Report and Order and Further Notice of Proposed Rulemaking) (noting that Congress initially opted not to include a mandatory cable access provision).

328. *E.g.*, Pennsylvania Tenant's Rights to Cable Television Act, 68 Pa. Stat. Ann. § 250.503-B; *see also* Telecommunications Service Inside Wiring, 13 FCC Rcd. 3659, 3744, ¶ 182 (1997) (Report and Order and Second Further Notice of Proposed Rulemaking) (noting such laws exist in at least "18 U.S. jurisdictions").

329. *See* Telecommunications Service Inside Wiring, 13 FCC Rcd. at 3748, ¶ 189 ("We believe that the record in this proceeding does not support the preemption of state mandatory access laws at this time.").

330. Telecommunications Services Inside Wiring, 18 FCC Rcd. 1342, 1358, ¶ 39 (2003) (First Order on Reconsideration and Second Report and Order).

protect a "competitively neutral environment" — fair competition between incumbent cable companies and other competitors.[331] In related proceedings, the Commission reiterated that, for conflict preemption purposes, it would rely on state authorities "to interpret the scope of the state statutes."[332] And, more recently, the Commission took the more serious step of banning exclusive contracts between property owners and cable companies, in order to protect competition among providers within a single building.[333]

Against this backdrop, a Commission order preempting a disavowed interpretation of a local mandatory access law seems odd. In 2019, the Commission purported to preempt Article 52 of the San Francisco Police Code, entitled "Choice of Communications Service Provider in Multiple Occupancy Buildings."[334] Though the federal Commission has prohibited cable providers from entering into exclusive contracts with building owners, Article 52 addresses the other side of the transaction, prohibiting property owners from limiting competing carriers from accessing a building's wires and thereby interfering with an occupant's choice of communications services provider. Specifically, Article 52 limits a property owner's ability to "refus[e] to allow a communications services provider to . . . use any existing wiring to provide communications services" (though property owners may refuse access in cases of "a significant, adverse effect on the continued ability of existing communications services providers to provide services").[335]

The Commission understood San Francisco's rule to require open access — the sort of forced facilities-sharing proposed prior to the network neutrality protections.[336] But San Francisco explained that the Commission's interpretation of its rules was strained: "Article 52 does not require sharing of 'in use' wiring."[337] Rather, the law simply pro-

331. Telecommunications Services Inside Wiring, 13 FCC Rcd. at 3748, ¶ 190.

332. Telecommunications Service Inside Wiring, 18 FCC Rcd. at 1358, ¶ 40.

333. Exclusive Service Contracts for Provision of Video Services in Multiple Dwelling Units and Other Real Estate Developments, 22 FCC Rcd. 20235, 20251, ¶ 30 (2007) (Report and Order and Further Notice of Proposed Rulemaking); 47 C.F.R. § 76.2000.

334. SAN FRANCISCO, CAL POLICE CODE, ARTICLE 52 (2016), https://sfbos.org/sites/default/files/o0250-16.pdf [https://perma.cc/QSC3-49N8].

335. *Id.* §§ 5201, 5206(b)(5).

336. *See supra* notes 235–236 and accompanying text.

337. Letter from London Breed, Mayor, City of San Francisco, to Nancy Pelosi, Speaker of the United States House of Representatives (July 2, 2019), https://ecfsapi.fcc.gov/file/1070294670758/CCSFExparte%20MB%2017-91.pdf [https://perma.cc/6R33-6RL5]. The Commission similarly gives little deference to local regulators' understanding of the local housing market. The Commission dismisses concerns that a building owner in 2019 might lock out competing communications providers by quoting its own determination in the *1997 Inside Wiring Order* that "owners must compete with rival owners to keep current residents and attract additional residents, and therefore consumer welfare will be max-

vides that where feasible — where there is excess capacity on an interior cable — competing providers may use it to offer service to residents. Moreover, though the Commission's rationale focused on competition in the market for broadband carriage, the Commission invoked its powers over telecommunications services and cable services — powers that it disclaimed with respect to broadband in the *Restoring Internet Freedom Order* — to preempt Article 52.[338]

In short, the Commission has purported to preempt a local regulation regarding local communications infrastructure. It has done so, moreover, by inventing its own interpretation of that local provision and relying on regulatory powers it had then renounced, at least in respect to broadband carriers. And it has wielded those powers over infrastructure that is about as local as it gets: the wiring inside an apartment building. Meanwhile, the Commission has declined to clarify what rules could apply to such infrastructure.[339]

The Commission's misunderstanding of San Francisco's law, and its intervention into the competition among providers of access network services in that local market, suggest the risks that attend to the abandonment of communications, and internet, federalism. San Francisco knows what its own law says. San Francisco has a deep understanding of its local communications market and the relationships among broadband carriers and local property owners and developers. And San Francisco is well-positioned to "promote competition in the local telecommunications market" in view of that understanding. And so, in matters ranging from inside wiring to network neutrality, policymakers should be careful to preserve the state and local powers that have, for so long, helped to advance the accessibility and availability of communications technology.

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imized by letting the market determine the appropriate mix of price and amenities in the residential MTE marketplace." Improving Competitive Broadband Access to Multiple Tenant Environments, 34 FCC Rcd. 5703, 5738–39, ¶ 73 (2019) (Notice of Proposed Rulemaking and Declaratory Ruling) (quoting Telecommunications Service Inside Wiring, 13 FCC Rcd. at 3691, ¶ 61) (internal quotation marks and alterations omitted). Whether a communications regulator's generalized assessment of residential real estate markets in 1997 should be relied on anywhere in the country, it certainly doesn't apply to present-day San Francisco, perhaps the least affordable and most constrained housing market in the country. *See, e.g.*, Noah Buhayar & Christopher Cannon, *How California Became America's Housing Market Nightmare*, BLOOMBERG (Nov. 6, 2019), https://www.bloomberg.com/graphics/2019-california-housing-crisis/ [https://perma.cc/KN5D-CCGY]. A resident of San Francisco would likely be surprised to learn that landlords are competing with each other by accommodating multiple broadband carriers for fear of losing tenants.

338. Improving Competitive Broadband Access to Multiple Tenant Environments, 34 FCC Rcd. at 5738, ¶¶ 67–68, 71.

339. While the Commission did "question all forms of sharing required by" San Francisco's ordinance, it preempted only the single, disavowed interpretation that would apply the requirement to in-use wiring. *Id.* at 5725, ¶ 42.