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**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of	)	
	)	
Deployment of Wireline Services Offering	)	CC Docket No. 98-147
Advanced Telecommunications Capability	)	

FOURTH REPORT AND ORDER

Adopted: July 12, 2001

Released: August 8, 2001

By the Commission: Commissioner Abernathy not participating; Commissioner Martin approving in part, concurring in part, and issuing a statement.

Para.

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I. INTRODUCTION

1. In this Order, we reevaluate provisions of our collocation rules on remand from the United States Court of Appeals for the District of Columbia Circuit. The remanded rules determined which equipment an incumbent local exchange carrier's (incumbent LEC's) competitors might collocate in the incumbent's premises pursuant to section 251(c)(6) of the Communications Act of 1934, as amended (Communications Act or Act).¹ Those rules also required that an incumbent LEC allow collocating carriers to install and maintain cables connecting different carriers' collocated equipment within the incumbent's premises.² In addition, the remanded rules allowed requesting carriers to determine where within the incumbent LEC's premises their physical collocation space will be located, precluded the incumbent from restricting physical collocation to separate or isolated rooms or floors, and precluded the incumbent from requiring the construction of separate entrances for physical collocators to use in accessing their own equipment.

2. On remand, we conclude that equipment is "necessary for interconnection or access to unbundled network elements" within the meaning of section 251(c)(6) and thus may be collocated if, absent deployment of the equipment, the requesting carrier would, as a practical, economic, or operational matter, be precluded from obtaining "equal in quality" interconnection or "nondiscriminatory access" to unbundled network elements from the incumbent LEC. We also limit which multi-functional equipment a requesting carrier may collocate. We further conclude that while an incumbent LEC need not allow collocators to install and maintain cross-connects between different carriers' collocated equipment, an incumbent LEC itself must provide these cross-connects upon reasonable request. We conclude, in addition, that an incumbent LEC may decide where collocated equipment will be placed within its premises as long as the incumbent acts reasonably and nondiscriminatorily, and we specify minimum standards defining reasonable and nondiscriminatory behavior in this context. We also determine that an incumbent LEC may separate the space physical collocators occupy and the entrances to that space from other space and entrances within its premises, except in certain limited circumstances.

¹ 47 U.S.C. § 251(c)(6).

² These cables are referred to as cross-connections or cross-connects. We define cross-connects in paragraph 58, *infra*.

II. BACKGROUND

3. In general, in order to interconnect with an incumbent LEC or to access an incumbent LEC's unbundled network elements, competitors must be able to directly access the incumbent's facilities with their own equipment. The most practical and efficient places in an incumbent's network where this direct access can occur are those centralized points where individual, subscriber-generated telecommunications traffic is aggregated onto common links for transmitting the traffic through the network or onto other networks. Collocation allows competitors to place their own equipment directly into these centralized points on the incumbent's network.

4. In the 1996 Telecommunications Act (1996 Act),³ Congress specifically required incumbent LECs to allow competitive telecommunications carriers to collocate equipment at incumbent LEC premises, enabling facilities-based competitors to provide a full array of competitive local exchange, exchange access, and other telecommunications services. Through its experience over the last five years in implementing the 1996 Act, the Commission has learned that only by encouraging competitive LECs to build their own facilities or migrate toward facilities-based entry will real and long-lasting competition take root in the local market.⁴ At the same time, the Commission has recognized that most facilities-based providers still require the use of some component of the incumbent's local network in order to be able to compete with the incumbent and to justify the huge investments in infrastructure that are necessary to build out their own telecommunications networks.⁵ In addition, whether or not a competitor builds a wholly-owned network or uses parts of the incumbent's network, most alternative providers inevitably must interconnect their new networks with the existing network of the incumbent in order for customers of both networks to communicate with each other. Therefore, collocation continues to play an essential role in fostering competitive facilities-based entry and expansion into the local market.⁶

³ Pub.L. 104-104, Title VII, 110 Stat. 153 (1996), *codified at* 47 U.S.C. §§ 151 *et seq.* All citations in this Order to the 1996 Act are to the 1996 Act as codified in the United States Code. The 1996 Act amended the Communications Act of 1934.

⁴ See, e.g., *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, Second Report*, CC Docket No. 98-146, 15 FCC Rcd 20913, 21004, para. 246 (2000) (*Second Report on Advanced Telecommunications Capability*). In addition to facilities-based entry, the 1996 Act envisions competitive entry through purchase of unbundled network elements and resale. We note, in particular, that it may not be economically feasible for most carriers to compete for residential customers without substantial use of unbundled network elements, at least based on the costs associated with some current technologies.

⁵ See Joint Commenters Reply at 5-6 (maintaining that Congress did not expect competitive LECs to replicate an incumbent's network).

⁶ See, e.g., Cisco Comments at 5 (arguing that collocation is the key to allowing competitive LECs to enter the market without replicating an incumbent's loop architecture); WorldCom Comments at 5-6 (contending that Congress viewed collocation as fundamental to local competition); Focal Reply at 11-12.

5. Significantly, over these same five years, the rapid pace of development and investment in innovative technologies has ushered in a fundamental change in the potential services and capabilities available to end users. In particular, the increased use of packet-based technologies has begun to revolutionize the delivery of telecommunications services. In part as a result of opportunities created by the 1996 Act, a burgeoning of new technologies has enabled network builders to begin turning away from the traditional circuit switched network and its reliance on single-function equipment and rigid routing hierarchies. These new networks employ “cutting edge” developments in computing, packet technology, digitization, and optical transmission to offer customers both traditional voice services and an ever-increasing array of advanced services. The result has been the deployment of technologies that can perform more functions, at greater efficiency and higher speeds, than prior technologies.⁷

6. These changes in technology have not only resulted in the deployment of new equipment that was barely, if at all, used in the public switched telecommunications network five years ago when the 1996 Act was passed, but also have enabled dramatically different network architectures and designs. These changes in technology have enabled providers to choose from myriad network architectures through which to serve end users. Some of these networks rely on centralized hubs to manage traffic flows and thus resemble, despite achieving far greater efficiency, the networks incumbent LECs deployed prior to the enactment of the 1996 Act.⁸ Other network designs seek to migrate previously centralized functions to the network’s edge.⁹ Still others seek to disaggregate what had previously been considered inseparable network functionalities into more discrete components that can be distributed throughout the network.¹⁰ In other words, equipment choices and the attendant network architectures are increasingly becoming more diverse than those available in yesterday’s unitary, circuit-switched network environment. Competitors now can – and do – use equipment and network architecture to differentiate themselves. In the end, not all the new technologies and associated architectures may be sustainable. In the past, however, a single monopoly provider would have made this decision; now, the 1996 Act puts the decision in the hands of the marketplace.¹¹

⁷ See, e.g., Cisco Comments at 2; Lucent Reply at 2-3; Letter from Christine Mailloux, Regulatory Strategist, Copper Mountain Networks, Inc., to Magalie Roman Salas, Secretary, FCC, at 1 (filed Mar. 1, 2001) (*Copper Mountain Mar. 1, 2001 Letter*); Letter from Richard S. Whitt, Director/Senior Counsel, Internet/Data Law & Policy, WorldCom, to Magalie Roman Salas, Secretary, FCC, at 2 (filed Mar. 23, 2001) (*WorldCom Mar. 23, 2001 Letter*).

⁸ *Copper Mountain Mar. 1, 2001 Letter*, *supra* note 7, at 1; see also DSLnet Comments at i; Aptonix Reply at 2-3; ATG Reply at i.

⁹ ATG Comments, at Att. 1, p. 1, & Att. 2, p. 1.

¹⁰ See Tachion Comments at 2-3; *Copper Mountain Mar. 1, 2001 Letter*, *supra* note 7, at 1-2.

¹¹ See *Supra* Comments at 5.

7. Indeed, we have previously recognized that, in adopting the 1996 Act, Congress consciously did not try to pick winners or losers, or favor one technology over another.¹² Rather, Congress set up a framework from which competition could develop, one that attempted to place incumbents and competitors on generally equal footing, so that each could share the efficiencies of an already ubiquitously-deployed local infrastructure while retaining independent incentives to deploy new, innovative technologies and alternative infrastructure. The obligation imposed on incumbents to allow for the collocation of competitors' equipment at the incumbents' premises is a critical, if not fundamental, component of this equation. Without mandatory collocation rights, competitors would not be able to achieve direct access to incumbent bottleneck facilities, and competitors would be thwarted in their ability to deploy alternative, innovative technologies. Such a result would significantly diminish one of the bedrock principles of the 1996 Act – the promotion of competition to spur infrastructure investment and technological innovation.¹³

8. Through innovative technologies, the market is already bringing customers a broader offering of new services and capabilities. Because these technologies are still relatively nascent, it is likely that the services available in today's market are only a precursor to an even wider array of services that promise to be deployed in the near future. As a result, the types of equipment that competitors seek to collocate in 2001 are dramatically different than the equipment being collocated when the 1996 Act was passed. Similarly, given current trends, it is likely that the changes in the types of equipment required for collocation in 2006 will continue to reflect this unparalleled speed of technological evolution. However, although the types of equipment being deployed have changed since the passage of the 1996 Act, and likely will continue to change, the fundamental purpose for collocation remains the same – to allow competitors direct access to bottleneck facilities in order to provide competitive telecommunications services, including an ever-increasing array of new, advanced services.

9. One of the 1996 Act's core market-opening provisions is section 251(c)(6) of the Communications Act, which requires incumbent LECs "to provide . . . for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier."¹⁴ In 1996, in the *Local Competition Order*, the

¹² *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 13 FCC Rcd 24011, 24014, para. 2, & 24017, para. 11 (1998) (*Advanced Services Order*), *recon. denied*, 15 FCC Rcd 17044 (2000).

¹³ See *Joint Statement of Managers*, S. Conf. Rep. No. 104-230, 104th Cong. 2d Sess. 1 (1996) (*Joint Explanatory Statement*).

¹⁴ 47 U.S.C. § 251(c)(6). Each incumbent LEC has the duty "to provide, on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier, except that the carrier may provide for virtual collocation if the local exchange carrier demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations." *Id.* In a physical collocation arrangement, a competitor leases space at an incumbent LEC's premises for its equipment. The competing provider has physical access to this space to install, maintain, and repair its equipment. In a virtual collocation arrangement, the competitor designates the equipment to be placed at the incumbent LEC's premises. The competing provider, however, does not have physical access to the incumbent's premises. Instead, the equipment is under the physical (continued....)

Commission adopted rules to implement section 251(c)(6).¹⁵ These rules addressed, among other matters, where competitive LECs could physically collocate equipment, the types of equipment that could be collocated, and how incumbent LECs should allocate space in the event insufficient physical collocation space is available. While the Commission adopted specific and detailed national collocation rules, the Commission concluded that state commissions should have the flexibility to adopt additional collocation requirements that are consistent with the Communications Act and the Commission's implementing rules.¹⁶

10. Three years later, in the *Advanced Services First Report and Order*, the Commission modified the collocation rules to remove barriers to telecommunications competition, particularly in the nascent advanced services market.¹⁷ These rules require incumbent LECs to expand their collocation offerings to include cageless and shared collocation, among other physical collocation arrangements.¹⁸ Further, when collocation space is exhausted at a particular incumbent LEC location, the incumbent LEC must permit collocation in adjacent controlled environmental vaults or similar structures to the extent technically feasible.¹⁹ The

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control of the incumbent LEC, and the incumbent is responsible for installing, maintaining, and repairing equipment designated by the competing provider. *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, *Order on Reconsideration and Second Further Notice of Proposed Rulemaking*, 15 FCC Rcd 17806, 17812, para. 9 (2000) (*Collocation Reconsideration Order* or *Second Further Notice*), petitions for further recon. pending.

¹⁵ *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, CC Docket No. 96-98, 11 FCC Rcd 15499, 15782-807, paras. 555-607 (1996) (*Local Competition Order*), *aff'd in part and vacated in part sub nom. Competitive Telecommunications Ass'n v. FCC*, 117 F.3d 1068 (8th Cir. 1997) & *Iowa Util. Bd. v. FCC*, 120 F.3d 753 (8th Cir. 1997), *aff'd in part, rev'd in part, and remanded sub nom. AT&T Corp. v. Iowa Util. Bd.*, 525 U.S. 366 (1999) (*AT&T v. Iowa Util. Bd.*), *aff'd in part and vacated in part on remand, Iowa Util. Bd. v. FCC*, 219 F.3d 744 (8th Cir. 2000), *cert. granted sub nom. Verizon Communications Corp. v. FCC*, 121 S.Ct. 877 (2001), *Order on Reconsideration*, 11 FCC Rcd 13042 (1996) (*Local Competition First Reconsideration Order*), *Second Order on Reconsideration*, 11 FCC Rcd 19738 (1996) (*Local Competition Second Reconsideration Order*), *Third Order on Reconsideration and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 12460 (1997) (*Local Competition Third Reconsideration Order*), further recon. pending.

¹⁶ *Local Competition Order*, 11 FCC Rcd at 15783-84, para. 558.

¹⁷ *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, First Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 4761, 4773-74, paras. 23-24 (1999) (*Advanced Services First Report and Order*), *aff'd in part, and vacated and remanded in part sub nom. GTE Service Corp. v. FCC*, 205 F.3d 416 (D.C. Cir. 2000) (*GTE v. FCC*), on recon., *Collocation Reconsideration Order*, 15 FCC Rcd at 17806-39, paras. 1-69.

¹⁸ *Advanced Services First Report and Order*, 14 FCC Rcd at 4784-86, paras. 41-43. In a shared physical collocation arrangement, two or more competitive LECs share caged collocation space pursuant to terms and conditions agreed to by the competitive LECs. *Id.* at 4784, para. 41. In a caged physical arrangement, a competitive LEC leases and has direct physical access to caged space at an incumbent LEC structure for its equipment. Cageless physical collocation eliminates the cage surrounding the competitive LEC's equipment. *Id.* at 4784-85, para. 42.

¹⁹ 47 C.F.R. § 51.323(k)(3). In adjacent physical collocation, the competitive LEC's equipment is located within a controlled environmental vault or similar structure that the competitive LEC or its contractor constructs on (continued....)

Commission specified, among other requirements, that a collocation method used by one incumbent LEC or mandated by a state commission is presumptively technically feasible for any other incumbent LEC.²⁰ The Commission specified that these strengthened collocation rules should serve as minimum requirements and continued to recognize that the state commissions may adopt additional collocation requirements.²¹

11. In *GTE v. FCC*, the D.C. Circuit affirmed much of the *Advanced Services First Report and Order*, but vacated and remanded for further consideration certain aspects of that Order.²² Specifically, the court vacated and remanded the requirement that an incumbent LEC permit collocation of any equipment that is “used or useful” for either interconnection or access to unbundled network elements, regardless of the other functionalities inherent in such equipment.²³ The court also vacated and remanded the requirement that incumbent LECs allow competitive LECs to construct cross-connects outside of their immediate physical collocation space.²⁴ Finally, the court vacated and remanded the *Advanced Services First Report and Order* to the extent it gave requesting carriers the option of selecting physical collocation space from among the unused space within the incumbent LEC’s premises, prohibited the incumbent from placing collocators in a room or isolated space separate from the incumbent’s own equipment, and precluded the incumbent from requiring competitors to use separate entrances to access their own equipment.²⁵ The D.C. Circuit found that the remanded rules “diverge[d] from any realistic meaning of the statute, because the Commission ha[d] favored the [incumbent] LECs’ competitors in ways that exceed what is ‘necessary’ to achieve reasonable ‘physical collocation’ and in ways that may result in unnecessary takings of [incumbent] LEC property.”²⁶

III. EXECUTIVE SUMMARY

12. We take several actions in this Fourth Report and Order, including:

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property leased from the incumbent LEC. *Advanced Services First Report and Order*, 14 FCC Rcd at 4786, para. 44.

²⁰ *Id.* at 4765, para. 8, & 4786-87, para. 45.

²¹ *Id.* at 4773-74, paras. 23-24.

²² *GTE v. FCC*, 205 F.3d at 420-27.

²³ *Id.* at 422-24.

²⁴ *Id.* at 423-24.

²⁵ *Id.* at 424-26.

²⁶ *Id.* at 421. Following the court’s decision in *GTE v. FCC*, the Commission issued a *Second Further Notice* to invite comment on what actions the Commission should take in response to the remand. This Notice invited comment on, among other matters, the definition of “necessary” as used in section 251(c)(6), whether section 251(c)(6) encompasses cross-connects between collocators, and what physical collocation requirements the Commission should adopt to replace those vacated by the court. *Second Further Notice*, 15 FCC Rcd at 17839-49, paras. 71-98.

- We find that equipment is “*necessary* for interconnection or access to unbundled network elements” within the meaning of section 251(c)(6) if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining interconnection or access to unbundled network elements as contemplated in sections 251(c)(2) and 251(c)(3).
- We find that multifunction equipment meets the “*necessary*” standard only if the primary purpose and function of the equipment, as the requesting carrier seeks to deploy it, are to provide the requesting carrier with “*equal in quality*” interconnection or “*nondiscriminatory access*” to one or more unbundled network elements. We also find that any function that would not meet our equipment standard as a stand-alone function must not cause the equipment to significantly increase the burden on the incumbent’s property.
- We conclude that switching and routing equipment typically meets our equipment standard because an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude a requesting carrier from obtaining nondiscriminatory access to an unbundled network element, the local loop. As a general matter, an incumbent LEC therefore must allow requesting carriers to collocate switching and routing equipment. An incumbent LEC, however, generally need not allow collocation of traditional circuit switches, which are very large pieces of equipment compared to newer, more advanced switching and routing equipment. We find, in light of the practical, economic, and operational availability of the relatively small switches and routers, that traditional circuit switches generally do not meet our equipment standard.
- We eliminate the Commission’s previous requirement, adopted pursuant to section 251(c)(6), that an incumbent LEC allow competitive LECs to construct and maintain cross-connects outside of their immediate physical collocation space at the incumbent’s premises. We find, however, that sections 201 and 251(c)(6) authorize us to require that an incumbent LEC provision cross-connects between collocated carriers, and we require that an incumbent LEC provide such cross-connects upon reasonable request.
- We eliminate rules that gave carriers requesting physical collocation the option of picking their physical collocation space from among the unused space in an incumbent LEC’s premises, that precluded an incumbent LEC from restricting physical collocation to space separated from space housing the incumbent’s equipment, and that precluded an incumbent from requiring the construction and use of a separate entrance to access physical collocation space. In their place, we establish principles to ensure that the incumbent LEC’s policies and practices in assigning and configuring physical collocation space are consistent with the

statutory requirement that the incumbent provide for physical collocation “on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.”²⁷

IV. DISCUSSION

A. Overview

13. On remand, we reinterpret section 251(c)(6) in light of the D.C. Circuit’s opinion. In the first section below, we interpret the term “necessary” as used in section 251(c)(6) by determining that equipment is eligible for collocation only if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining interconnection or access to unbundled network elements as contemplated in sections 251(c)(2) and 251(c)(3). In the second section below, we adopt a revised cross-connect rule that minimizes the intrusion into the incumbent LEC’s property interests but promotes Congress’ overall statutory purpose in fostering competition and technological innovation.²⁸ In the final section, we conclude that an incumbent LEC should have ultimate authority over assigning and configuring space within its premises, albeit with specific limitations that curtail its ability to use this authority in an anti-competitive manner.

14. We adopt these rule amendments to more appropriately implement the balances reflected in the statute, between promoting competition and technological innovation in all telecommunications markets, and establishing limits on the scope of the intrusion allowed into the incumbent LEC’s property rights to avoid unnecessary takings of such property. Nonetheless, through these amended rules, we reaffirm our commitment to ensuring that facilities-based competitors have the incentive and ability to invest in alternative infrastructure and innovative technologies, while, at the same time, ensuring that incumbents retain similar incentives and capabilities.

²⁷ The D.C. Circuit affirmed some of the rules adopted in the *Advanced Services First Report and Order*. The court upheld rules requiring incumbent LECs to expand their collocation offerings to include cageless and adjacent collocation, and to allocate the costs of preparing space for collocation among potential collocators, as well as the rule precluding incumbent LECs from imposing unreasonable minimum space requirements on collocators. See *GTE v. FCC*, 205 F.3d at 420-27. This Order does not address or change in any way those collocation rules that the court upheld. Nor does it change the Commission’s policy of encouraging the states to take an active role in resolving collocation disputes.

²⁸ We note that the statutory purpose of promoting competition, investment, and innovation is furthered through actions that enable both incumbent LECs and their competitors to compete in the provision of telecommunications services or to provide more innovative telecommunications services. In promoting these interests, we recognize that we must adopt rules that enable competition, investment, and innovation in furtherance of the public’s interest, not rules that merely favor one type of competitor over another. See *generally* Disney Comments at 3 (suggesting that the collocation rules should encourage deployment of as many broadband networks as possibly, as quickly as possible, in a competitive environment).

B. “Necessary” Equipment under Section 251(c)(6)

1. Background

15. Section 251(c)(6) of the Communications Act requires incumbent LECs to permit collocation of equipment “necessary for interconnection or access to unbundled network elements.”²⁹ In the *Local Competition Order*, the Commission interpreted section 251(c)(6) as requiring incumbent LECs to permit competitors to collocate equipment that is “used” or “useful” for either interconnection or access to unbundled network elements.³⁰ Consistent with this interpretation, the Commission concluded that competitive LECs may collocate transmission equipment, including optical terminating equipment and multiplexers, at incumbent LEC premises.³¹ The Commission also concluded that section 251(c)(6) does not require that an incumbent LEC permit the collocation of switching equipment or equipment used to provide enhanced services.³² The Commission recognized, however, that technological developments were tending to blur the line between multiplexing and switching, and indicated that it would reexamine the meaning of section 251(c)(6) if such action would further the 1996 Act’s procompetitive goals.³³

16. In the *Advanced Services First Report and Order*, the Commission did in fact reexamine the meaning of section 251(c)(6) and determined that it should be interpreted as requiring incumbent LECs to allow collocation of any equipment that is “used or useful” for either interconnection or access to unbundled network elements, regardless of whether such equipment includes a switching functionality, provides enhanced services capabilities, or offers other functionalities.³⁴ The Commission required incumbent LECs to permit collocation of such equipment as digital subscriber line access multiplexers (DSLAMs), routers, asynchronous transfer mode (ATM) multiplexers, and remote switching modules.³⁵ The Commission also concluded that an incumbent LEC must not limit a competitor’s ability to use all the features, functions, and capabilities of collocated equipment, including, but not limited to, switching and routing features and functions.³⁶

17. In *GTE v. FCC*, the D.C. Circuit determined that the Commission’s interpretation of “necessary” under section 251(c)(6) “seem[ed] overly broad and disconnected from [that

²⁹ 47 U.S.C. § 251(c)(6).

³⁰ *Local Competition Order*, 11 FCC Rcd at 15794-96, paras. 579-81.

³¹ *Id.* at 15794, para. 580.

³² *Id.* at 15794, para. 581.

³³ *Id.*

³⁴ *Advanced Services First Report and Order*, 14 FCC Rcd at 4776-77, para. 28.

³⁵ *Id.*

³⁶ *Id.*

provision's] statutory purpose.”³⁷ The court held that “a statutory reference to ‘necessary’ must be construed in a fashion that is consistent with the ordinary and fair meaning of the word, *i.e.*, so as to limit ‘necessary’ to that which is required to achieve a desired goal.”³⁸ The court was particularly concerned that the Commission’s construction “diverge[d] from any realistic meaning of the statute, because the Commission [had] favored the [incumbent] LEC’s competitors in ways that exceed what is ‘necessary’ to achieve reasonable ‘physical collocation’ and in ways that may result in unnecessary takings of [incumbent] LEC property.”³⁹ Concluding that the Commission’s construction of “necessary” in section 251(c)(6) failed to meet the statutory standard, the court vacated and remanded the *Advanced Services First Report and Order* to the extent it required that an incumbent LEC permit physical collocation of equipment that is not “directly related to and thus necessary, required, or indispensable to ‘interconnection or access to unbundled network elements.’”⁴⁰ The court made clear, however, that the Commission could construe “necessary” differently on remand as long as the Commission’s construction stayed “within the limits of ‘the ordinary and fair meaning’ of section 251(c)(6).”⁴¹

2. Meaning of “Necessary”

18. To determine the meaning of “necessary” as used in section 251(c)(6), we look first to the text of the statute. Section 251(c)(6) requires incumbent LECs to provide for “collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier”⁴² We agree with the D.C. Circuit and many of the commenters that “any search for [the] ‘plain meaning’” of “necessary” as used in this provision “is fruitless.”⁴³ As the D.C. Circuit’s opinion implicitly recognizes, “necessary” has varying degrees.⁴⁴ Neither the statutory language nor the legislative history reveals the

³⁷ *GTE v. FCC*, 205 F.3d at 422.

³⁸ *Id.* at 423.

³⁹ *Id.* at 421.

⁴⁰ *Id.* at 424.

⁴¹ *Id.* (quoting *AT&T v. Iowa Util. Bd.*, 525 U.S. at 390).

⁴² 47 U.S.C. § 251(c)(6).

⁴³ See, e.g., AT&T Comments at 9; Disney Comments at 5; Joint Commenters Comments at 18-19; Rhythms Comments at 3; see also *AT&T v. Iowa Utilities Bd.*, 525 U.S. at 397 (stating that the 1996 Act is “not a model of clarity”).

⁴⁴ *GTE v. FCC*, 205 F.3d at 423; accord *McCulloch v. Maryland*, 4 Wheat. 316, 414 (1819) (Marshall, C.J.) (“The word ‘necessary’ . . . has not a fixed character, peculiar to itself. . . . A thing may be necessary, very necessary, absolutely or indispensably necessary.”); *Milligan v. City of Red Oak, Iowa*, 230 F.3d 355, 359 (8th Cir. 2000) (*per curiam*) (under Iowa law, the test for determining whether a taking is “necessary” is whether the condemning authority can reasonably expect to achieve its public purpose); *Montana Power Co. v. Burlington Northern R.R. Co.*, 900 P.2d 888, 891 (Mont. 1995) (“necessary” means “reasonable, requisite, and proper for the accomplishment of the end in view”); see also *MCI Telecommunications Corp. v. American Telephone and Telegraph Co.*, 512 U.S. 218, 226 (1994) (“required” can mean either “demanded as essential” or “demanded as appropriate”) (internal quotation marks omitted).

degree of necessity that Congress intended to require in enacting section 251(c)(6).⁴⁵ We therefore look to the broader statutory scheme and the underlying policy goals to determine the meaning of “necessary” as used in section 251(c)(6).⁴⁶ As the court directed, however, any meaning we ascribe to that term must be “consistent with the ordinary and fair meaning of the word, *i.e.*, so as to limit ‘necessary’ to that which is required to achieve a desired goal.”⁴⁷

19. Section 251 establishes a list of requirements that apply to various types of telecommunications carriers. Section 251(c) sets out those that apply to incumbent LECs. Sections 251(c)(2) and 251(c)(3), in particular, impose interconnection and unbundled network element obligations on incumbent LECs. In addition, section 251(d)(2)(A) of the Act requires that, in determining which network elements should be unbundled under section 251(c)(3), the Commission must consider whether “access to such network elements as are proprietary in nature is *necessary*.”⁴⁸ Because sections 251(c)(6) and 251(d)(2)(A) both use the same term, “necessary,” in reference to the same concept, “access to [unbundled] network elements,” we believe it reasonable to interpret “necessary” in the two provisions similarly.

20. The similarity of purpose behind sections 251(c)(6) and 251(d)(2)(A) supports this view of “necessary.” These provisions grant competitors certain interconnection, unbundled access, and collocation rights in order to promote the public interests in competition and technological innovation. But as the Supreme Court determined with regard to unbundled network elements and the D.C. Circuit determined with regard to collocation, those rights are not unlimited.⁴⁹ Instead, we believe it reasonable to conclude that Congress used the term “necessary” in both provisions to balance two important, but potentially competing purposes. On the one hand, both provisions seek to promote competition and innovation through the grant of collocation rights and the right to access unbundled network elements. On the other hand,

⁴⁵ The legislative history makes clear that Congress intended to provide explicit statutory authorization for physical collocation, but does not define “necessary” or otherwise directly address what equipment an incumbent LEC must allow a requesting carrier to collocate. *See, e.g., Joint Explanatory Statement, supra* note 13, at 117-28; H. Rep. No. 104-204(1), 104th Cong., 1st Sess., 4 & 73 (1995) (1995 House Report); S. Rep. No. 104-23, 104th Cong., 1st Sess., 19-22 & 92 (1995) (1995 Senate Report); compare *Bell Atlantic Telephone Cos. v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994) (*Bell Atlantic I*) (holding that the Communications Act of 1934 did not authorize the Commission to require LECs to permit physical collocation of their property) with 140 Cong. Rec. H5216, 5230 (June 28, 1994) (statements of Rep. Markey) (stating 18 days after the decision in *Bell Atlantic I* that without an explicit physical collocation provision, the Commission will “lack[] the tools needed to pave a high quality and affordable information superhighway”).

⁴⁶ *See Bell Atlantic Tel. Cos. v. FCC*, 131 F.3d 1044, 1047 (D.C. Cir. 1997) (*Bell Atlantic II*); *Advanced Services Order*, 13 FCC Rcd 24045, para. 71; CTSI Comments at 7 (to properly interpret section 251(c)(6), the Commission should read statute in its entirety and in light of Congress’ objectives).

⁴⁷ *GTE v. FCC*, 205 F.3d at 423; *see AT&T v. Iowa Util. Bd.*, 525 U.S. at 388 (in determining the meaning of “necessary” under section 251(d)(2)(A), the Commission must “apply some limiting standard, rationally related to the goals of the Act”).

⁴⁸ 47 U.S.C. § 251(d)(2)(A) (emphasis added).

⁴⁹ *AT&T v. Iowa Util. Bd.*, 525 U.S. at 388; *GTE v. FCC*, 205 F.3d at 423.

both provisions seek to protect an incumbent LEC's legitimate property interests against *unwarranted* intrusion: in the case of section 251(d)(2)(A), the property is intellectual property; in the case of section 251(c)(6), it is real property.

21. Because of the similarities in statutory language and purpose, we believe it is reasonable to conclude that "necessary" in sections 251(c)(6) and 251(d)(2)(A) balances public and private interests in much the same manner. We therefore also conclude that our standard for determining which equipment is "necessary" within the meaning of section 251(c)(6) should be similar to our standard for determining which proprietary network elements are "necessary" within the meaning of section 251(d)(2)(A).⁵⁰ In the *UNE Remand Order*, we concluded that a proprietary network element is "necessary" within the meaning of section 251(d)(2)(A) if "lack of access to that element would, as a practical, economic, and operational matter, *preclude* a requesting carrier from providing the services it seeks to offer."⁵¹ Similarly, as we explain in more detail below, we now conclude that equipment is "necessary" for interconnection or access to unbundled network elements within the meaning of section 251(c)(6) if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining interconnection or access to unbundled network elements.⁵² As we also explain below, we conclude, in addition, that the scope of these collocation obligations are co-extensive with the interconnection and unbundled access obligations contained in sections 251(c)(2) and 251(c)(3).⁵³

22. In applying this equipment standard where multiple equipment options exist to provide interconnection or access to an unbundled network element, the parties must take into account the relative burdens that deployment of the different options would place on the incumbent LEC's property interests. Specifically, the record indicates that most telecommunications equipment will be available from multiple manufacturers, often in many different models.⁵⁴ Where the different options of "necessary" equipment impose roughly comparable demands on the incumbent's space and other resources, our standard allows the requesting carrier to choose which particular option to deploy.

⁵⁰ See Cisco Comments at 5-6; Supra Comments at 11; see also GSA Comments at 5-6 (arguing that a definition of "necessary" in section 251(c)(6) similar to that adopted for section 251(d)(2)(A) would appropriately ensure that a competitive LEC will not be required to implement impractical solutions, employ uneconomic network configurations, or breach reasonable operational constraints).

⁵¹ *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, 3721, at para. 44 (1999) (emphasis in original & subsequent history omitted) (*UNE Remand Order*).

⁵² See part IV.B.5, *infra* (addressing switching and routing equipment).

⁵³ See part IV.B.3, *infra*.

⁵⁴ See, e.g., Rhythms Comments at 13; Letter from Scott P. Anderson, Manager, Regulatory Affairs & Industry Relations, Broadslate Networks, to Magalie Roman Salas, Secretary, FCC, at 3-9 (filed Mar. 14, 2001) (*Broadslate Mar. 14, 2001 Letter*).

23. In some circumstances, however, implementing a particular equipment option might increase the overall demand on the incumbent's resources so significantly as to require the requesting carrier to choose a different option. For instance, extremely large equipment might require that the incumbent provide the requesting carrier with more total physical collocation space than would be required if other equipment were deployed. Similarly, extremely heavy equipment might require that the incumbent provide floor support beyond that typically available in the incumbent's premises. An incumbent also might have to upgrade otherwise sufficient power, air conditioning, heating, or similar plant in order to accommodate equipment that places unusually great demands on that infrastructure. We believe that a requesting carrier should not be considered practically, economically, or operationally precluded by an inability to deploy a particular piece of equipment, if deployment of that particular equipment would burden an incumbent's property interests, *and* alternative equipment not imposing such a burden were practically, economically, and operationally available to obtain interconnection or access to unbundled network elements, as described above.

24. We reject any suggestion that we must or should adopt a definition of "necessary" significantly different from that adopted with respect to section 251(d)(2)(A). We find that most of the alternative approaches proposed in the record either provide little additional guidance beyond the actual statutory language or do not provide an adequate limiting principle, as required by the D.C. Circuit's remand. For example, some of the suggested definitions fall outside the ordinary and fair meaning of "necessary" and therefore are inconsistent with the statute and the court's remand.⁵⁵ Other proposed definitions substitute equally vague synonyms for an already ambiguous statutory term.⁵⁶ Finally, some proposed definitions classify equipment as "necessary" on bases that appear unrelated to the statutory standard. For instance, certain competitive LECs appear to be equating the term "necessary" with any equipment that an incumbent deploys in its premises, regardless of its function.⁵⁷ We find these proposals inconsistent with both the language and purposes of section 251(c)(6).⁵⁸

⁵⁵ See, e.g., DSLnet Comments at 31 (arguing that any commercially available equipment that enables interconnection or access to unbundled network elements meets the "necessary" standard); Intraspan Comments at 7 (proposing that the marketplace should determine which equipment is "necessary"); NAS Comments at 2-6 (urging readoption of the "used or useful" standard).

⁵⁶ See, e.g., Conectiv Comments at iii; Telergy Comments at 3; SBC Comments at 14; Verizon Comments at 4-5.

⁵⁷ See, e.g., Corecomm Comments at 20; CTSI Comments at 6; Supra Comments at 10. An incumbent LEC, however, may use its premises for activities other than interconnecting or accessing the different parts of its network. The equipment an incumbent deploys within its premises therefore bears no intrinsic relationship to "equipment necessary for interconnection or access to unbundled network elements" in section 251(c)(6). See SBC Reply at 10-11; Verizon Reply at 6-8. Similarly, authorizing the collocation of any telecommunications-related equipment whose deployment would facilitate a competitive LEC's ability to compete, as Focal proposes, would give requesting carriers virtually unlimited access to an incumbent's property irrespective of any relationship between the equipment sought to be collocated and the collocater's ability to interconnect and access unbundled network elements. See Focal Comments at 3.

⁵⁸ See SBC Reply at 5-10.

25. We also reject the argument, advanced by some incumbent LECs and competitive LECs, that we should interpret “necessary” as modifying “physical collocation,” rather than “equipment” in section 251(c)(6).⁵⁹ Such a reading would wrongly place our focus on whether “collocation” of the equipment is necessary for interconnection and access to unbundled network elements as opposed to whether the equipment itself, regardless of its location in the network, is necessary for interconnection and access to unbundled network elements.⁶⁰ Section 251(c)(6), instead, provides “for *physical collocation of equipment necessary* for interconnection or access to unbundled network elements at the premises of the local exchange carrier”⁶¹ We find that the most natural reading of this statutory language is that “necessary” modifies “equipment.” Under this reading, we find that simple grammar dictates that the term “necessary” modifies “equipment” not “physical collocation,” which appears earlier in the statutory text.

26. We find, moreover, that this natural reading is consistent with the overall structure of section 251(c)(6). In addition to requiring physical collocation, section 251(c)(6) states that an incumbent LEC “may provide for virtual collocation if . . . physical collocation is not practical for technical reasons or because of space limitations.”⁶² Interpreting section 251(c)(6) as providing for the collocation of “necessary” equipment accords virtual collocation a logical role in the statutory scheme.⁶³ Specifically, under this interpretation, the incumbent LEC would have to allow collocation of any “necessary” equipment. This collocation normally would be physical; but where physical collocation is impractical, the incumbent could provide for virtual collocation.⁶⁴ In contrast, determining that “necessary” modifies “physical collocation” would result in a seemingly self-contradictory statute. Under that interpretation, section

⁵⁹ See, e.g., Joint Commenters Comments at 20-23; Qwest Comments at 3-4; Verizon Comments at 2-3; see also Comptel Comments at 4 (arguing that the Commission should focus on whether collocating equipment having a particular function makes the competitive LEC materially more efficient than if the function were provided from elsewhere). But see Telergy Comments at 14 (pointing out that collocation is not absolutely required for interconnection or access to unbundled network elements because alternatives, such a meet-point interconnection, are available); ATG Reply at 4 (same).

⁶⁰ Letter from Frank S. Simone, Government Affairs Director, AT&T, to Magalie Roman Salas, Secretary, FCC, at Att., p. 7 (filed Apr. 5, 2001) (*AT&T Apr. 5, 2001 Letter*) (stating that the plain terms of section 251(c)(6) focus not on whether equipment needs to be collocated, but simply on whether it is needed, broadly speaking, for interconnection or access to unbundled network elements).

⁶¹ 47 U.S.C. § 251(c)(6) (emphasis added).

⁶² *Id.*

⁶³ Section 251(c)(6) provides for “virtual collocation if the [incumbent] local exchange carrier demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations.” 47 U.S.C. § 251(c)(6).

⁶⁴ In note 14, *supra*, we define physical and virtual collocation.

251(c)(6) would provide for “physical collocation” whenever the “necessary” test is met, giving the option for virtual collocation no independent meaning.⁶⁵

3. Relationship with Sections 251(c)(2) and 251(c)(3)

27. Having defined the term “necessary,” we also must determine the scope of activities for which competitors are entitled to collocate. The specific statutory purpose for which an incumbent LEC’s competitors may collocate “necessary” equipment is for “interconnection or access to unbundled network elements.”⁶⁶ Several parties argue that “interconnection” as used in section 251(c)(6) refers to “interconnection” as used in section 251(c)(2) and “access to unbundled network” as used in section 251(c)(6) refers to “access to network elements on an unbundled basis” as used in section 251(c)(3).⁶⁷ We agree with these arguments. Because section 251(c), by its terms, applies only to incumbent LECs and because section 251(c)(6) references the same obligations – using virtually identical language – detailed in sections 251(c)(2) and 251(c)(3), we conclude that the most reasonable interpretation of the collocation obligations in section 251(c)(6) is that they are coextensive with the requirements of sections 251(c)(2) and 251(c)(3).⁶⁸ Accordingly, we find that section 251(c)(6) encompasses the scope of the interconnection and network access obligations imposed in sections 251(c)(2) and 251(c)(3).⁶⁹

28. The Communications Act and the Commission’s prior orders define the scope of the interconnection and network access obligations imposed in sections 251(c)(2) and 251(c)(3). Section 251(c)(2) requires each incumbent LEC “to provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the [incumbent LEC’s] network . . . for the transmission and routing of telephone exchange service and exchange access . . . at any technically feasible point within the [incumbent’s] network.”⁷⁰ This interconnection must be “at least equal in quality to that provided by the [incumbent] to itself or

⁶⁵ See, e.g., 1995 House Report, *supra* note 45, at 73 (stating that the “risk of discriminatory interconnection grows the farther one gets away from the central office” and that “for this reason, the legislation mandates actual, or physical, collocation,” except where physical collocation is impractical).

⁶⁶ 47 U.S.C. § 251(c)(6).

⁶⁷ See, e.g., AT&T Comments at 11-13; Joint Commenters Reply at 8-9; RCN Comments at 7; Telergy Comments at 16-17; Focal Reply at 9; *see also Bell Atlantic II*, 131 F.3d at 1047 (stating that “[c]ontext serves an especially important role in textual analysis of a statute when Congress has not expressed itself as unequivocally as might be wished”). *But see* SBC Reply at 7-9 (arguing, in effect, that an incumbent need not allow collocation of equipment “necessary” to achieve interconnection equal in quality to that which the incumbent provides itself or to access all the features, functions, and capabilities of an unbundled network element).

⁶⁸ See *WorldCom, Inc. v. FCC*, 246 F.3d 690, 694 (D.C. Cir. 2001) (noting relationship between collocation obligations and obligations under sections 251(c)(2) and 251(c)(3)); Corecomm Comments at 13; RCN Comments at 7.

⁶⁹ E.g., RCN Comments at 7; Joint Commenters Reply at 8-9;

⁷⁰ 47 U.S.C. § 251(c)(2).

to any subsidiary, affiliate, or any other party to which the [incumbent] provides interconnection; and . . . on rates, terms, and conditions that are just, reasonable, and nondiscriminatory”⁷¹ Section 251(c)(3) requires each incumbent LEC “to provide to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory”⁷² The Commission has required that an incumbent LEC must provide requesting carriers with nondiscriminatory access to all the features, functions, and capabilities of an unbundled network element.⁷³

29. Whether equipment is “necessary for interconnection” within the meaning of section 251(c)(6) logically depends on the equipment’s effect on the requesting carrier’s ability to obtain interconnection “equal” to that which the incumbent provides itself or others within the meaning of section 251(c)(2).⁷⁴ Similarly, whether equipment is “necessary for . . . access to unbundled network elements” within the meaning of section 251(c)(6) logically depends on the equipment’s effect on the requesting carrier’s ability to obtain “nondiscriminatory access” to unbundled network elements within the meaning of section 251(c)(3).⁷⁵ Otherwise, collocated equipment would provide interconnection and access different from (*i.e.*, either inferior or superior to) the quality provided for in sections 251(c)(2) and 251(c)(3).⁷⁶ We therefore conclude that section 251(c)(6) allows a requesting carrier to collocate any equipment necessary for obtaining equal interconnection or nondiscriminatory access to unbundled network elements as contemplated in sections 251(c)(2) and 251(c)(3).

30. In the *Local Competition Order*, the Commission concluded that the “equal in quality” standard in section 251(c)(2) requires that an incumbent LEC design interconnection facilities to meet the same technical criteria and service standards, including transmission standards, that are used within the incumbent’s own network.⁷⁷ Accordingly, applying the statutory standard set forth in section 251(c)(2), we conclude that section 251(c)(6) allows the interconnecting carrier to collocate any equipment necessary for interconnecting with the

⁷¹ 47 U.S.C. § 251(c)(2)(C)-(D).

⁷² 47 U.S.C. § 251(c)(3).

⁷³ 47 C.F.R. § 51.307(c); *see, e.g., UNE Remand Order*, 15 FCC Rcd at 3772-73, para. 167 (defining an unbundled local loop as including all the features, functions, and capabilities of the transmission facilities between an incumbent LEC’s central office and the loop demarcation point at the customer premises); *see also* DSLnet Comments at 28-29 (arguing that a requesting carrier must be able to employ equipment that can interact with the features, functions, and capabilities of unbundled network elements).

⁷⁴ *E.g.*, AT&T Comments at 13; Joint Commenters Comments at 24-26; RCN Comments at 7.

⁷⁵ *E.g.*, DSLnet Comments at 28; Telergy Comments at 3.

⁷⁶ *See, e.g.*, AT&T Comments at 12; Joint Commenters Comments at 24-26; RCN Comments at 7.

⁷⁷ *Local Competition Order*, 11 FCC Rcd at 15614-15, para. 224; *cf. Iowa Util. Bd. v. FCC*, 219 F.3d at 757 (finding it “self-evident that the Act prevents an [incumbent LEC] from discriminating between itself and a requesting competitor with respect to the quality of the interconnection provided”).

incumbent LEC at a level equal in quality to that which the incumbent obtains within its own network or the incumbent provides to any affiliate, subsidiary, or other party.⁷⁸

31. Similarly, as the Supreme Court held in *AT&T v. Iowa Util. Bd.*, a “network element” need not “be part of the physical facilities or equipment that an incumbent uses to provide local phone service.”⁷⁹ Rather, that statutory term includes, in addition to such facilities or equipment, the “features, functions, and capabilities” provided by such facilities or equipment.⁸⁰ Therefore, in order to obtain “nondiscriminatory access” to an unbundled network element within the meaning of section 251(c)(3), a carrier must be able to obtain more than mere access to the physical facilities and equipment included within the element.⁸¹ The carrier must instead be able to access all of the features, functions, and capabilities provided by means of the facilities and equipment.⁸² We therefore reject SBC’s position that requiring access to an element’s features, functions, and capabilities expands the meaning of “access” beyond statutory limits.⁸³ Instead, such a requirement properly recognizes that the statutory definition of “network element,” as interpreted by the Supreme Court, includes, in addition to “a facility or equipment used in the provision of a telecommunications service,” the “features, functions, and capabilities” provided by such facility or equipment.⁸⁴ Because the incumbent is able to access these features, functions, and capabilities, the nondiscrimination requirement in section 251(c)(3) mandates that the requesting carrier also be able to achieve similar access. Therefore, applying the statutory standard set forth in section 251(c)(3), we further conclude that section 251(c)(6) allows a requesting carrier to collocate any equipment necessary for obtaining

⁷⁸ See Cisco Comments at 9 (in the context of modern technology, quality of service functions are critical to an ability to interconnect); *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 2 (interconnection encompasses the ability to move traffic intelligently from point to point). Thus, for instance, if a link in the incumbent’s network is able to accommodate traffic with a particular throughput rate and quality of service, a carrier that requests and pays for a similar link must have the opportunity to transmit traffic through the interconnection with the same throughput rate and quality of service. See generally *AT&T Comments at Att. 2 (Frontera Declaration)*, pp. 9-13.

⁷⁹ See *AT&T v. Iowa Util. Bd.*, 525 U.S. at 387.

⁸⁰ 47 U.S.C. § 153(29); see *AT&T v. Iowa Util. Bd.*, 525 U.S. at 387 (holding that vertical switching features, such as call forwarding and call waiting, are functions that “fall squarely within the statutory definition” of network element).

⁸¹ See Telergy Comments at 16-17; *AT&T Reply at 12*; *AT&T Apr. 5, 2001 Letter*, *supra* note 60, at Att., pp. 4-5.

⁸² See, e.g., @link Comments at 20 (arguing that access to the features, functions, and capabilities of a unbundled network element is part of access to the unbundled network element); Conectiv Comments at 9 (maintaining that in order to access unbundled network elements effectively and on the same basis as incumbents, competitive LECs must deploy equipment fully capable of interacting with the elements’ features, functions, and capabilities); DSLnet Comments at 28-29; *AT&T Reply at 12*.

⁸³ See SBC Reply at 7.

⁸⁴ 47 U.S.C. § 153(29); see generally *AT&T v. Iowa Util. Bd.*, 525 U.S. at 387.

“nondiscriminatory access” to an unbundled network element, including any of its features, functions, or capabilities.⁸⁵

4. Multi-functional Equipment

32. Our standard for determining whether equipment is necessary requires that, absent deployment of the equipment, the requesting carrier would, as a practical, economic, or operational matter, be precluded from obtaining “equal in quality” interconnection or “nondiscriminatory access” to unbundled network elements from an incumbent LEC. Because the D.C. Circuit was particularly troubled by the Commission’s previous analysis of multi-functional equipment, we find it appropriate to elaborate on how this standard applies to this equipment, which we define as equipment that combines functions that meet our equipment standard with functions that would not meet that standard as stand-alone functions.⁸⁶ As the D.C. Circuit recognized, requiring that an incumbent LEC allow collocation of all multi-functional equipment regardless of the “unnecessary” functions that the equipment may be able to perform might unnecessarily take incumbent LEC property.⁸⁷ On the other hand, precluding collocation of equipment that provides even a single “unnecessary” function regardless of the “necessary” functions the equipment would perform, as a practical, economic, or operational matter, might relegate collocators to outmoded and inadequate technology in contravention of the procompetitive and innovation-enhancing statutory purposes.⁸⁸

33. The incumbent LECs deploy multi-functional equipment throughout their networks and thus are able to realize the productivity increases that developments in micro-processing, optical transmission, and other technologies offer.⁸⁹ We agree with several parties that the incumbent’s competitors also must be able to realize these same benefits in order to further Congress’ vision of a fully competitive telecommunications marketplace.⁹⁰ In addition,

⁸⁵ See, e.g., AT&T Comments at 12; Telergy Comments at 3-4 (for access to an unbundled network element to be meaningful, a requesting carrier must be able to take advantage of all the element’s feature, functions, and capabilities); AT&T Apr. 5, 2001 Letter, *supra* note 60, at Att., p. 5; Letter from Cristin L. Flynn, Associate Policy Counsel, Internet/Data Law & Policy, WorldCom, to Magalie Roman Salas, Secretary, FCC, at Att., p. 5 (filed Mar. 12, 2001) (*WorldCom Mar. 12, 2001 Letter*).

⁸⁶ For convenience, we refer to these functions as “necessary” functions and “additional” functions.

⁸⁷ *GTE v. FCC*, 205 F.3d at 421; see SBC Comments at 12; Letter from Priscilla Hill-Ardoin, Senior Vice-President, SBC, to Magalie Roman Salas, Secretary, FCC, at Att. (filed May 23, 2001) (*SBC May 23, 2001 Letter*).

⁸⁸ E.g., Joint Commenters Comments at 21; *Supra* Comments at 10.

⁸⁹ Letter from Teresa Marrero, Senior Attorney, AT&T, to Magalie Roman Salas, Secretary, FCC, at 4 (filed Feb. 21, 2001) (*AT&T Feb. 21, 2001 Letter*); *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 5.

⁹⁰ See, e.g., ATG Comments at 2 (precluding collocation and use of multi-functional equipment would severely hinder the emergence of telecommunications competition); Rhythms Comments at 16-18; Joint Commenters Reply at 12-13; Network Telephone Reply at 4 (Congress did not intend to deny competitive providers the benefits of efficient, technologically advanced equipment); *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 2 (competitive LECs that cannot collocate multi-functional equipment will be about as useful as telephone switch operators – unable to compete in today’s marketplace).

we conclude that allowing the collocation of multi-functional equipment is critical to the realization of Congress' goal of promoting competition and technological innovation. Specifically, multi-functional equipment is designed to enable telecommunications carriers, both incumbents and their competitors, to offer their customers an ever-increasing array of telecommunications services, including advanced services, with ever-increasing efficiency.⁹¹

34. We find that in certain circumstances collocation of multi-functional equipment is consistent with the statutory language and purposes. In doing so, we agree with Qwest and other commenters that one of the D.C. Circuit's principal concerns with respect to the Commission's prior equipment rule was its failure to establish any standard limiting the functions that a competitor could include in collocated multi-functional equipment.⁹² The court, however, did not foreclose a rule allowing collocation of at least some multi-functional equipment, provided the rule is consistent with the statutory language and purposes.⁹³

35. On remand, we adopt an approach for multi-functional equipment similar to that suggested by Qwest and generally supported by several other commenters.⁹⁴ In this regard, we believe it is important to point out that Qwest is both an incumbent LEC and a competitive LEC. As Qwest itself emphasizes, it is thus:

[B]oth a major purchaser and provider of collocation.
Accordingly, Qwest is in the unique position of having to balance the need and desire of a [competitive LEC] for collocation space for its own uses with the totally lawful desire of an incumbent LEC to make use of its own private property for its own uses.⁹⁵

Because we believe these to be factors about which the court expressed concern, we find Qwest's comments particularly persuasive.

36. We conclude that the best way to address the court's concerns regarding multi-functional equipment is to require an incumbent LEC to allow collocation of that equipment, if the primary purpose and function of the equipment, as the requesting carrier seeks to deploy it,

⁹¹ See, e.g., Rhythms Comments at 13-15; Tachion Comments at 2-3.

⁹² *GTE v. FCC*, 205 F.3d at 423; see, e.g., Telergy Comments at 16; RCN Comments at ii; Rhythms Comments at 4-5; Qwest Reply at 2-3.

⁹³ See *GTE v. FCC*, 205 F.3d at 423-24; Qwest Reply at 2-3; Letter from Frank S. Simone, Government Affairs Director, AT&T, to Magalie Roman Salas, Secretary, FCC, at 1 (filed Apr. 20, 2001) (*AT&T Apr. 20, 2001 Letter*). But see SBC Comments at 10-14 (arguing that court has determined that the Commission cannot under any circumstances require that an incumbent permit collocation of multi-functional equipment); Verizon Comments at 6-8.

⁹⁴ Qwest Comments at 3-4; see, e.g., Rhythms Reply at 2-3; Joint Commenters Reply at 5-6; Letter from Robert B. McKenna, Associate General Counsel, Qwest, to Magalie Roman Salas, Secretary, FCC, at Att., p.1 (filed Mar. 5, 2001) (*Mpower and Qwest Mar. 5, 2001 Letter*); *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 3.

⁹⁵ Qwest Comments at iii.

are to provide the requesting carrier with “equal in quality” interconnection or “nondiscriminatory access” to one or more unbundled network elements.⁹⁶ This condition is a direct application of the standard we adopt above for determining whether equipment is necessary within the meaning of section 251(c)(6). This condition recognizes the critical relationship between the equipment sought to be collocated and the specific interconnection or unbundled network elements the requesting carrier seeks from the incumbent LEC.⁹⁷ It will ensure that a requesting carrier will not include a “necessary” function in equipment solely as a pretext for assuring its collocation.

37. In applying this condition, the parties must consider the extent to which the particular equipment, as the requesting carrier seeks to deploy it, would perform functions that are practically, economically, or operationally necessary for that carrier to obtain “equal in quality” interconnection or “nondiscriminatory access” to one or more unbundled network elements, as opposed to functions that would not meet our equipment standard as stand-alone functions. In this regard, we agree with Qwest that the requesting carrier must be intending to utilize the equipment primarily to obtain “equal in quality” interconnection or “nondiscriminatory access” to one or more unbundled network elements.⁹⁸ We also find that, for purposes of determining whether a piece of equipment is to be utilized primarily to obtain “equal in quality” interconnection or “nondiscriminatory access” to one or more unbundled network elements, there must be a logical nexus between the additional functions the equipment would perform and the telecommunication services the requesting carrier seeks to provide to its customers by means of the interconnection or unbundled network element.⁹⁹ For instance, if a requesting carrier seeks to provide customers with telephone exchange service and exchange access, the additional functions should aid in the transmission or routing of those services.¹⁰⁰

38. We believe that limiting the functions that a requesting carrier may utilize in collocated multi-functional equipment in this manner reasonably balances the competing interests. As an initial matter, this approach properly recognizes that an incumbent LEC need not allow deployment of multi-functional equipment to the extent the requesting carrier intends to use it to perform functions, like payroll processing or certain types of data collection, that are unrelated to the requesting carrier’s ability to obtain “equal in quality” interconnection or “nondiscriminatory” access to unbundled network elements.¹⁰¹ But beyond that, this approach

⁹⁶ See Qwest Comments at 5; Gluon Comments at 4; *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 3.

⁹⁷ See paras. 28-29, *supra*.

⁹⁸ See Qwest Comments at 5; Gluon Comments at 4; *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 3.

⁹⁹ See ATG Comment at 3 (indicating that any additional function of collocated equipment that ATG might use are “inextricably intertwined with the primary use of the equipment such that the function cannot be removed”).

¹⁰⁰ See WorldCom Comments at 9.

¹⁰¹ See *GTE v. FCC*, 205 F.3d at 424; see NAS Comments at 5 (noting that manufacturers have no operational, economic, or technical incentive to integrate payroll and data collection into multi-functional equipment); *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 3.

also recognizes that, given the statutory requirement that an incumbent LEC provide for collocation of necessary “equipment,” rather than “necessary “functions,” application of our equipment standard to particular multi-functional equipment should focus on whether that equipment meets our equipment standard on an overall, as opposed to a function-by-function, basis.

39. In the context of multi-functional equipment and in light of the concerns expressed by the court, we believe that further refinement of our equipment standard is needed to ensure that the additional functions do not unnecessarily burden incumbent LEC property interests. Specifically, we find that the parties must consider whether the additional functions increase the overall demand on the incumbent’s space and other resources above the levels that would prevail if the functions were excluded from the equipment or not activated. If the increase in demand due to the inclusion of additional functions is significant, the equipment would fail to meet the “necessary” standard.¹⁰² For example, a difference in the demand on an incumbent’s space would be unacceptable if the incumbent had to reconfigure the outer boundaries of a carrier’s physical collocation space in order to accommodate the additional functions. Similarly, a difference in demand on an incumbent’s other resources would be unacceptable if the additional functions were to require that the incumbent provide floor support beyond that typically available in the incumbent’s premises in order to accommodate extremely heavy equipment or that the incumbent upgrade otherwise sufficient power, air conditioning, heating, or similar plant in order to accommodate equipment that places unusually great demand on that infrastructure.¹⁰³

¹⁰² See AT&T Comments at 18 (section 251(c)(6) requires incumbents to permit collocation of multi-functional equipment if the additional functions do not cause the equipment to consume appreciably more space than “single-use” equipment); *WorldCom Mar. 23, 2001 Letter*, *supra* note 7, at 3 (contending that the Commission could avoid any conceivable “takings” concerns by requiring that multi-functional equipment cannot occupy more space than similar equipment that provides only the interconnection and access functionality); *Salvaty v. Falcon Cable Television*, 165 Cal. App. 3d 798, 803, 212 Cal. Rptr. 31, 35 (Cal. Ct. App. 1985) (*Salvaty v. Falcon Cable*) (attachment of television cable held within the scope of easement permitting placement of poles with telephone and electrical wires on private property because “the addition of cable television equipment to a preexisting utility pole [did not] materially increase burden on [that] property); *accord* Joint Commenters Reply at 13 (arguing that incumbent LECs have not explained how using the additional functions of multi-functional equipment would constitute a greater taking than collocation of that equipment); see also *C/R TV, Inc. v. Shannondale, Inc.*, 27 F.3d 104, 107-08 (4th Cir. 1994) (*C/R TV v. Shannondale*) (examining whether proposed use would “substantially burden” private property as part of determination whether attaching television cable to poles falls within easement for the installation and maintenance of poles having telephone and electrical wires attached).

¹⁰³ A difference in the demands on an incumbent’s space would be insignificant if the incumbent did not have to reconfigure the outer boundary of a carrier’s collocation space in order to accommodate the additional functions. A difference in the demands on an incumbent’s other resources would be insignificant if the demands on those resources as a result of the additional functions were roughly comparably to (or less than) the levels that would prevail if those functions were excluded from the equipment or not activated. Thus, the incumbent’s property interests would not be burdened simply because the requested equipment is somewhat taller, wider, or heavier, requires marginally more power, produces marginally more heat, or requires some additional maintenance or repair than alternative equipment excluding those functions.

40. We find it reasonable to conclude that an incumbent's property interests (as opposed to its competitive interests) are not implicated by the inclusion of additional functions in collocated equipment or the requesting carrier's activation of those functions unless those actions affect the demand on the incumbent's space and other resources so significantly as to increase the relative burden on the incumbent's property interests.¹⁰⁴ We recognize that much, and perhaps most, of the multi-functional equipment that requesting carriers may wish to collocate is smaller (and therefore requires less space), requires less power, and generates less heat than any available single-function equipment.¹⁰⁵ Collocation of this multi-functional equipment therefore likely would not entail any appreciably greater imposition on the incumbent's space and supporting infrastructure than single-function equipment would entail. In addition, the record indicates that multi-functional equipment is rapidly replacing, if not making obsolete, single-function equipment.¹⁰⁶ To the extent single-function equipment is available, it is unlikely to place significantly lesser demand on the incumbent's space and supporting infrastructure than multi-functional equipment that meets our standard.¹⁰⁷ We therefore find that collocation of multi-functional equipment in the circumstances described above is consistent with the statutory language and purposes.

41. In finding that in certain circumstances collocation of multi-functional equipment is consistent with the statutory language and purposes, we reject, on the one hand, positions that would result in a blanket prohibition of multi-functional equipment and, on the other hand, proposals that would result in the adoption of a standard without real limiting principles. Specifically, we reject BellSouth's, SBC's, and Verizon's argument that an incumbent LEC must be allowed to preclude collocation of any equipment that includes one or more functionalities whose deployment is "unnecessary" for interconnection or access to unbundled network elements.¹⁰⁸ We find this approach to be unreasonably narrow and disconnected from the statutory purposes.¹⁰⁹ As an initial matter, we are not persuaded by BellSouth's, SBC's, and

¹⁰⁴ See AT&T Comments at 18-19; CompTel Reply at 4 (asserting that incumbents that are truly concerned about space considerations would not seek to foreclose collocation of all multi-functional equipment); Qwest Reply at 4-5 (characterizing as "not well-founded" the suggestion that collocation of multi-functional equipment will necessarily lead to a taking of more incumbent LEC space than the Communication Act authorizes); see also *Salvaty v. Falcon Cable*, 165 Cal. App. 3d at 803, 212 Cal. Rptr. at 35; *C/R TV v. Shannondale*, 27 F.3d at 107-08. But see Letter from Michael K. Kellogg, Counsel for SBC, to Magalie Roman Salas, Secretary, FCC, at 3-4 (filed Feb. 1, 2001) (*SBC Feb. 1, 2001 Letter*) (arguing that statute limits scope of authorized collocation by reference to equipment's functions and that collocation of additional functions would impermissibly take incumbent LEC property).

¹⁰⁵ @tlink Comments at 24-25; Nortel Comments at 5 (with today's technology, single-function equipment is unlikely to be small or consume less space than multi-functional equipment).

¹⁰⁶ See, e.g., Rhythms Comments at 13-14.

¹⁰⁷ ATG Comments at 4 (contending that collocation of innovative equipment reduces the imposition on an incumbent's property interests that a collocater causes) & Att. 1, p. 1 (asserting that the multifunctional equipment now being developed conforms to accepted compliance standards for space, power, and heat dissipation).

¹⁰⁸ BellSouth Comments at 5; SBC Comments at 10-11; Verizon Comments at 6.

¹⁰⁹ See Florida Commission Comments at 3 (arguing that it would be unreasonable to conclude that a specific type of equipment may be collocated only if its sole purpose interconnection or access to unbundled network elements); (continued....)

Verizon's argument that the statute compels this approach. On the contrary, this approach would require that section 251(c)(6) limit requesting carriers to collocation of "*functionalities* necessary for interconnection or access to unbundled network elements."¹¹⁰ We find no basis in the statutory language, broader statutory scheme, or the legislative history for interpreting the statute in this way. Rather, we find it telling that, in the 1996 Act, Congress carefully distinguished between equipment and its functions when it wanted to do so.¹¹¹ Thus, we do not find that section 251(c)(6) compels that an incumbent must be able to exclude from collocation any equipment that contains a single functionality that, if offered on a stand-alone basis, would be deemed "unnecessary" for interconnection or access to unbundled network elements.

42. As discussed above,¹¹² section 251(c)(6) reflects the congressional desire to promote competition and technological innovation, while recognizing the incumbent's interest in using and managing its property. BellSouth's, SBC's, and Verizon's approach toward multi-functional equipment fails to balance these congressional goals, instead focusing solely on the impact multi-functional equipment may have on their property interests.¹¹³ We believe that our approach reasonably balances these interests because it imposes limits on a requesting carrier's ability to collocate and deploy multi-functional equipment that protect the incumbent's property against burdensome intrusions, while permitting requesting carriers a degree of freedom to choose the equipment that best fits their technical and competitive needs.¹¹⁴

43. At the other extreme, the proposals of some competitive LECs that would give requesting carriers virtually unrestricted rights regarding multi-functional equipment would allow, at least conceptually, the collocation and activation of a vast array of multi-functional equipment without regard to the effect such actions would have on the incumbents' ability to use

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Tachion Comments at 4 (artificially "dis-integrating" technology or precluding new entrants from using available functions in collocated equipment would create an enormous barrier to competition).

¹¹⁰ See *SBC Feb. 1, 2001 Letter*, *supra* note 104, at 3.

¹¹¹ See, e.g., 47 U.S.C. § 153(29) (definition of network element).

¹¹² See para. 20, *supra*.

¹¹³ See generally RCN Comments at 14 (maintaining that precluding collocation of multi-functional equipment would thwart competition).

¹¹⁴ See, e.g., Cisco Comments at 11 (observing that limiting the functions that qualify for collocation would place additional burdens on an incumbent's space and other resources); Florida Commission Comments 3 (contending that it is appropriate to consider breadth of multi-functional equipment and its use for interconnection or access to unbundled network elements relative to other purposes); Gluon Comments at 3 (asserting that market-opening provisions of 1996 Act would have no point if restrictive equipment functionality were to create artificial barriers to entry); NAS Comments at 6 (contending that precluding collocation of multi-functional equipment would stifle technological innovation); ATG Reply at 3-4; Letter from Christine Mailloux, Regulatory Strategist, Copper Mountain, to Magalie Roman Salas, Secretary, FCC, at 3 (filed May 23, 2001) (*Copper Mountain May 23, 2001 Letter*) (maintaining that overly rigid collocation rules would discourage innovation and widespread deployment of affordable broadband services).

and manage their own property.¹¹⁵ While collocation of this equipment might marginally increase a requesting carrier's ability to compete, such an increase simply does not make any particular piece of equipment "necessary for interconnection or access to unbundled network elements" within the meaning of section 251(c)(6).¹¹⁶ We find that a more balanced approach, as described above, more appropriately advances the congressional goal of promoting competition and technological innovation without unnecessarily infringing on an incumbent's property interests.

5. Other Equipment

44. A number of commenters, including ATG and Sprint, ask that we determine that certain types of equipment are "necessary for interconnection or access to unbundled network elements" within the meaning of section 251(c)(6).¹¹⁷ This equipment includes optical terminating equipment, fiber distribution frames, ATM multiplexers, concentration devices, DSLAMs, and microwave transmission facilities,¹¹⁸ as well as splitters,¹¹⁹ equipment to light dark fiber,¹²⁰ and ancillary equipment that enables a requesting carrier to assure proper provisioning and functioning of other collocated equipment.¹²¹ For the most part, there is little,

¹¹⁵ See, e.g., Connectiv Comments at 12 (arguing that incumbent LECs should be required to allow collocation of any multi-functional equipment that contains features or functions that enable interconnection or access to unbundled network elements); Covad Comments at 16 (proposing that a requesting carrier be able to collocate any equipment that performs a function necessary for interconnection or access to unbundled network elements); Focal Comments at 12-13 (proposing that a requesting carrier be able to collocate any multi-functional equipment that, as a technical matter, may feasibly be deployed at the incumbent's premises if deployment would facilitate the requesting carrier's ability to compete).

¹¹⁶ See *GTE v. FCC*, 205 F.3d at 424; see also *AT&T v. Iowa Util. Bd.*, 525 U.S. at 389-90.

¹¹⁷ E.g., AT&T Comments at 20-24; ATG Comments at 2-3 & Att. 1, pp. 2-3; Joint Commenters Comments at 28-29; Northpoint Comments at 3-4; Sprint Comments at 5-7.

¹¹⁸ E.g., AT&T Comments at 20-23 (transmission equipment, including DSLAMs); ATG Comments at 3 & Att. 1, pp. 2-3 (concentrators, transport equipment, cross-connect systems, multiplexers, DSLAMs, and power distribution equipment); Joint Commenters Comments at 28-29 (transmission equipment, including optical terminating equipment, concentrators, multiplexers); MFN Comments at 13-14 (fiber distribution frames); NAS Comments at 8-14 (arguing that competitive LECs cannot, as a practical, economic, or operational matter, provide digital subscriber line (DSL) service without DSLAMs and ATM equipment); Northpoint Comments at 5-8 (aggregation devices and DSLAMs); Verizon Comments at 7 (classifying as "necessary" multiplexers, concentrators, and DSLAMs used in connection with DSL services); Sprint Comments at 8-9 (ATM multiplexers, DSLAMs, fiber optic terminating equipment, and cross-connect panels); Winstar Comments at 1-6 (microwave transmission facilities).

¹¹⁹ E.g., Sprint Comments at 9.

¹²⁰ Cisco Comments at 7.

¹²¹ See, e.g., Gluon Comments at 3-4 (maintaining that requesting carriers should be able to add equipment management software to collocated equipment); Sprint Comments at 8-9 (referring to network management devices, testing equipment, portable testing equipment, test heads, surveillance equipment, fuse and alarm panels, timing sources, and cabinets for spares); WorldCom Reply at 8-9 (indicating that absent the ability to collocate remote surveillance and telemetry equipment, a carrier could not practicably assure the integrity or proper operation of collocated equipment).

if any, controversy regarding the equipment these commenters seek to collocate.¹²² Because we anticipate that incumbents will allow collocation of the non-controversial equipment without further regulatory intervention, we find no need to address whether much of the equipment these commenters seek to collocate meets the equipment standard we adopt in this Order.¹²³ We also are concerned that any list of “necessary” equipment we might develop would quickly become obsolete as manufacturers develop, and carriers deploy in new ways, the ever-increasing array of equipment that technological advances have made possible. A decision on our part that a particular type of equipment is “unnecessary,” given today’s network architectures, might impede the development of new architectures that expand the services carriers are able to provide their customers.¹²⁴

45. The main controversy on this record with regard to single-function equipment concerns equipment having switching or routing capability.¹²⁵ Competitive LECs maintain that they must perform switching and routing functions to access unbundled local loops, and therefore must be able to collocate switching or routing equipment. As explained below, we now agree with competitive LECs that switching or routing capability is necessary to access all the features, functions, and capabilities of unbundled local loops. Specifically, as discussed below, we find that, in certain instances, switching and routing equipment meets our equipment standard and is thus “necessary” equipment entitled to collocation pursuant to section 251(c)(6).¹²⁶

46. Under section 251(c)(3), requesting carriers are entitled to access all the features, functions and capabilities of unbundled network elements. The Commission has previously held that this means that competitors are entitled to more than mere physical access to unbundled local loops.¹²⁷ Switching and routing equipment allows a competitor to access the features, functions, and capabilities that accommodate the transmission of voice and data traffic over that loop, between the end user and the specified destination.¹²⁸ For purposes of section 251(c)(3),

¹²² Compare, e.g., Sprint Comments at 8-9 (proposing “safe harbor” list of equipment) with Letter from Richard Juhnke, General Attorney, Sprint, to Magalie Roman Salas, Secretary, FCC, at Att., p. 1 (filed Apr. 26, 2001) (*Sprint Apr. 26, 2001 Letter*) (stating that incumbents have not resisted collocation of equipment on proposed “safe harbor” list). But see SBC Reply at 17-21 (arguing that some of the equipment listed by Sprint falls outside SBC’s proposed definition of “necessary”).

¹²³ See AT&T Comments at 20 (observing that the Commission cannot possibly, in the face of rapidly changing technology, determine in advance whether each type of equipment qualifies for collocation).

¹²⁴ Letter from Kathleen, M. Marshall, Executive Director, ATG, to William A. Kehoe III, Special Counsel, FCC, at 2 (filed Feb. 25, 2001) (*ATG Feb. 25, 2001 Letter*).

¹²⁵ See Letter from W. Scott Randolph, Director – Regulatory Affairs, Verizon, to Magalie Roman Salas, Secretary, FCC, at Att., p. 5 (filed May 25, 2001) (*Verizon May 25, 2001 Letter*).

¹²⁶ As explained below, application of our equipment standard may allow for certain specific types of switches or routers, but not others. See paras. 46-48, *infra*.

¹²⁷ *UNE Remand Order*, 15 FCC Rcd at 3772-73, para. 167; see 47 C.F.R. § 51.307(c).

¹²⁸ Cf. 47 U.S.C. § 153(43) (defining “telecommunications”).

we believe that a switch or router provides a requesting carrier with access to the local loop in a manner functionally equivalent to a DSLAM, the equipment incumbents and their competitors deploy to access the local loop's capability of providing xDSL services and which most commenters, including several incumbent LECS, concede satisfies the "necessary" standard.¹²⁹ Without equipment such as a DSLAM, switch, or router, the local loop is merely a transmission medium theoretically capable of carrying telecommunications traffic. To access an unbundled local loop's theoretical capability of providing a telecommunications service, *i.e.*, of accommodating the transmission of information "between or among points specified by the user,"¹³⁰ a requesting carrier must, as a practical, economic, and operational matter, be able to switch or route traffic to or from that loop. Therefore, switching and routing equipment is necessary for accessing all the features, functions, and capabilities of an unbundled local loop that facilitate the transmission of telecommunications traffic.¹³¹

47. As explained above,¹³² however, an inability to deploy a particular piece of switching or routing equipment may not preclude a requesting carrier from obtaining interconnection or obtaining access to unbundled network elements, if deployment of that particular equipment would burden an incumbent's property interests *and* alternative equipment not imposing such a burden were practically, economically, and operationally available to obtain interconnection or access to unbundled network elements consistent with sections 251(c)(2) and 251(c)(3). We find this statement particularly applicable to switching and routing equipment because certain types of switches and routers are dramatically smaller than others, and thus impose significantly lesser burdens on an incumbent's property interests if collocated. Specifically, technological advances have enabled manufacturers to develop relatively small makes and models of switches and routers that resemble and generally are roughly the same size as consumer electronics equipment, such as stereos.¹³³ We conclude that as a practical, economic, and operational matter, this innovative equipment is available to a requesting carrier to access those features, functions, and capabilities of unbundled local loops for which switching or routing is needed.

48. Although application of our equipment standard would allow these smaller types of switches and routers to be collocated, it will not generally allow collocation of the circuit switches traditionally used to provide telecommunications services. These circuit switches are

¹²⁹ See, *e.g.*, Qwest Comments at 13-14; Sprint Comments at 8; Verizon Comments at 7.

¹³⁰ See 47 U.S.C. §§ 153(43), 153(45) (defining "telecommunications" and "telecommunications service").

¹³¹ See paragraph 53, *infra*, for examples of functions that carriers may not collocate under our equipment standard.

¹³² See para. 23, *supra*.

¹³³ *E.g.*, Corecomm Comments at 27; Nortel Comments at 2-3. This equipment includes remote switching modules, which are small switches that are used in conjunction with host switches located in different premises. *E.g.*, AT&T Comments at 25 & Att. 2 (Culmone Declaration), pp. 11-12.

very large pieces of equipment.¹³⁴ For instance, the circuit switches typically available in 1996 for deployment in incumbent LECs' central offices are approximately 100 times the size of the more modern switches and routers that equipment manufacturers have been able to develop. The traditional circuit switches require a separate room; several of the more modern switches and routers can fit comfortably within a typical 10-foot by 10-foot collocation cage.¹³⁵ We agree with SBC and Verizon that traditional circuit switching equipment is generally not "necessary" within the meaning of section 251(c)(6) because a requesting carrier would not be practically, economically, or operationally precluded from interconnecting or accessing unbundled network elements pursuant to sections 251(c)(2) and 251(c)(3) if it could not deploy this traditional circuit switching equipment.¹³⁶ Specifically, in light of the practical, economic, and operational availability of newer and much smaller switches and routers as well as the lesser burden collocation of that equipment imposes on an incumbent's property interest, we find that traditional circuit switches generally do not meet the equipment standard we adopt today.¹³⁷

49. We emphasize that this finding does not mean that an incumbent LEC's competitors are entitled to collocate any equipment that utilizes the features, functions, and capabilities of the local loop. Section 251(c)(3) provides only telecommunications carriers with the ability to access unbundled network elements. Therefore, parties seeking to use the local loop, for example, only to deliver information services do not have rights under section 251(c)(3) to access that unbundled network element. Since section 251(c)(6) incorporates the obligations and limitations contained in sections 251(c)(2) and 251(c)(3), an incumbent LEC need not allow these parties to collocate such equipment.

50. We recognize that this conclusion differs from the Commission's prior holding that stand-alone switches or routers are not entitled to collocation pursuant to section 251(c)(6) in any instance.¹³⁸ We find here, however, that the Commission's prior analyses of the statutory standard were incomplete because they did not fully address the different purposes for which requesting carriers might deploy "necessary" equipment. For instance, in the *Local Competition Order*, the Commission, in finding switching equipment unnecessary, stated that "it [did] not appear that [this equipment] is used for the actual interconnection or access to unbundled

¹³⁴ E.g., Corecomm Comments at 27 (stating that a traditional circuit switch requires hundreds of square feet of floor space, while several modern switches or routers can fit comfortably within the space of a typical collocation area).

¹³⁵ Corecomm Comments at 27; DSLnet Comments at 32; Telergy Comments at 28.

¹³⁶ See paras. 21-23, *supra*; SBC Comments at 14; Verizon Reply at 2-3; *SBC May 23, 2001 Letter*, *supra* note 87, at Att.; see also AT&T Reply at 34.

¹³⁷ We note that the record indicates that equipment housing newer, packet-based switching and routing technology generally is dramatically smaller than traditional, circuit switches and continues to evolve through the use of even smaller components. See, e.g., AT&T Comments at 25-26; Cisco Comments at 7; Tachion Comments at 2; AT&T Reply at 23. To the extent this trend does not continue in the future and, instead, the size of switching and routing equipment begins to significantly increase, we may need to revisit our finding.

¹³⁸ See *Advanced Services First Report and Order*, 14 FCC Rcd at 4778-79, para. 31; *Local Competition Order*, 11 FCC Rcd at 15794, para. 581.

network elements.”¹³⁹ Subsequently, in the *Advanced Services First Report and Order*, the Commission declined to classify equipment used exclusively for switching as “necessary,” because it did “not find sufficient support in the record at this time for such a requirement.”¹⁴⁰ In neither case did the Commission explain how a requesting carrier could access all the features, functions, and capabilities of a local loop without switching or routing equipment.¹⁴¹

51. We now have the benefit of a greatly expanded record that reflects both the parties’ several years of experience with the unbundled network access regime established in the 1996 Act as well as the technical expertise of many equipment manufacturers.¹⁴² This greatly expanded record has enabled us to refine our analysis within the framework the D.C. Circuit established and the equipment standard we adopt in accordance with that framework.¹⁴³ Based on this record, we are now convinced that, as a practical, economic, or operational matter, a requesting carrier may require switching or routing equipment to be able to access all of the features, functions, or capabilities of unbundled local loops.

52. Although we find, in a reversal of the Commission’s previous findings in the 1996 *Local Competition Order* and *Advanced Services First Report and Order*, that switching and routing equipment satisfy the “necessary” standard in certain instances, we emphasize that our equipment standard has clear limiting principles that operate to provide more definitive boundaries than the Commission’s previous standard. The Commission’s previous standard, as applied in the *Advanced Services First Report and Order*, provided requesting carriers with virtually limitless control over the types of equipment that they could collocate.

53. The equipment standard we adopt today places clear limits on the types of functions for which competitors may collocate equipment. Our standard does not allow competitors to collocate much of the equipment that they must rely on to operate, service, and support their own networks. Therefore, our standard would not result in an incumbent LEC’s premises being used by a competitor to house all of the equipment necessary to operate, service, and support its own network. For example, our standard would not require that an incumbent LEC allow collocation of equipment used exclusively for call-related databases, computer servers used exclusively for providing information services, and a whole host of operations

¹³⁹ *Local Competition Order*, 11 FCC Rcd at 15795, para. 581.

¹⁴⁰ *Advanced Services First Report and Order*, 14 FCC Rcd at 4778-79, para. 31.

¹⁴¹ See Cisco Comments at 7 (noting that the treatment of switching in the *Local Competition Order* focused solely on interconnection for circuit-switched technologies); Corecomm Comments at 22 (pointing out that the Commission has never found that switches do not perform interconnection or network access functions).

¹⁴² See, e.g., *Copper Mountain Mar. 1, 2001 Letter*, *supra* note 7, at 1-2; Gluon Comments at 2-3; AT&T Comments at 24-32.

¹⁴³ See generally Telergy Comments at 28-29 (arguing that we must periodically review our collocation rules in light of technological developments); Letter from Frank S. Simone, Government Affairs Director, AT&T, to Magalie Roman Salas, Secretary, FCC, at Att. 2 (Physical Collocation White Paper), p. 5 (filed Dec. 12, 2001) (*AT&T Dec. 12, 2001 Letter*) (maintaining that the Commission is entitled, if not obligated, to reassess whether it can require that incumbents permit collocation of switching equipment).

support system (OSS) equipment that most competitors must rely on to support their network operations. Nor would our standard let a requesting carrier insist on collocating equipment that generates customer orders, manages trouble tickets or inventory, or stores customer records in centralized databases.¹⁴⁴ In addition, in the multifunction context, our standard places significant limits on the ability to collocate multifunction equipment by ensuring that the equipment's primary functionality is used for interconnection or accessing unbundled network elements while ensuring that multifunction equipment places no greater relative burden on the incumbent's property than comparable single-function equipment. The Commission's previous test did not place such clear limits on the types of equipment that are eligible for collocation. Finally, equipment that does not provide telecommunications services would not qualify for collocation under our standard.

54. We believe our standard reasonably reflects the balance required by section 251(c)(6)'s cross-purposes of promoting competition and innovation while ensuring adequate protection of the incumbent LECs' legitimate property interests. On one hand, our standard ensures that an incumbent LEC's telecommunications competitors cannot place equipment in collocation space with unfettered discretion, but rather must limit their collocation choices to equipment that is necessary for these carriers to achieve the enunciated statutory purposes of interconnection and access of unbundled network elements. On the other hand, it ensures that incumbent LECs cannot exercise *de facto* veto power over their collocated competitors' choice of equipment and network architecture, and instead grants competitors sufficient flexibility with which to make reasonable equipment choices that overcome practical, economic, and operational constraints in a manner that protects the incumbent's property interests.

C. Cross-Connections Between Collocators

55. In the *Local Competition Order*, the Commission required incumbent LECs to provision (*i.e.*, install and maintain) cross-connects to allow a collocator to connect its collocated equipment to the collocated equipment of another carrier within the same incumbent LEC premises so long as each collocator's equipment was used for interconnection with the incumbent or access to the incumbent's unbundled network elements.¹⁴⁵ In the *Advanced Services First Report and Order*, the Commission further required incumbent LECs to permit collocating carriers to provision their own cross-connect facilities between equipment collocated

¹⁴⁴ See generally *ATG Feb. 25, 2001 Letter*, *supra* note 124, at 3-4; *ATG Feb. 25, 2001 Letter*, *supra* note 124, at 3-4. We note that as network architectures and equipment offerings evolve, additional types of equipment may become "necessary" to obtaining "equal in quality" interconnection or "nondiscriminatory" access to unbundled network elements. We do not preclude a requesting carrier from asserting that any particular telecommunications-related function meets our equipment standard.

¹⁴⁵ *Local Competition Order*, 11 FCC Rcd at 15801-02, para. 594-95. This rule was never directly challenged on appeal. See generally *Iowa Util. Bd. v. FCC*, 120 F.3d at 818 (finding the Commission's rules and policies regarding an incumbent LEC's duty to provide physical collocation to be consistent with section 251(c)(6)).

at the incumbent's premises, subject only to the same reasonable safety requirements the incumbent places on its own facilities.¹⁴⁶

56. In *GTE v. FCC*, the D.C. Circuit vacated and remanded the cross-connects rule adopted in the *Advanced Services First Report and Order*.¹⁴⁷ The court stated that “requiring [incumbent] LECs to allow collocating competitors to interconnect their equipment with other collocating carriers . . . imposes an obligation on [incumbent] LECs that has no apparent basis in the statute.”¹⁴⁸ The court found that the Commission had not shown that cross-connects between collocators are “necessary for interconnection or access to unbundled network elements” within the meaning of that provision.¹⁴⁹

57. In the *Second Further Notice*, the Commission invited comment on whether section 251(c)(6) encompasses cross-connects between collocators.¹⁵⁰ The Commission also invited comment on whether it may, pursuant to section 251(c)(6), require that an incumbent LEC permit collocators to construct their own cross-connects as opposed to obtaining them from the incumbent.¹⁵¹ The Commission invited comment, in addition, on whether it may require an incumbent LEC to provide physical connections between two collocators pursuant to any other provision of the Communications Act.¹⁵²

58. As an initial matter, we believe it is important to define cross-connects and describe how prevalent they are in a typical central office. “A cross-connection [or cross-connect] is a cabling scheme between cabling runs, subsystems, and equipment using patch cords or jumper wires that attach to connection hardware on each end.”¹⁵³ Typically, in a central office, the cabling scheme might run from a piece of equipment up into an overhead racking system, through that system and down from the racks to connect with another piece of equipment. Cross-connects can run through the main distribution frame or an intermediate distribution frame when being used to connect two pieces of equipment or when being used to connect equipment to a transmission facility, such as a loop or trunk. When two pieces of

¹⁴⁶ *Advanced Services First Report and Order*, 14 FCC Rcd at 4779-80, para. 33.

¹⁴⁷ *GTE v. FCC*, 205 F.3d at 423-24 (vacating and remanding “offending portions” of the *Advanced Services First Report and Order*).

¹⁴⁸ *Id.* at 423.

¹⁴⁹ *Id.*

¹⁵⁰ *Second Further Notice*, 15 FCC Rcd at 17846, para. 88.

¹⁵¹ *Id.* at 17847, para. 91.

¹⁵² *Id.* at 17846, para. 89.

¹⁵³ John Vacca, *The Cabling Handbook*, 151 (Prentice Hall 1998). As used in this definition, a cabling run includes dark fiber; see also Newton's *Telecom Dictionary*, 206 (15th ed. 1999) (a cross-connection or cross-connect is “[a] connection scheme between cabling runs, subsystems, and equipment using patch cords or jumpers that attach to connecting hardware on each end”); see also *UNE Remand Order*, 15 FCC Rcd at 3778, n.332.

equipment are in close proximity to each other, the cross-connect may progress directly from one piece of equipment to the other without entering the racking system. Cross-connects generally are present throughout the incumbent's premises. Cross-connects interconnect incumbent LEC equipment to other incumbent LEC equipment and incumbent LEC equipment to collocator equipment. Cross-connects also interconnect one piece of a collocator's equipment to another piece of that collocator's equipment. Finally, because of the Commission's previous cross-connect rule adopted in the *Local Competition Order*, cross-connects have been used to interconnect one collocator's equipment to another collocator's equipment.¹⁵⁴

59. At issue in this *Order* are the cables that cross-connect two collocated competitive LECs. As explained below, we find that, in light of *GTE v. FCC*, we may not require an incumbent LEC to allow competitive LECs to provision cross-connects outside of their immediate physical collocation space at the incumbent's premises. However, we find that pursuant to section 201 that it would be unjust and unreasonable for an incumbent LEC to refuse to provision cross-connects between two collocated competitive LECs. We also find that, in the alternative, such a refusal would be unjust, unreasonable, and discriminatory within the meaning of section 251(c)(6). Accordingly, we return to the obligations set forth in the *Local Competition Order* that required incumbent LECs to provision cross-connects to collocators.

60. We find that there are significant differences between requiring the incumbent to provision the cross-connects for collocated competitive LECs and requiring an incumbent LEC to allow competitive LECs to provision cross-connects within the incumbent's premises. First, there is a fundamental difference as to who owns and controls the cross-connect cabling. When competitive LECs provision their own cross-connects, the competitive LECs own and control the cabling; whereas, when the incumbent provisions the cross-connects, the incumbent owns and controls the cabling. Second, for competitive LECs to provision cross-connects, they typically must access common areas, which may include a racking system, of the incumbent's premises to install and maintain the cross-connects.¹⁵⁵ In contrast, if the incumbent provisions the cross-connects, the competitive LECs need not have access to the common areas for the purpose of provisioning the cross-connects. Thus, the latter approach is substantially less invasive of the incumbent's property rights (*e.g.*, in terms of security, safety, and risk to incumbent LEC equipment).¹⁵⁶

¹⁵⁴ See *Local Competition Order*, 11 FCC Rcd at 15801-02, para. 594.

¹⁵⁵ As used in this *Order*, "common areas" refers to areas on an incumbent LEC's premises outside of a physical collocator's immediate collocation space. Many common areas contain facilities or equipment serving multiple carriers.

¹⁵⁶ We note that on March 15, 2001, the Coalition of Competitive Fiber Providers filed a petition for a declaratory ruling seeking pursuant to sections 224(f)(1) and 251(b)(4) of the Communications Act, 47 U.S.C. §§ 224(f)(1), 251(b)(4), that incumbent LECs must provide to telecommunications carriers non-discriminatory access to any duct, conduit, or right-of-way owned or controlled by an incumbent and leading to, or located in the incumbent's central office. This *Order* does not address that petition or otherwise determine any entity's rights and obligations under section 224.

1. Competitive LEC Self-Provisioning of Cross-Connects

61. We find that neither section 201 nor section 251 authorizes us to adopt a rule requiring physical collocation by which incumbent LECs allow competitive LECs to provision cross-connects outside of their immediate collocation space. Specifically, we conclude, in accordance with the D.C. Circuit's decision, that competitive LEC provisioning of cross-connects between two separate collocation arrangements constitutes physical collocation because the competitive LEC-owned cable would typically occupy space in the incumbent's premises outside of the collocator's immediate collocation space and because the collocator would have to access areas of the incumbent's premises outside that immediate collocation space in order to install and maintain the cabling.¹⁵⁷ Thus, such a requirement would have to satisfy the "necessary" prong of section 251(c)(6).¹⁵⁸ In addition, as SBC points out, the D.C. Circuit has determined that the Commission's authority under section 201(a) does not extend to requiring a carrier to allow physical collocation within its premises.¹⁵⁹ Because we also find that the competitive-LEC provisioning of cross-connects constitutes physical collocation, we must conclude that our authority under section 201 does not extend to requiring that an incumbent LEC allow such provisioning.

2. Incumbent LEC Provisioning of Cross-Connects – Section 201

62. We agree with Sprint, Qwest, Focal, and the Joint Commenters that we may order incumbent LECs to provide cross-connects to collocators pursuant to section 201.¹⁶⁰ We find that we have such authority under both sections 201(a) and 201(b). We conclude that the

¹⁵⁷ We note that prior to the D.C. Circuit's decision in *GTE v. FCC*, the Commission viewed cross-connects between a collocator and another carrier (*i.e.*, either the incumbent or another collocator) as a means of connecting the collocator's equipment to the other carrier's network. See *UNE Remand Order*, 15 FCC Rcd at 3778, para. 179; *Local Competition Order*, 11 FCC Rcd at 15801-02, para. 594. However, as the D.C. Circuit implicitly recognized, a collocator that installs a cross-connect cable or wire in an incumbent LEC premises is physically collocating that cable or wire. See *GTE v. FCC*, 205 F.3d at 423.

¹⁵⁸ *Id.* at 423-24. An incumbent LEC, of course, must permit a competitive LEC to cross-connect cables and equipment within the competitive LEC's own physical collocation space. To find otherwise would render section 251(c)(6) meaningless. In addition, although we find no statutory support for requiring that an incumbent LEC permit competitive LEC-provisioned cross-connects outside of their physical collocation space, we believe that competitive LEC provisioning of cross-connects imposes a much lesser burden on the incumbent's property in certain circumstances, such as when the carriers being cross-connected occupy immediately adjacent collocation space, than when the cross-connects would traverse common areas of the incumbent LEC's premises. Therefore, we encourage incumbent LECs to adopt flexible cross-connect policies that would not prohibit competitive LEC-provisioned cross-connects in all instances.

¹⁵⁹ *Bell Atlantic Telephone Cos. v. FCC*, 24 F.3d 1441, 1446 (D.C. Cir. 1994) (*Bell Atlantic I*); SBC Reply at 27.

¹⁶⁰ See, *e.g.*, Qwest Reply at 6; Focal Comments at 18-20; Joint Commenters Comments at 53-55; Letter from Richard Juhnke, General Attorney, Sprint, to Magalie Roman Salas, Secretary, FCC, CC Docket Nos. 98-147 and 96-98 at 1-2 (filed May 10, 2001) (*Sprint May 10, 2001 Letter*); see also Northpoint Comments at 11-13. We note that the court in *GTE v. FCC*, 205 F.3d 416 (D.C. Cir. 2000) did not have before it the question of whether the Commission could require an incumbent LEC to provide such cross-connects pursuant to its authority under section 201 of the Communications Act.

Commission has authority pursuant to section 201 to require incumbent LECs to provision cross-connects for carriers collocated at the incumbent's premises, and we exercise this authority to require such cross-connects upon reasonable request. Unlike the situation with competitive LEC-owned and provisioned cross-connects, we conclude that an incumbent LEC's provisioning of cross-connects between two separate collocation arrangements does not constitute physical collocation. In the instance of incumbent-provisioned cross-connects, because the competitive LEC does not own or provision the cross-connects, there is no collocater-owned equipment being placed or collocator activity occurring outside of the immediate collocation space. In other words, the cabling being used to facilitate the cross-connect is owned, controlled, and provisioned by the incumbent LEC.

63. We find that the Commission has authority under section 201(a) of the Act to require incumbent LECs to provision cross-connects between two collocated carriers.¹⁶¹ Section 201(a) requires "every common carrier engaged in interstate or foreign communication by wire or radio to furnish such communication service upon reasonable request therefor."¹⁶² As explained below, under the circumstances presented here, we find that incumbent LEC-provisioned cross-connects between collocators within the incumbent's premises constitute a "communications service" "necessary or desirable in the public interest" within the meaning of section 201(a).¹⁶³ We find that the provisioning of cross-connects between collocated competitive LECs merely puts each collocator in a position to achieve the same interconnection with other collocators that the incumbent itself is able to achieve.¹⁶⁴ Because most facilities-based competitive LECs must collocate at incumbent LECs' premises, incumbents have the opportunity to efficiently interconnect with competitive LECs. If an incumbent LEC refuses to provision cross-connects between competitive LECs collocated at the incumbent's premises, the incumbent would be the only LEC that could interconnect with all or even any of the competitive LECs collocated at a common, centralized point – the central office.¹⁶⁵ In addition, if collocating competitive LECs cannot interconnect with each other at the incumbent's premises, they typically must use incumbent LEC transport facilities to obtain access to competitive transport facilities. The costs associated with purchasing incumbent LEC transport in addition to the costs associated with purchasing the competitive transport likely would severely restrict the viability of competitive transport.

¹⁶¹ See, e.g., Focal Comments at 18 (asserting that section 201(a) requires common carriers to furnish telecommunications services upon reasonable request).

¹⁶² 47 U.S.C. § 201(a). Section 201(a) also "authorizes the Commission, where necessary or desirable in the public interest, to order common carriers to establish physical connections with other carriers, whether or not the common carriers might choose to do so voluntarily." See *Expanded Interconnection with Local Telephone Facilities*, 9 FCC Rcd 5154, 5161-62, para. 18 (1994) (*Virtual Collocation Order*), remanded for consideration of 1996 Act sub nom. *Pacific Bell v. FCC*, 81 F.3d 1147 (D.C. Cir. 1996).

¹⁶³ 47 U.S.C. § 201(a).

¹⁶⁴ See, e.g., Mpower Comments at 27.

¹⁶⁵ See, e.g., AT&T Comments at 33-34.

64. The most direct and efficient way for two carriers collocated within the same incumbent LEC premises to exchange traffic is to cross-connect within that premises. For instance, for two competitive LECs collocated at the same central office to exchange traffic without a cross-connect, each competitive LEC would have to carry its own telecommunications traffic into its collocation space and then, in the typical case, have the incumbent LEC transport that traffic over incumbent-owned facilities to an interconnection point outside the incumbent's premises. From this interconnection point, the other competitive LEC would likely then carry the traffic back to its own collocation space in the same central office to be transported through the competitive LEC's network.¹⁶⁶ This approach creates additional potential points of failure, may require otherwise unnecessary signal boosting, and, perhaps most importantly and most dramatically, imposes significant wasteful economic costs on competitive LECs – costs that incumbent LECs themselves do not face and costs that the incumbents do not impose on competitive LECs that utilize the incumbent's transport services.¹⁶⁷ These additional costs would severely impede the deployment of the innovative, competitive services that the 1996 Act seeks to facilitate.¹⁶⁸

65. We find that cross-connects between collocators within an incumbent's premises are essential to the development of a fully competitive transport market.¹⁶⁹ Incumbents, of course, provide cross-connects within their premises to collocators that purchase the incumbents' transport services. However, a collocating competitive LEC that cannot deliver its traffic to another collocator via a cross-connect at the incumbent's premises would likely be forced either to use incumbent LEC transport services or to build its own transport facilities.¹⁷⁰ Surely, such

¹⁶⁶ See, e.g., WorldCom Comments at 11. "A communications channel is back hauling when it takes traffic beyond its destination and back." Newton's Telecom Dictionary, 84 (15th ed. 1999).

¹⁶⁷ See, e.g., Focal Comments at 17 (arguing that it would be prohibitively expensive for competitive LECs to pull fiber through manholes and the streets at substantial costs in order to utilize a carrier other than the incumbent LEC for interoffice transport).

¹⁶⁸ See WorldCom Comments at 11.

¹⁶⁹ The Commission has long recognized the importance of a competitive transport market. In fact, over the last decade, the Commission has adopted specific rules in its *Expanded Interconnection Proceeding* to facilitate competition in the competitive transport market. *Expanded Interconnection with Local Telephone Company Facilities, First Report and Order*, 7 FCC Rcd 7369 (1992) (*Special Access Order*), vacated in part and remanded, *Bell Atlantic I*, 24 F.3d 1441 (D.C. Cir. 1994); *First Reconsideration*, 8 FCC Rcd 127 (1993); vacated in part and remanded, *Bell Atlantic I*, 24 F.3d 1441 (D.C. Cir. 1994); *Second Reconsideration*, 8 FCC 7341 (1993); *Second Report and Order*, 8 FCC Rcd 7374 (1996) (*Switched Transport Order*), vacated in part and remanded, *Bell Atlantic Telephone Cos. v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994); *Remand Order*, 9 FCC Rcd 5154 (1994) (*Virtual Collocation Order*), remanded for consideration of 1996 Act, *Pacific Bell, et. al. v. FCC*, 81 F.3d 1147 (D. C. Cir. 1996) (collectively referred to as *Expanded Interconnection*). In addition, in furtherance of the procompetitive, deregulatory framework established by the 1996 Act, the Commission's pricing flexibility rules place significant importance on the presence of competitive transport providers in order to grant pricing flexibility to incumbent LECs. See *Access Charge Reform*, Fifth Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 96-262, 14 FCC Rcd 14221 (1999), *aff'd sub nom. WorldCom, Inc. v. FCC*, 238 F.3d 449 (D.C. Cir. 2001).

¹⁷⁰ See, e.g., Sprint Comments at 13 (arguing that if Sprint cannot deliver traffic from its collocation space in an incumbent LEC office to another collocated competitive LEC, it would be forced either to use the incumbent's transport services or to build out its own local transport facilities); Focal Comments at 17 (asserting that an inability (continued....))

results would run directly counter to the fundamental purposes of the Communications Act. First, the Act attempts to lessen, not entrench, incumbent LEC control over local markets, including the local transport market. Second, the Act clearly recognizes that competitors are unlikely to find it economic to build entirely redundant facilities and therefore allows competitors to fill in those gaps in infrastructure through the wholesale market.¹⁷¹ To this end, cross-connects between collocated carriers allow competitive LECs to use the facilities of other competitive LECs rather than relying solely on the incumbent LEC to fill in the gaps in their network.¹⁷²

66. Without the ability to cross-connect at the incumbent's premises, a collocated competitive LEC that has its own transport facilities would be severely restricted in its ability to optimize the utilization of their transport facilities through the wholesale provision of transport services to other competitive LECs.¹⁷³ In addition, a competitive LEC wishing to purchase transport from another competitive LEC with transport facilities would be in the untenable position of having to purchase additional transport from the incumbent out of the incumbent's premises in order to access and interconnect with the other competitive transport provider's facilities at some point outside of the incumbent's premises. Once interconnected, the carrier could utilize the competitive transport service. This added expense, however, almost assuredly would make the competitive transport cost-prohibitive and would be economically wasteful.¹⁷⁴ The effect would be to entrench the incumbent LECs' power in the transport market in direct contradiction of the Act's fundamental purpose to "open[] all telecommunications markets to competition."¹⁷⁵

67. Importantly, we find that providing cross-connects between collocated carriers will not materially burden incumbent LECs. The provisioning of cross-connects in a central office is not an extraordinary occurrence. The central office and other incumbent LEC premises

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to cross-connect would place competitive LECs at a competitive disadvantage because they would essentially lack any choice for transport from non-incumbent LEC sources).

¹⁷¹ See *AT&T v. FCC*, 220 F.3d 607, 611 (D.C. Cir. 2000); *Joint Explanatory Statement*, *supra* note 13, at 1.

¹⁷² Although incumbent LECs argue that competitive LECs could also have a competitive transport provider pull individual fibers to each collocation space, *see, e.g.*, Verizon Reply 4-5, this approach could require the competitive transport provider to obtain local permits and dig up the streets every time it wishes to reach a new competitive LEC in the same incumbent LEC premises.

¹⁷³ See Sprint Comments at 13 (contending that the competitive LEC's alternative would be to build facilities that, given the very high capacity of fiber optic cable today, may be so underutilized as to be uneconomic).

¹⁷⁴ See *Detariffing the Installation and Maintenance of Inside Wiring*, 7 FCC Rcd 1334, 1335, para. 8 (1992) (recognizing that requiring telephone subscribers to purchase inside wiring service from a LEC, even if they wish to purchase those services from the LEC's competitors, would eliminate virtually all potential for competition for inside wiring services); *see also NARUC v. FCC*, 880 F.2d 422, 430 (D.C. Cir. 1989) (*NARUC III*).

¹⁷⁵ *Joint Explanatory Statement*, *supra* note 13, at 1; *see, e.g.*, Focal Comments at 17 (arguing that Congress enacted the 1996 Act to facilitate competition, not ensure the incumbents an interoffice transport monopoly).

are, by design, places where a carrier can cross-connect equipment. Moreover, such provisioning is far less burdensome than requiring incumbents to allow competitive LECs to self-provision their own cross-connects. After balancing the interest of promoting competition with the property interest of the incumbent, we conclude that requiring incumbent LECs to provision cross-connects between two collocating carriers substantially furthers Congress' goal of promoting competition while minimizing, if not eliminating, any invasion on the incumbent's property interests. While cross-connects between collocators within incumbent LEC premises are critical to the development of facilities-based competition, a requirement that incumbents provide cross-connects to competitors collocated at their premises constitutes at most a minimal invasion of the incumbent's property rights, particularly since this service would only have to be provided between two already collocated competitive LECs. Because the incumbent would maintain control over the provisioning and maintenance, we find that this requirement imposes little, if any, additional burden on the incumbent's property interest. We believe that whatever burden this requirement does place on this interest, it is significantly outweighed by the requirement's pro-competitive effects.

68. We find that the Commission has authority to compel carriers to make a cross-connect service generally available to similarly situated customers, especially when it uses that authority in such a targeted and discrete fashion. Courts generally have affirmed the ability of administrative agencies to impose specific common carriage obligations on entities that are regulated as common carriers.¹⁷⁶ We note that our action here is similar in many respects to the Commission's prior actions pursuant to section 201(a). In the *Specialized Common Carrier Proceeding*, for example, the Commission relied on section 201(a) in requiring the LECs then affiliated with AT&T to provide specialized common carriers with interconnection facilities and services that those carriers needed to provide private line services.¹⁷⁷ This action was an important early step in opening the long-distance market to competition. Similarly, in the *Virtual Collocation Order*, the Commission relied on section 201(a) in requiring incumbent LECs to provide virtual collocation within their central offices.¹⁷⁸ This action was designed to promote competition in the transport market.

69. We view our instant action as comparable to those prior Commission actions. Indeed, requiring incumbent LECs to provision cross-connects between collocated carriers furthers Congress' decision in the 1996 Act to open all telecommunications markets to competition and is consistent with (though less intrusive than) the Act's requirement that

¹⁷⁶ See *Akron, Canton & Youngstown R.R. v. ICC*, 611 F.2d 1162 (6th Cir. 1979), *cert. denied*, 449 U.S. 830 (1980) (upholding requirement that railroad carrier transport spent fuel and radioactive waste even though the railroad had not held itself out as a common carrier with respect to such cargo); *cf. Associated Gas Distributors v. FERC*, 824 F.2d 981, 995-101 (D.C. Cir. 1987) (upholding Federal Energy Regulatory Commission decision to impose common carriage open access requirements on interstate gas pipeline companies in order to prevent pipelines from discriminating against non-pipeline gas suppliers and to ensure that consumers are able to obtain gas at competitive levels.); see also *NARUC II*, 533 F.2d at 609 (where the agency has imposed such obligations, that is adequate to confer common carrier status).

¹⁷⁷ See *Bell Telephone Co. of Pennsylvania v. FCC*, 503 F.2d 1250, 1253-54 (3rd Cir. 1974).

¹⁷⁸ *Virtual Collocation Order*, 9 FCC Rcd at 5161-62, paras. 18-19.

incumbent LECs allow physical collocation within their premises under section 251(c)(6). Thus, our instant action promotes competition by permitting carriers that collocate for purposes of competing against the incumbent to select the transport provider of their own choosing, rather than being forced to rely solely on the incumbent LEC or their own facilities for provision of that service. At the same time, this competitive goal is achieved without requiring the incumbent LEC to permit competitive LECs to own, install, and maintain these cross-connects.

70. For these reasons, we find that the provision of cross-connects by incumbent LECs to collocated competitive LECs is a common carrier service pursuant to section 201(a).¹⁷⁹ As discussed above, without the ability to cross-connect at an incumbent's premises, competitive transport would likely be cost-prohibitive and economically wasteful. The effect would be to entrench the incumbent LECs' power in the transport market.¹⁸⁰ These adverse effects on the public interest persuade us that we should exercise our authority under section 201 to require incumbent LECs to provision cross-connects as described above.¹⁸¹

71. We reject SBC's argument that the Commission cannot rely on section 201(a) to require incumbent LECs to provide cross-connects between collocated carriers.¹⁸² That argument is based on the D.C. Circuit's holding in *Bell Atlantic v. FCC* that section 201(a) does not authorize the Commission to provide for *physical* collocation within an incumbent LEC's central offices.¹⁸³ That holding, however, does not preclude the Commission from mandating that an incumbent provide facilities and equipment dedicated to a particular carrier's use, as long as that carrier does not have access to the incumbent's property for the purpose of installing or maintaining the facilities or equipment.¹⁸⁴ As the Commission recognized in the *Virtual Collocation Order*, incumbent LECs frequently dedicate facilities and equipment to particular customers in their normal course of business.¹⁸⁵ Our requirement that incumbent LECs install

¹⁷⁹ There are two ways to determine that a communications service qualifies as a common carrier service. A communications service will be considered a common carrier service if: (1) a common carrier holds out the service to the general public on a common carrier basis or (2) the Commission finds that it is "necessary or desirable in the public interest" for the service to be provided on a common carrier basis. See *NARUC v. FCC*, 525 F.2d 630, 641, 644 n.76 (D.C. Cir. 1976) (*NARUC I*); see also *NARUC v. FCC*, 533 F.2d 601, 608-9 (D.C. Cir. 1976) (*NARUC II*) (binding requirement by agency that company provide service on indifferent basis is adequate to confer common carrier status). We exercise our authority under the second prong to designate the provision of cross-connects between two collocated carriers as a common carrier service.

¹⁸⁰ See, e.g., Focal Comments at 17.

¹⁸¹ See Joint Commenters at 53-55 (arguing that as a final – and least desirable – alternative, the Commission should require incumbent LECs to tariff a cross-connection service, in accordance with sections 201(a) and 251(a)(1)); see also *Bell Telephone Co. of Pa. v. FCC*, 503 F.2d 1250, 1270-73 (3d Cir. 1974) (*Pennsylvania Bell v. FCC*).

¹⁸² See SBC Reply at 27.

¹⁸³ *Bell Atlantic I*, 24 F.3d at 1444-46.

¹⁸⁴ *Virtual Collocation Order*, 9 FCC Rcd at 5163-34 paras. 25-26.

¹⁸⁵ *Id.*

and maintain cabling that permits a collocater to cross-connect with another telecommunications carrier within the incumbent's premises is not only consistent with that practice, but also necessary or desirable in the public interest.

72. In addition, section 201(b) supports Commission authority to require incumbent LECs to provision cross-connects between two collocated competitive LECs. Section 201(b) states that “[a]ll charges, practices, classifications and regulations for and in connection with such communication service, shall be just and reasonable, and any such charge, practice, classification or regulation that is unjust or unreasonable is hereby declared to be unlawful.”¹⁸⁶ Under section 201(b), we find an incumbent LEC's refusal to provision cross-connects to be an unjust and unreasonable practice in connection with existing services of incumbent LECs.

73. Ultimately, we agree with Qwest that cross-connects are not functionally different from other nonswitched services, such as special access services, that incumbent LECs provide to other carriers and end users.¹⁸⁷ Like these other services, the cross-connect provides a dedicated transmission path between two points, in this case between collocated carriers. Therefore, our requirement to provide cross-connects between collocated competitive LECs is not burdensome; rather, it is a “practice” needed in connection with an incumbent LEC's existing special access services to render the provisioning just and reasonable under section 201(b).¹⁸⁸ Without this specific offering, an incumbent instead could require, as reasoned above, that the collocater purchase incumbent transport to carry the traffic out of the incumbent's premises to an interconnection point outside the incumbent's premises. From this interconnection point, the competitive transport provider likely would then carry the traffic back to the incumbent's premises for carriage through the competitive transport provider's transport network.

74. In making available a cross-connect offering, we find that, pursuant to its obligations to provide a communications service upon reasonable request, and to engage in just and reasonable practices, an incumbent LEC must provide the appropriate cross-connect as requested by the collocated competitive LECs. We note that the “appropriate” cross-connect facility may constitute a “lit” service or a dark fiber service depending upon the requirements of the two collocated competitors. Requiring carriers to purchase a “lit” service when they only require unlit fiber cabling would add significant expense and almost assuredly would make the competitive transport cost-prohibitive and uneconomical.

¹⁸⁶ 47 U.S.C. § 201(b).

¹⁸⁷ See Qwest Reply at 6 (asserting that there can be little doubt that the Commission can require an incumbent LEC to provide special access services between two locations outside the incumbent's central office and that the Commission similarly can require the incumbent to provide a special access interconnection service (*i.e.*, a cross-connect) within a central office for competitive LECs that are lawfully collocated in that office).

¹⁸⁸ This offering includes what amounts to the provision of a dedicated circuit or line (carrying both interstate and intrastate traffic) that connects collocated equipment to the competitive LEC's transport provider of choice when that transport provider is collocated.

75. Our decision to include dark fiber as part of the cross-connect service that incumbents must provide to collocators upon request is limited in scope. Indeed, we are not requiring incumbent LECs to provide a general dark fiber service. Rather, only in the limited context of cross-connects between collocated carriers must incumbent LECs provide dark fiber service under this Order.¹⁸⁹ Our decision to require this is due to the technical and competitive circumstances existing in the marketplace. We find that incumbent LEC provisioned cross-connects, including cross-connects in the form of lit or unlit fiber, are essential to allow the development of a competitive transport market in light of existing technological and economic factors.

76. We also note that in provisioning cross-connects, incumbent LECs should use the most efficient interconnection arrangements available that, at the same time, impose the least intrusion on their property interest. For example, in cases where incumbents interconnect with collocators at equipment that is closer to the collocators' space than the incumbent's main distribution frame, we would expect the cross-connect to be provisioned, where technically feasible, at or near that equipment, rather than at the main distribution frame. This provides competitive LECs with the most efficient interconnection arrangements while minimizing the amount of cable that has to be routed through the incumbent's central office. We recognize that incumbent LECs, however, are not required to provide competitors better interconnection or access to the network than already exists. This requirement merely allows the collocator to use the existing network in as efficient a manner as the incumbent uses it for its own purposes. Furthermore, we expect that incumbent LECs should be able to provision these cross-connects in a time frame no longer than that which the incumbent provides itself or any affiliate or subsidiary.¹⁹⁰

77. We recognize, of course, that the Commission's exercise of its authority under section 201 historically has been limited to interstate and foreign communication by wire or radio. Physical connections between collocators and other carriers, like other portions of the telecommunications network, typically transmit both interstate and intrastate traffic. We have previously determined that special access lines carrying both interstate and intrastate traffic are subject to the Commission's jurisdiction where it is not possible to separate the uses of the special access lines by jurisdiction.¹⁹¹ We have typically exercised that jurisdiction, however, only when the amount of interstate traffic transmitted over a special access line constitutes more

¹⁸⁹ We note that this is not the same situation that was present in *Southwestern Bell Telephone Co. v. FCC*, 19 F.3d 1475 (D.C. Cir. 1994) (*Southwestern Bell v. FCC*). In *Southwestern Bell v. FCC*, the court found that the Commission did not have adequate support for its conclusion that LECs had offered "dark fiber service" on a common carrier basis. However, in the instant case, the Commission is declaring that a dark fiber service with respect to cross-connects is a common carrier service using the second prong under *NARUC II*. See note 179, *supra*.

¹⁹⁰ See generally, AT&T Apr. 20, 2001 Letter, *supra* note 93, at 5.

¹⁹¹ *GTE Telephone Operating Cos., GTOC Tariff No. 1, GTOC Transmittal No. 1148*, 13 FCC Rcd 22466, 22478-22481, paras. 22-27 (1998) (*GTE ADSL Service Order*).

than ten percent of all traffic transmitted over that line.¹⁹² We have reasoned that lesser percentages of interstate traffic should be considered *de minimis*.¹⁹³

78. We conclude that a similar approach is appropriate with regard to a cross-connect service between collocators and other carriers provided pursuant to section 201. As with special access traffic, we would expect that the traffic carried through these cross-connects typically includes interstate or foreign communication. To the extent that our cross-connect requirements are dependent upon our authority under section 201, we require incumbent LECs to provide a cross-connect within its premises where: (1) two collocated carriers request such a cross-connect; and (2) more than a *de minimis* amount of the traffic to be transmitted through the cross-connect will be interstate.¹⁹⁴ Where the interstate or foreign traffic would be more than *de minimis*, the incumbent LEC must provision the cross-connect through its interconnection facilities or equipment. Where a collocator is requesting this cross-connect solely pursuant to our action under section 201, it shall provide a certification to the incumbent that it satisfies the *de minimis* threshold of ten percent. Upon receipt of such certification, the incumbent shall promptly provision the service. The incumbent cannot refuse to accept the certification but instead must provision the service promptly. If the incumbent feels that the certification is inaccurate, it can file a section 208 complaint with the Commission.¹⁹⁵

3. Incumbent LEC Provisioning of Cross-Connects – Section 251

79. Similar to our reasoning under section 201, we find, as a second, alternative ground, that incumbent LEC-provisioned cross-connects between two collocators, and the attendant obligations to make dark fiber available as a cross-connect and to use the most efficient arrangement available, are also supported by section 251 of the Act. Incumbent LEC-provisioned cross-connects are properly viewed as part of the terms and conditions of the requesting carrier's collocation in much the same way as the incumbent LEC provisions cables that provide electrical power to collocators. Once equipment is eligible for collocation, the incumbent LEC must install and maintain power cables, among other facilities and equipment, to enable the collocator to operate the collocated equipment. The power cables are not "collocated" merely because the incumbent LEC installs and maintains these cables in areas outside the requesting carrier's immediate collocation space. Instead, the incumbent provides the power cables as part of its obligation to provide for interconnection and collocation "on rates, terms,

¹⁹² *Id.* at 22479, para. 23; see also *MTS and WATS Market Structure, Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, Decision and Order, 4 FCC Rcd 1352, 1357, para. 30-32 (Jt. Bd. 1989); *adopted MTS and WATS Market Structure, Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, 4 FCC Rcd 5660, 5660-61, paras. 6-9 (1989) (*MTS and WATS Market Structure Order*) (adopting ten percent rule for jurisdictional separations purposes).

¹⁹³ *GTE ADSL Service Order*, 13 FCC Rcd at 22479, para. 23.

¹⁹⁴ Our authority to impose cross-connect requirements under section 251(c)(6) does not depend upon the presence of interstate traffic.

¹⁹⁵ 47 U.S.C. § 208.

and conditions that are just, reasonable, and nondiscriminatory.”¹⁹⁶ As with power cables, an incumbent installs and maintains cross-connect cables – or refuses to install and maintain them – as part of the terms and conditions under which the incumbent provides collocation. Indeed, the Commission has long considered cross-connects to be part of the terms and conditions under which LECs provide interconnection.¹⁹⁷ The exercise of our authority under section 251(c)(6) is also quite limited in scope and should not be read as implying that a requesting carrier is entitled to obtain services from the incumbent superior to those the incumbent provides itself, its affiliates, subsidiaries, or other parties. On the contrary, our action reflects our overriding concern that an incumbent LEC would be acting in an unreasonable and discriminatory manner if it refused to provide cross-connects between collocators.

80. The requirement that incumbent LECs provision cross-connects between collocated carriers is consistent with the original obligation for cross-connects that the Commission imposed in the *Local Competition Order*.¹⁹⁸ Although it did not fully amplify its reasoning there, the Commission concluded that cross-connects were required under section 251(c)(6) to ensure that “collocation be provided ‘on . . . terms and conditions that are just, reasonable, and nondiscriminatory’”¹⁹⁹ That conclusion is consistent with our view that an incumbent LEC’s refusal to provide a cross-connect between two collocated carriers would violate the incumbent’s duties under section 251(c)(6) to provide collocation “on . . . terms and conditions that are just, reasonable, and nondiscriminatory.”²⁰⁰ Although we now conclude that the Commission overreached in further extending competitors’ cross-connect rights in the *Advanced Services First Report and Order*, we believe the initial approach in the *Local Competition Order* was a reasonable interpretation of the applicable statutory language.²⁰¹ In

¹⁹⁶ 47 U.S.C. § 251(c)(6).

¹⁹⁷ *Expanded Interconnection with Local Telephone Company Facilities, First Report and Order*, 7 FCC Rcd 7369, 7442, para. 157 (1992) (*Special Access Order*) (addressing LEC-to-collocator cross-connects), *vacated in part and remanded*, *Bell Atlantic I*, 24 F.3d 1441 (D.C. Cir. 1994); *First Reconsideration*, 8 FCC Rcd 127 (1993); *vacated in part and remanded*, *Bell Atlantic I*, 24 F.3d 1441 (D.C. Cir. 1994); *Second Reconsideration*, 8 FCC 7341 (1993); *Second Report and Order*, 8 FCC Rcd 7374 (1996) (*Switched Transport Order*), *vacated in part and remanded*, *Bell Atlantic Telephone Cos. v. FCC*, 24 F.3d 1441 (D.C. Cir. 1994); *Remand Order*, 9 FCC Rcd 5154 (1994) (*Virtual Collocation Order*), *remanded for consideration of 1996 Act sub nom. Pacific Bell. v. FCC*, 81 F.3d 1147 (D.C. Cir. 1996) (collectively referred to as *Expanded Interconnection Proceeding*).

¹⁹⁸ See *Local Competition Order*, 11 FCC Rcd 15499 at 15588, para. 173. As indicated previously, see note 145, *supra*, the Eighth Circuit generally affirmed the collocation rules adopted in the *Local Competition Order* without specifically addressing the cross-connects rule adopted in that *Order*. See *Iowa Utilities Bd. v. FCC*, 120 F.3d at 818.

¹⁹⁹ *Local Competition Order*, 11 FCC Rcd 15499 at 15801, para. 594.

²⁰⁰ 47 U.S.C. § 251(c)(6).

²⁰¹ *Advanced Services First Report and Order*, 14 FCC Rcd at 4779-80, para. 32-33.

particular, we find Qwest's arguments in favor of this approach to be persuasive in view of its market position as both an incumbent LEC and a competitive LEC.²⁰²

81. Our decision to require incumbent LEC-provided cross-connects pursuant to section 251(c)(6) is not inconsistent with the D.C. Circuit Court's opinion. In *GTE v. FCC*, the court found that the Commission appeared to have overstepped its authority under section 251(c)(6) when it required physical collocation of cross-connects in the *Advanced Services First Report and Order*.²⁰³ The D.C. Circuit stated that "[s]ection 251(c)(6) is focused solely on connecting new competitors to [incumbent] LECs' networks."²⁰⁴ We disagree with SBC's position that this statement forecloses us from requiring, pursuant to section 251(c)(6), that an incumbent LEC provision cross-connects between collocated carriers upon request. The court's statement is part of a larger discussion that uses cross-connects as an example of how the Commission's prior interpretation of "necessary" in section 251(c)(6) might unnecessarily take incumbent LEC property.²⁰⁵ The court had before it a Commission requirement that an incumbent LEC allow collocators to self-provision and thus collocate cross-connects outside of their immediate collocation space.²⁰⁶ The court stated that such a requirement "has no *apparent* basis in the statute" and observed that the Commission had not attempted to show that cross-connects are "necessary for interconnection or access to unbundled network elements."²⁰⁷ The court did not address specifically whether we could require incumbent LEC provisioned cross-connects pursuant to the "rates, terms, and conditions" clause of section 251(c)(6). Nor did the court address specifically whether we could require incumbent LEC provisioned cross-connects pursuant to other provisions of the Communications Act.²⁰⁸

82. Our conclusion that an incumbent LEC's provisioning of cross-connects to two collocated carriers is required under section 251(c)(6) reaffirms obligations imposed under the *Local Competition Order* and is based, in part, on the same reasons discussed above regarding section 201's requirement to provide services in a *just* and *reasonable* manner. An incumbent also has a duty to provide collocation terms and conditions that are *nondiscriminatory* pursuant to section 251(c)(6).²⁰⁹ The provisioning of cross-connects within the incumbent's premises

²⁰² See Qwest Comments at 16 (arguing that it would not be just and reasonable to prohibit a competitive LEC from cross-connecting with other competitive LECs when those competitive LECs have otherwise legitimately obtained collocation under the Act).

²⁰³ *GTE v. FCC*, 205 F.3d 416 (D.C. Cir. 2000).

²⁰⁴ *Id.* at 423-24.

²⁰⁵ *Id.*

²⁰⁶ See *id.*

²⁰⁷ *Id.* (*emphasis added*).

²⁰⁸ See *id.*

²⁰⁹ Verizon argues that such a requirement would turn their central office into a hub. Verizon Reply at 5 (asserting that collocators do not have a right to use precious central office space as a hub to connect to each other, regardless of whether it would be more or less expensive than connecting on their own premises, and that Congress would not (continued....))

merely puts the collocator in position to achieve the same interconnection with other competitive LECs that the incumbent itself is able to achieve. Thus, the refusal to provision such cross-connects would be discriminatory toward competitive LECs.²¹⁰

83. In addition, because incumbents provide cross-connects within their premises to those collocators that purchase the incumbents' transport services, an incumbent LEC's failure to provide cross-connects within its premises to collocators that wish to utilize a competitive transport provider also raises this nondiscrimination issue. Specifically, we find that it would be discriminatory not to provide such cross-connects because of the vast disparity in costs and efficiency associated with the two alternatives. In fact, a failure to provide cross-connects would in effect force the competitive LEC to purchase incumbent LEC transport in order to access a competitive provider's transport service.

84. Requiring incumbent LECs to provision cross-connects between requesting carriers is consistent with the statutory scheme outlined in section 251 and is consistent with Congress' explicit goal of ensuring interconnected networks. Indeed, pursuant to section 251(a)(1), all telecommunications carriers have a statutory obligation to interconnect directly or indirectly with the facilities or equipment of other telecommunications carriers."²¹¹ As we recognized in the *Local Competition Order*, "the duty to interconnect directly or indirectly is central to the 1996 Act and achieves important policy objectives."²¹² Thus, we believe our cross-connect requirement is consistent with and furthers Section 251's fundamental purpose of promoting the interconnection of all telecommunications networks by ensuring that incumbent LECs are not the only carriers that are able to interconnect efficiently with other carriers. As has been the practice in the past, we anticipate that cross-connect disputes, like other interconnection-related disputes, can be addressed in the first instance at the state level.

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have restricted collocation to that which is "necessary for interconnection or access to unbundled network elements" if it intended to allow unfettered occupation of central office space by competing carriers); *see also* SBC Reply at 26. We disagree. Requiring incumbent LECs to provision cross-connects between two collocated competitive LECs does not expand the number of competitive LECs that can collocate at an incumbent's premises. Incumbent LEC provisioning of cross-connects does not allow "unfettered occupation of central office space by competing carriers." *See* Verizon Reply at 5. Indeed, competitive LECs must continue to meet the same statutory requirements to qualify for collocation at an incumbent LEC's premises. *See* Qwest Comments at 16 (stating that the Act does not allow a competitive LEC to obtain collocation from an incumbent LEC for the sole or primary purpose of cross-connecting to other competitive LECs). Our cross-connect requirement is very limited in scope – an incumbent LEC must provision cross-connects between carriers that are lawfully collocated at the incumbent's premises.

²¹⁰ *See* AT&T Comments at 33; Qwest Reply at 5-6; WorldCom Reply at 13-14.

²¹¹ 47 U.S.C. § 251(a)(1).

²¹² *Local Competition Order*, 11 FCC Rcd at 15991, para. 997.

D. Space Allocation and Access

1. Background

85. Section 251(c)(6) requires incumbent LECs to provide for physical collocation “on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.”²¹³ In the *Local Competition Order*, the Commission required incumbent LECs to make physical collocation space available to requesting carriers on a first-come, first-served basis. The Commission also required that collocators seeking to expand their collocated space should be allowed to use contiguous space where available, and that incumbents should not be required to lease or construct additional space to provide physical collocation where existing space had been exhausted.²¹⁴ In addition, observing that physical security arrangements surrounding collocation space protect both incumbent and collocator equipment from interference by unauthorized parties, the Commission permitted incumbent LECs to require reasonable security arrangements to separate collocation space from the incumbents’ facilities.²¹⁵

86. In the *Advanced Services First Report and Order*, the Commission amended its physical collocation rules to require that “an incumbent LEC must give competitors the option of physically collocating equipment in any unused space within the incumbent’s premises, to the extent technically feasible.”²¹⁶ The Commission precluded an incumbent LEC from restricting physical collocation to “a room or isolated space separate from the incumbent’s own equipment.”²¹⁷ The Commission specified that, while an incumbent LEC could require physical collocators to use a central entrance to the incumbent’s premises, the incumbent could not require construction of a new entrance for these collocators’ use.²¹⁸

87. In *GTE v. FCC*, the D.C. Circuit determined that the Commission had not adequately justified these revised rules adopted in the *Advanced Services First Report and Order*. The court stated that these rules “appear to favor the [incumbent] LECs’ competitors in ways that exceed what is ‘necessary’ to achieve reasonable ‘physical collocation’ and in ways that may result in unnecessary takings of [incumbent] LEC property.”²¹⁹ The court therefore vacated and remanded these rules. The court stated, however, that the Commission would have the opportunity on remand to “refine [its] regulatory requirements to tie the rules to the statutory

²¹³ 47 U.S.C. § 251(c)(6).

²¹⁴ *Local Competition Order*, 11 FCC Rcd at 15797-98, para. 585.

²¹⁵ *Id.* at 15803, para. 598.

²¹⁶ *Advanced Services First Report and Order*, 14 FCC Rcd at 4784-85, para. 42 (adopting 47 C.F.R. § 51.323(k)(2)).

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ *GTE v. FCC*, 205 F.3d at 426.

standard, which only mandates physical collocation as ‘necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier.’”²²⁰

88. As discussed below, we find that, in adopting the physical collocation rules overturned by the D.C. Circuit, the Commission focused primarily on the 1996 Act’s goal of promoting competition and innovation, without giving sufficient weight to the incumbent LECs’ property interests. To correct this problem, we adopt rules that return decision-making authority regarding space assignments to the incumbents, while requiring that incumbents exercise this authority in accordance with certain principles designed to ensure that their space assignment decisions are made in a just, reasonable, and nondiscriminatory manner, as section 251(c)(6) requires. These principles will guide the incumbents’ space assignment decisions and provide general parameters for more detailed physical collocation rules that the state commissions may craft. We also establish certain presumptions for use in evaluating an incumbent LEC’s space assignment policies and practices. In addition, we discuss incumbent LECs’ ability to restrict physical collocators to separated space and entrances, recognizing the incumbents’ right to address legitimate security concerns, but balancing that right with the statutory goal of promoting competition and innovation.

2. Space Assignments

89. With regard to the requirement that an incumbent LEC allow requesting carriers to physically collocate in any unused space within its premises, the D.C. Circuit held that the Commission had not adequately explained “why a competitor, as opposed to the [incumbent] LEC, should choose where to establish collocation on the LEC’s property . . .”²²¹ In the *Second Further Notice*, the Commission therefore invited comment on what space assignment policies are necessary to achieve reasonable and nondiscriminatory physical collocation that does not result in any “unnecessary taking” of incumbent LEC property.²²² Based on the D.C. Circuit’s opinion and the record developed in response to the *Second Further Notice*, we agree with several parties that the rules adopted in the *Advanced Services First Report and Order* failed to properly balance the congressional goal of promoting competition against the need to protect an incumbent LEC’s property interests against unwarranted intrusion.²²³

90. In recognition of the incumbent’s right to use and manage its own property, we find that each incumbent should maintain ultimate responsibility for assigning collocation space within its premises. An incumbent is far more familiar with the design and layout of its premises than are its competitors, who neither own nor manage those premises.²²⁴ The incumbent is also the only party with direct knowledge of all competitive LEC collocation requests, as well as all

²²⁰ *Id.* (quoting 47 U.S.C. § 251(c)(6)).

²²¹ *GTE v. FCC*, 205 F.3d at 426.

²²² *Second Further Notice*, 15 FCC Rcd at 17848, para. 96; *see also GTE v. FCC*, 205 F.3d at 426.

²²³ *E.g.*, SBC Comments at 26-27; Verizon Comments at 14.

²²⁴ SBC Comments at 27-28.

other tenant requirements.²²⁵ In addition, unlike the incumbent LEC, an individual requesting carrier has no duty to consider the impact of its collocation space choices on the incumbent and other collocators.²²⁶ Therefore, we believe the revised physical collocation rules adopted in the *Advanced Services First Report and Order* went too far in removing the incumbent LEC's ability to use and manage its own property. Importantly, section 251(c)(6) does not turn an incumbent LECs' premises into common property. Rather, that provision requires that an incumbent LEC make space available to competitors within the confines of its own private property.

91. In light of the D.C. Circuit's opinion, we disagree with the approach of those commenters that recommend blanket re-adoption, albeit with some clarification, of the rules vacated in *GTE v. FCC* to ensure that physical collocation space is allocated in accordance with the statute.²²⁷ As the D.C. Circuit noted, "[i]t is one thing to say that [incumbent] LECs are forbidden from imposing unreasonable minimum space requirements on competitors; it is quite another thing, however, to say that competitors, over the objection of [incumbent] LEC property owners, are free to pick and choose preferred space on the [incumbent] LECs' premises, subject only to technical feasibility."²²⁸ Ultimately, it is the incumbent who will be responsible for planning and maintaining the premises for the benefit of all users – the incumbent, its affiliates and subsidiaries, and other collocators.²²⁹ Allowing requesting carriers to exercise primary decision-making authority over space assignment decisions would give those carriers the ability to usurp an incumbent LEC's right to manage its own property. Such a result would go beyond the limits established by the statute.

92. An incumbent LEC, however, must assign space in accordance with the statutory requirement that it provide for physical collocation "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory." We recognize that an incumbent LEC has powerful incentives that, left unchecked, may influence it to allocate space in a manner inconsistent with this statutory duty. We conclude that to meet the statutory standard, an incumbent LEC must act as a neutral property owner and manager, rather than as a direct competitor of the carrier requesting collocation, in assigning physical collocation space. To ensure that competitive concerns do not influence an incumbent LEC's space assignment decisions, we believe that we should enunciate principles that give more specific meaning to the incumbent's statutory duty to provide for physical collocation "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory." Of course, state commissions should continue to play a primary role in resolving specific space assignment disputes.

²²⁵ Qwest Comments at 23; SBC Reply at 27-28.

²²⁶ SBC Comments at 28; Verizon Reply at 8.

²²⁷ CoreComm Comments at 30-31; Covad Comments at 32; DSLnet Comments at 41-42; Joint Commenters Comments at 35-36.

²²⁸ See *GTE v. FCC*, 205 F.3d at 426.

²²⁹ See, e.g., Qwest Comments at 23; Verizon Comments at 14-15.

93. First, we require that an incumbent LEC's space assignment policies and practices must not materially increase a requesting carrier's collocation costs or materially delay a requesting carrier's occupation and use of the incumbent LEC's premises. Physical space assignments that require costly conditioning or lengthy provisioning intervals, when less expensive and quicker alternatives are available, simply do not meet the statutory "just, reasonable, and nondiscriminatory" standard.²³⁰ Such space assignment policies could also drive competitors to opt for virtual collocation even though physical collocation is technically feasible, frustrating the 1996 Act's preference for physical collocation.²³¹ For example, it would be presumptively unreasonable for an incumbent to assign non-conditioned collocation space to a competitor when technically feasible, conditioned space is available within the incumbent's premises. This presumption should promote the efficient use of conditioned space and will help ensure that physical collocation space is made available in a timely manner. An incumbent LEC that assigns unconditioned space when conditioned space is available must show that operational constraints, unrelated to the incumbent's or any of its affiliates' or subsidiaries' competitive concerns, require that the requesting carrier be assigned unconditioned space.

94. Second, an incumbent LEC must not assign physical collocation space that will impair the quality of service or impose other limitations on the service a requesting carrier wishes to offer.²³² For example, the incumbent's choice of space must not materially reduce a requesting carrier's ability to reach potential customers.²³³

95. Third, an incumbent LEC's space assignment policies and practices must not reduce unreasonably the total space available for physical collocation or preclude unreasonably physical collocation within the incumbent's premises.²³⁴ We recognize that certain space within an incumbent LEC's premises will not be suitable for physical collocation and, thus, may be withheld from physical collocation without violating section 251(c)(6). We find that space within an incumbent's premises is generally suitable for physical collocation unless it is: (a) physically occupied by non-obsolete equipment; (b) assigned to another collocater in accordance with our rules; (c) used to provide physical access to occupied space; (d) used to enable technicians to work on equipment located within occupied space; (e) properly reserved for future use, either by the incumbent LEC or by another carrier; or (f) essential for the administration and

²³⁰ The record makes clear that when space assignments have been left to the incumbent's unfettered discretion, the incumbent's policies and practices have frequently resulted in central offices with large, unused areas unavailable for physical collocation, little adequate space available for physical collocation, and extremely high physical collocation construction charges. Covad Comments at 32-33; CTSI Comments at 18; Rhythms Comments at 39-40; Mpower Reply at 7.

²³¹ See 47 U.S.C. § 251(c)(6).

²³² See Northpoint Comments at 21-22; Sprint Reply at 7; *Sprint Apr. 26, 2001 Letter*, *supra* note 121, at Att., p. 2.

²³³ See Sprint Comments at 14.

²³⁴ See CTSI Comments at 18; Sprint Reply at 7; *Sprint Apr. 26, 2001 Letter*, *supra* note 121, at Att., p. 2.

proper functioning of the incumbent LEC's premises.²³⁵ The incumbent may allocate any space that falls outside these categories among different uses, including physical collocation, provided that the incumbent performs this allocation in accordance with the statute, our rules, and any consistent state rules.

96. Although a requesting carrier may not make the final determination as to the location of its particular physical collocation space, an incumbent LEC must allow a requesting carrier to submit physical collocation space preferences prior to assigning that carrier space. This will enable the requesting carrier to request the space that best fits its operational needs. To request specific space intelligently, a requesting carrier will require more information than our existing space report rule expressly requires that an incumbent provide.²³⁶ We therefore amend that rule to require that, upon request, an incumbent LEC must submit to the requesting carrier a report describing in detail the space that is available for collocation in a particular incumbent LEC premises. This report is due within ten days of its being requested, the same time period as in our existing rule.²³⁷

97. We believe the approach set forth above will help limit disputes over the availability of physical collocation space as well as the appropriateness of specific space assignments. This approach also will provide requesting carriers with information that will help them assess whether the incumbent is meeting its statutory obligations, while discouraging each incumbent from abusing its discretion in assigning physical collocation space. We do not intend to preclude state commissions from imposing additional space assignment requirements, as long as they are consistent with the terms of the Communications Act and our implementing rules. A competitive LEC may challenge a space assignment with the appropriate state commission if the competitive LEC believes that the assignment is unjust, unreasonable, or discriminatory, violates our rules, or violates any additional consistent rules the state commission has established.

3. Separate Rooms and Entrances

98. In the *Advanced Services First Report and Order*, the Commission stated that incumbent LECs must allow competitors to physically collocate "without requiring the construction of a room, cage, or similar structure, and without requiring the creation of a separate entrance to the competitor's collocation space."²³⁸ Although the D.C. Circuit affirmed the Commission's rule requiring incumbent LECs to allow cageless collocation, the court held that

²³⁵ We note that the *Second Further Notice* invited comment on whether the Commission should adopt national standards governing the periods for which incumbent LECs and collocating carriers may reserve space for future use in incumbent LEC premises. See *Second Further Notice*, 15 FCC Rcd at 17856, para. 117. We will address this area at a later date.

²³⁶ That rule requires that an incumbent LEC must provide, upon request, "a report indicating the incumbent LEC's available collocation space in a particular LEC premises." 47 C.F.R. § 51.321(h).

²³⁷ See *id.*

²³⁸ See *Advanced Services First Report and Order*, 14 FCC Rcd at 4785, para. 42 (adopting 47 C.F.R. § 51.323(k)(2)).

the Commission had not reasonably justified the portions of the rule that forbade incumbent LECs “from requiring competitors to use separate entrances to access their own equipment” and “from requiring competitors to use separate or isolated rooms or floors.”²³⁹ The Commission invited comment on whether it might, consistent with section 251(c)(6), preclude incumbents from placing collocators in a room or isolated space separate from the incumbent’s own equipment.²⁴⁰ The Commission also invited comment on whether section 251(c)(6) permits an incumbent LEC to require requesting carriers to construct or pay for new entrances to the incumbent’s premises for the collocators’ use.²⁴¹

99. Although we find that it is not *per se* unreasonable or discriminatory for an incumbent LEC to restrict physical collocation to space segregated from space housing the incumbent’s equipment, or to require the construction and use of a separate entrance to access physical collocation space, we find that it would be unreasonable for the incumbent to require such separation measures as a general policy. As competitive LECs contend, mandatory separation of physical collocation space can substantially increase physical collocation costs.²⁴² In addition, placement of DSL equipment, such as DSLAMs, in isolated or separate space can affect a collocator’s ability to access unbundled local loops.²⁴³ Moreover, a requirement that all collocators place their equipment solely in a particular area of a central office could prematurely exhaust physical collocation space.²⁴⁴ Similarly, a requirement that separate entrances always be built could decrease the space available in the central office for collocation;²⁴⁵ and adding a new entrance to an existing structure could simply delay the requesting carrier’s occupation and use of the incumbent LEC’s premises, and increase the requesting carrier’s costs.²⁴⁶

100. As a general matter, we find it reasonable to interpret section 251(c)(6) in a manner that reduces the likelihood that space limitations will preclude physical collocation. Although, as Verizon points out, virtual collocation is available where separate physical

²³⁹ See *GTE v. FCC*, 205 F.3d at 426; *Advanced Services First Report and Order*, 14 FCC Rcd at 4785, para. 42;

²⁴⁰ *Second Further Notice*, 15 FCC Rcd at 17849, para. 97.

²⁴¹ *Id.* at para. 98.

²⁴² @Link Comments at 30; Covad Comments at 34; Mpower Comments at 30; Rhythms Comments at 39.

²⁴³ Covad Comments at 33. Specifically, relegating collocators to isolated or separated space can increase the distance between the DSLAM and a customer’s premises. This is a particular problem for DSL service providers because a DSLAM must be placed within a reasonable distance, usually less than 18,000 feet, of a DSL customer’s premises if service is to be provided. See *id.*; see also *Collocation Reconsideration Order & Second Further Notice*, 15 FCC Rcd at 17812, para. 10.

²⁴⁴ See @Link Comments at 30; Joint Commenters Comments at 40; Northpoint Comments at 21; Rhythms Comments at 42-43.

²⁴⁵ See @Link Comments at 41-42 (asserting that separate entrances require new doors, walls, and hallways, wasting space that might otherwise be used for collocation); CTSI Comments at 19 (stating that there is no apparent reason for mandatory equipment segregation requirements except to inhibit competitors from collocating).

²⁴⁶ Covad Comments at 34; Mpower Comments at 30-31; Rhythms Comments at 39.

collocation space is exhausted,²⁴⁷ section 251(c)(6) establishes a clear preference for physical over virtual collocation – permitting an incumbent LEC to substitute the latter for the former only if the incumbent “demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations.”²⁴⁸ An interpretation that would allow an incumbent to require separation of equipment or separate entrances in all cases, regardless of the potential effect on competition, would fail to properly balance the statute’s competing interests. This is especially true since, in many instances, separated equipment and separate entrances are not needed to ensure that the incumbent is able to protect its own property.²⁴⁹

101. We find, based on the record before us, that there is simply insufficient evidence to support a finding that incumbent LECs’ security concerns require physical separation of collocated equipment from the incumbent’s own equipment in every instance. Incumbents claim that the placement of competitors’ equipment in the incumbent’s premises raises serious security concerns that can only be or are best addressed by physical segregation of the competitors’ equipment from the incumbent’s equipment.²⁵⁰ In contrast, competitors argue that the D.C. Circuit rejected this argument, finding that there were “alternative means available to [incumbent] LECs to ensure . . . security.”²⁵¹ Competitors also contend that security is not one of the limits established in section 251(c)(6) on the incumbent’s obligation to provide physical collocation.²⁵² The D.C. Circuit recognized that incumbents’ security concerns could be addressed by alternative measures.²⁵³ Our rules currently permit incumbent LECs to install security cameras or other monitoring systems, and to require competitive LEC personnel to use badges with computerized tracking systems while on the incumbent’s premises, among other security options.²⁵⁴ We find that such measures will provide sufficient security for an incumbent’s equipment in most circumstances.²⁵⁵

²⁴⁷ Verizon Comments at 17.

²⁴⁸ 47 U.S.C. § 251(c)(6); *see also* Rhythms Reply at 29 (stating preference for physical, rather than virtual, collocation).

²⁴⁹ Rhythms Comments at 43 (stating that less obstructive alternatives, such as locked cabinets, can ensure protection of the incumbent’s equipment); Rhythms Reply at 28-29.

²⁵⁰ *See* Verizon Comments at 17-18 (arguing that an incumbent should not be required to allow placement of physically collocated equipment in same room as its own equipment because segregation of equipment is the “only effective means of providing security in a collocated environment”).

²⁵¹ *See, e.g.,* Joint Commenters Reply at 18 (quoting *GTE v. FCC*, 205 F.3d at 425); *see also* Rhythms Comments at 43.

²⁵² *Id.* at 31-32.

²⁵³ *See GTE v. FCC*, 205 F.3d at 425 (“[I]t is hardly surprising that the FCC opted to prohibit [mandatory caged collocation], particularly given the alternative means available to LECs to ensure the security of their premises.”).

²⁵⁴ 47 C.F.R. § 51.323(i).

²⁵⁵ Rhythms Comments at 43.

102. While we recognize that incumbents, like other users of incumbent LEC premises, have a right to protect their equipment from harm,²⁵⁶ incumbents also have incentives to overstate security concerns so as to limit physical collocation arrangements and discourage competition.²⁵⁷ We therefore conclude that an incumbent LEC may require the separation of collocated equipment from its own equipment only if the proposed separated space is: (a) available in the same or a shorter time frame as non-separated space; (b) at a cost not materially higher than the cost of non-separated space; and (c) is comparable, from a technical and engineering standpoint, to non-separated space. We also conclude that an incumbent LEC may require such separation measures only where legitimate security concerns, or operational constraints unrelated to the incumbent's or any of its affiliates' or subsidiaries competitive concerns, warrant them. We believe this policy will help promote the efficient use of limited space and thereby advance the statutory preference for physical over virtual collocation. We also believe that this policy reasonably balances the congressional goal of promoting competition against the incumbent's right to use and manage its own property.

103. While we reject an interpretation of section 251(c)(6) that would allow incumbent LECs to require, without exception, that competitors use segregated collocation space and separate entrances, this does not mean an incumbent LEC may never make use of segregated collocation space and separate entrances. Separate entrance requirements will meet the "just, reasonable, and nondiscriminatory" standard only where a separate entrance already exists that provides access to the collocation space at issue, or where construction of such an entrance is technically feasible, and will neither artificially delay collocation provisioning nor materially increase the requesting carrier's costs.²⁵⁸ In addition, an incumbent LEC may construct or require the construction of a separated entrance only where legitimate security concerns, or operational constraints unrelated to the incumbent's or any of its affiliates' or subsidiaries competitive concerns, warrant them. Similarly, where an incumbent LEC assigns separated space for collocation or requires requesting carriers to access their collocated equipment through a separate entrance, the incumbent LEC's affiliates and subsidiaries and their employees and contractors must also be subject to such restrictions. An incumbent LEC may require collocators to pay only for the least expensive, effective security option that is viable for the physical collocation space assigned.²⁵⁹ Otherwise, the incumbent would be providing collocation on unreasonable terms and conditions.

²⁵⁶ SBC Reply at 32-33.

²⁵⁷ Despite the D.C. Circuit's explicit finding that the Commission's decision to allow cageless collocation was "hardly surprising . . . particularly given the alternative means available to LECs to ensure the security of their premises," Verizon insists that equipment segregation "is the only effective means of providing security in a collocated environment." *Compare GTE v. FCC*, 205 F.3d at 425 with Verizon Comments at 17-18.

²⁵⁸ Separate entrances must also comply with the applicable fire code.

²⁵⁹ For example, SBC has indicated that, where it installs partitions between competitor's equipment and its own, SBC will only charge the lesser of the cost of the partitions or other viable security measures, such as cameras, to address the security risks posed by collocation. SBC Comments at 29.

104. As with space assignment objections generally, a competitive LEC may challenge a separate space assignment or a separate entrance requirement with the appropriate state commission if the competitive LEC believes the assignment or requirement is unjust, unreasonable, discriminatory, violates our rules, or violates any additional, consistent rules the state commission has established.

V. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

105. As required by the Regulatory Flexibility Act (RFA),²⁶⁰ an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Second Further Notice of Proposed Rulemaking* in CC Docket No. 98-147.²⁶¹ The Commission sought written public comment on the proposals in *Second Further Notice*, including comment on the IRFA.²⁶² Appendix C sets forth a Final Regulatory Flexibility Analysis for the present *Fourth Report and Order*.

B. Final Paperwork Reduction Act Analysis

106. The *Second Further Notice of Proposed Rulemaking* from which this *Fourth Report and Order* issues proposed changes to the Commission's collocation requirements. As required by the Paperwork Reduction Act of 1995, the Commission sought comment from the public and from OMB on the proposed changes.²⁶³ This *Order* contains new or modified reporting and recordkeeping requirements or burdens that are being submitted to the Office of Management and Budget (OMB) for approval. Implementation of these information collections is subject to OMB approval, as prescribed by the Paperwork Reduction Act.

VI. ORDERING CLAUSES

107. Accordingly, IT IS ORDERED, pursuant to sections 1-4, 201, 202, 251-254, 256, 271, and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151-54, 201, 202, 251-54, 256, 271, and 303(r), that this *Fourth Report and Order* IS ADOPTED.

108. IT IS FURTHER ORDERED, pursuant to sections 1-4, 201, 202, 251-54, 256, 271, and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151-54, 201, 202, 251-54, 256, 271, and 303(r), that Part 51 of the Commission's rules, 47 C.F.R. Part 51, IS AMENDED, as set forth in Appendix B, and that those rule amendments SHALL BECOME EFFECTIVE thirty days after publication of the text or summary thereof in the Federal Register, unless the Commission publishes a document in the Federal Register to delay or withdraw them.

²⁶⁰ See 5 U.S.C. § 603.

²⁶¹ *Second Further Notice*, 15 FCC Rcd at 17864, para. 137.

²⁶² *Id.*

²⁶³ *Id.* at 17864, para. 138.

109. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Fourth Report and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas
Secretary

APPENDIX A -- LIST OF PARTIES**Comments**

1. @Link Networks, Inc. (@Link)
2. Advanced Telecom Group, Inc. (ATG)
3. Alcatel USA, Inc. (Alcatel)
4. AT&T Corp. (AT&T)
5. BellSouth Corporation (BellSouth)
6. Catena Networks, Inc. (Catena)
7. Cisco Systems, Inc. (Cisco)
8. CompTel (CompTel)
9. Conectiv Communications, Inc. (Connectiv)
10. CoreComm, Inc., Vitts Networks, Inc., and Logix, Inc. (CoreComm)
11. Covad Communications Company (Covad)
12. CTSI, Inc. and Waller Creek Communications Inc. d/b/a Pontio Communications Corporation (CTSI)
13. DSLnet Communications, LLC (DSLnet)
14. Fiber Technologies, LLC (Fiber Technologies)
15. Florida Public Service Commission (Florida Commission)
16. Focal Communications Corporation (Focal)
17. Gluon Networks (Gluon)
18. General Services Administration (GSA)
19. IntraSpan Communications, Inc. (IntraSpan)
20. IP Communications Corporation (IP Communications)
21. Arbros Communications, Inc., the Association for Local Telecommunications Services, the Competitive Telecommunications Association, e.spire Communications, Inc., Fairpoint Communications Solutions, Inc., Intermedia Communications Inc., KMC Telecom, Inc., NewSouth Communications, Inc., and Pathnet (Joint Commenters)
22. LightBonding.com, Inc. (LightBonding.com)
23. Metromedia Fiber Network Services, Inc. (Metromedia)
24. McLeodUSA Telecommunications Services, Inc. (McLeod)
25. Mpower Communications Corp. (Mpower)
26. Network Access Solutions Corporation (NAS)
27. Network Telephone Corporation (Network Telephone)
28. New York State Department of Public Service (New York Commission)
29. Nortel Networks Inc. (Nortel)
30. NorthPoint Communications, Inc. (NorthPoint)
31. Organization for the Promotion and Advancement of Small Telecommunications Companies (OPASTCO)
32. PF.Net Communications, Inc. (PF.Net)
33. Rhythms NetConnections, Inc. (Rhythms)
34. RCN Telecom Services Inc. (RCN)
35. Rural Independent Competitive Alliance (RICA)
36. SBC Communications, Inc. (SBC)
37. Sprint Corporation (Sprint)
38. Supra Telecommunications & Information Systems, Inc. (Supra)

39. Tachion Networks, Inc. (Tachion)
40. The Walt Disney Company (Walt Disney)
41. Telergy, Inc., Adelphia Business Solutions, Inc. and Business Telecommunications, Inc. (Telergy)
42. Qwest Corporation (Qwest)
43. United States Telecom Association (USTA)
44. Verizon Telephone Companies (Verizon)
45. Winstar Communications, Inc. (Winstar)
46. WorldCom (WorldCom)

Replies

1. ATG
2. Alcatel
3. AT&T
4. Aptonix, Ltd. (Aptonix)
5. BellSouth
6. Catena
7. CompTel
8. Focal
9. GSA
10. IP Communications
11. Joint Commenters
12. Lucent Technologies, Inc. (Lucent)
13. Metromedia
14. Mpower
15. NAS
16. Network Telephone
17. Qwest Communications International, Inc. (Qwest)
18. Rhythms
19. SBC
20. Sprint
21. Telecommunications Industry Association (TIA)
22. Verizon
23. WorldCom

Ex Parte Letters

1. Allegiance Telecom, Inc. (Allegiance)
2. Association for Local Telecommunications Services (ALTS)
3. ATG
4. AT&T
5. Birch Telecom (Birch)
6. BroadSlate Networks, Inc. (Broadslate)
7. BellSouth
8. Catena
9. Cbeyond Communications (Cbeyond)

10. Comptel
11. Conversent Communications (Conversent)
12. Copper Mountain Networks (Copper Mountain)
13. Covad
14. DSLnet
15. Focal
16. Global Metro Networks (Global Metro)
17. Kellogg, Huber, Hansen, Todd & Evans (Kellogg, Huber)
18. Metromedia
19. Mpower
20. Network Telephone
21. Qwest
22. Rhythms
23. SBC
24. Sprint
25. Tachion
26. Taqua Systems, Inc.
27. Verizon
28. Westwave Communications (Westwave)
29. WorldCom
30. Zhone Technologies, Inc. (Zhone)

APPENDIX B – FINAL RULES

Part 51 of Title 47 of the Code of Federal Regulations is amended as follows:

VII. PART 51 -- INTERCONNECTION**1. The authority for Part 51 continues to read as follows:**

Authority: Sections 1-5, 7, 201-05, 207-09, 218, 225-27, 251-54, 271, 332, 48 Stat. 1070, as amended, 1077; 47 U.S.C. 151-55, 157, 201-05, 207-09, 218, 225-27, 251-54, 271, 332, unless otherwise noted.

2. § 51.5 is amended by adding in alphabetical order a definition of “multi-functional equipment” to read as follows:

Multi-functional equipment. Multi-functional equipment is equipment that combines one or more functions that are necessary for interconnection or access to unbundled network elements with one or more functions that would not meet that standard as stand-alone functions.

3. § 51.321 is amended by revising paragraph (h) to read as follows:

(h) Upon request, an incumbent LEC must submit to the requesting carrier within ten days of the submission of the request a report describing in detail the space that is available for collocation in a particular incumbent LEC premises. This report must specify the amount of collocation space available at each requested premises, the number of collocators, and any modifications in the use of the space since the last report. This report must also include measures that the incumbent LEC is taking to make additional space available for collocation. The incumbent LEC must maintain a publicly available document, posted for viewing on the incumbent LEC's publicly available Internet site, indicating all premises that are full, and must update such a document within ten days of the date at which a premises runs out of physical collocation space.

4. § 51.323 is amended by revising paragraphs (b), (c), (e), (f), (h), (i), and (k) to read as follows:

(b) An incumbent LEC shall permit the collocation and use of any equipment necessary for interconnection or access to unbundled network elements.

(1) Equipment is necessary for interconnection if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining interconnection with the incumbent LEC at a level equal in quality to that which the incumbent obtains within its own network or the incumbent provides to any affiliate, subsidiary, or other party.

(2) Equipment is necessary for access to an unbundled network element if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining nondiscriminatory access to that unbundled network element, including any of its features, functions, or capabilities.

(3) Multi-functional equipment shall be deemed necessary for interconnection or access to an unbundled network element if and only if the primary purpose and function of the equipment, as the requesting carrier seeks to deploy it, meets either or both of the standards set forth in paragraphs (b)(1) and (b)(2) of this section. For a piece of equipment to be utilized primarily to obtain equal in quality interconnection or nondiscriminatory access to one or more unbundled network elements, there also must be a logical nexus between the additional functions the equipment would perform and the telecommunication services the requesting carrier seeks to provide to its customers by means of the interconnection or unbundled network element. The collocation of those functions of the equipment that, as stand-alone functions, do not meet either of the standards set forth in paragraphs (b)(1) and (b)(2) of this section must not cause the equipment to significantly increase the burden on the incumbent's property.

(c) Whenever an incumbent LEC objects to collocation of equipment by a requesting telecommunications carrier for purposes within the scope of section 251(c)(6) of the Act, the incumbent LEC shall prove to the state commission that the equipment is not necessary for interconnection or access to unbundled network elements under the standards set forth in paragraph (b) of this section. An incumbent LEC may not object to the collocation of equipment on the grounds that the equipment does not comply with safety or engineering standards that are more stringent than the safety or engineering standards that the incumbent LEC applies to its own equipment. An incumbent LEC may not object to the collocation of equipment on the ground that the equipment fails to comply with Network Equipment and Building Specifications performance standards or any other performance standards. An incumbent LEC that denies collocation of a competitor's equipment, citing safety standards, must provide to the competitive LEC within five business days of the denial a list of all equipment that the incumbent LEC locates at the premises in question, together with an affidavit attesting that all of that equipment meets or exceeds the safety standard that the incumbent LEC contends the competitor's equipment fails to meet. This affidavit must set forth in detail: the exact safety requirement that the requesting carrier's equipment does not satisfy; the incumbent LEC's basis for concluding that the requesting carrier's equipment does not meet this safety requirement; and the incumbent LEC's basis for concluding why collocation of equipment not meeting this safety requirement would compromise network safety.

(e) When providing virtual collocation, an incumbent LEC shall, at a minimum, install, maintain, and repair collocated equipment meeting the standards set forth in paragraph (b) of this section within the same time periods and with failure rates that are no greater than those that apply to the performance of similar functions for comparable equipment of the incumbent LEC itself.

(f) An incumbent LEC shall provide space for the collocation of equipment meeting the standards set forth in paragraph (b) of this section in accordance with the following requirements:

(5) An incumbent LEC shall relinquish any space held for future use before denying a request for virtual collocation on the grounds of space limitations, unless the incumbent LEC proves to the state commission that virtual collocation at that point is not technically feasible;

(6) An incumbent LEC may impose reasonable restrictions on the warehousing of unused space by collocating telecommunications carriers, provided, however, that the incumbent LEC shall not set maximum space limitations applicable to such carriers unless the incumbent LEC proves to the state commission that space constraints make such restrictions necessary;

(7) An incumbent LEC must assign collocation space to requesting carriers in a just, reasonable, and nondiscriminatory manner. An incumbent LEC must allow each carrier requesting physical collocation to submit space preferences prior to assigning physical collocation space to that carrier. At a minimum, an incumbent LEC's space assignment policies and practices must meet the following principles:

(A) An incumbent LEC's space assignment policies and practices must not materially increase a requesting carrier's collocation costs.

(B) An incumbent LEC's space assignment policies and practices must not materially delay a requesting carrier occupation and use of the incumbent LEC's premises.

(C) An incumbent LEC must not assign physical collocation space that will impair the quality of service or impose other limitations on the service a requesting carrier wishes to offer.

(D) An incumbent LEC's space assignment policies and practices must not reduce unreasonably the total space available for physical collocation or preclude unreasonably physical collocation within the incumbent's premises.

(h) As described in subparagraphs (1) and (2) of this paragraph, an incumbent LEC shall permit a collocating telecommunications carrier to interconnect its network with that of another collocating telecommunications carrier at the incumbent LEC's premises and to connect its collocated equipment to the collocated equipment of another telecommunications carrier

within the same premises, provided that the collocated equipment is also used for interconnection with the incumbent LEC or for access to the incumbent LEC's unbundled network elements.

(1) An incumbent LEC shall provide, at the request of a collocating telecommunications carrier, a connection between the equipment in the collocated spaces of two or more telecommunications carriers, except to the extent the incumbent LEC permits the collocating parties to provide the requested connection for themselves or a connection is not required under paragraph (h)(2) of this section. Where technically feasible, the incumbent LEC shall provide the connection using copper, dark fiber, lit fiber, or other transmission medium, as requested by the collocating telecommunications carrier.

(2) An incumbent LEC is not required to provide a connection between the equipment in the collocated spaces of two or more telecommunications carriers if the connection is requested pursuant to section 201 of the Act, unless the requesting carrier submits to the incumbent LEC a certification that more than 10 percent of the amount of traffic to be transmitted through the connection will be interstate. The incumbent LEC cannot refuse to accept the certification, but instead must provision the service promptly. Any incumbent LEC may file a section 208 complaint with the Commission challenging the certification if it believes that the certification is deficient. No such certification is required for a request for such connection under section 251 of the Act.

(i) As provided herein, an incumbent LEC may require reasonable security arrangements to protect its equipment and ensure network reliability. An incumbent LEC may only impose security arrangements that are as stringent as the security arrangements that the incumbent LEC maintains at its own premises for its own employees or authorized contractors. An incumbent LEC must allow collocating parties to access their collocated equipment 24 hours a day, seven days a week, without requiring either a security escort of any kind or delaying a competitor's employees' entry into the incumbent LEC's premises. An incumbent LEC may require a collocating carrier to pay only for the least expensive, effective security option that is viable for the physical collocation space assigned. Reasonable security measures that the incumbent LEC may adopt include:

(4) Restricting physical collocation to space separated from space housing the incumbent LEC's equipment, provided that each of the following conditions is met:

(i) Either legitimate security concerns, or operational constraints unrelated to the incumbent's or any of its affiliates' or subsidiaries competitive concerns, warrant such separation;

(ii) Any physical collocation space assigned to an affiliate or subsidiary of the incumbent LEC is separated from space housing the incumbent LEC's equipment;

(iii) The separated space will be available in the same time frame as, or a shorter time frame than, non-separated space;

(iv) The cost of the separated space to the requesting carrier will not be materially higher than the cost of non-separated space; and

(v) The separated space is comparable, from a technical and engineering standpoint, to non-separated space.

(5) Requiring the employees and contractors of collocating carriers to use a central or separate entrance to the incumbent's building, provided, however, that where an incumbent LEC requires that the employees or contractors of collocating carriers access collocated equipment only through a separate entrance, employees and contractors of the incumbent LEC's affiliates and subsidiaries must be subject to the same restriction.

(6) Constructing or requiring the construction of a separate entrance to access physical collocation space, provided that each of the following conditions is met:

(i) Construction of a separate entrance is technically feasible;

(ii) Either legitimate security concerns, or operational constraints unrelated to the incumbent's or any of its affiliates' or subsidiaries competitive concerns, warrant such separation;

(iii) Construction of a separate entrance will not artificially delay collocation provisioning; and

(iv) Construction of a separate entrance will not materially increase the requesting carrier's costs.

(k) An incumbent LEC's physical collocation offering must include the following:

(2) *Cageless collocation.* Incumbent LECs must allow competitors to collocate without requiring the construction of a cage or similar structure. Incumbent LECs must permit collocating carriers to have direct access to their equipment. An incumbent LEC may not require competitors to use an intermediate interconnection arrangement in lieu of direct connection to the incumbent's network if technically feasible. An incumbent LEC must make cageless collocation space available in single-bay increments, meaning that a competing carrier can purchase space in increments small enough to collocate a single rack, or bay, of equipment.

APPENDIX C

FINAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act (RFA),¹ a Supplemental Initial Regulatory Flexibility Analysis (Supplemental IRFA) was incorporated in the *Order on Reconsideration and Second Further Notice of Proposed Rulemaking (Second Further Notice)* in CC Docket 98-147.² The Commission sought written public comment on the proposals in the *Second Further Notice*, including comment on the Supplemental IRFA.³ We received comments from The Organization for the Promotion and Advancement of Small Telecommunications Companies (OPASTCO) specifically directed toward the Supplemental IRFA. These comments are discussed below. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.

A. Need for, and Objectives of, the Fourth Report and Order

2. This *Fourth Report and Order (Order)* continues the Commission's efforts to facilitate the development of competition in telecommunications services. In the *Advanced Services First Report and Order*, the Commission strengthened its collocation rules to reduce the costs and delays faced by carriers that seek to collocate equipment at the premises of incumbent local exchange carriers (incumbent LECs). In *GTE v. FCC*, the D.C. Circuit vacated several of those rules and remanded the case to the Commission. In this *Order*, we address the remanded issues and take additional steps toward implementing Congress' goals in enacting section 251(c)(6) of the Communications Act. Specifically, we adopt rule amendments that more appropriately implement the balance reflected in the Communications Act, between promoting competition and technological innovation, and establishing limits on the scope of the intrusion allowed into the incumbent LEC's property rights to avoid unnecessary takings of such property. Nonetheless, through these amended rules, we reaffirm our commitment to ensuring that facilities-based competitors, including those that are small entities, have the incentive and ability to invest in alternative infrastructure and innovative technologies, while, at the same time, ensuring that incumbents retain similar incentives and capabilities.

B. Summary of Significant Issues Raised by Public Comments in Response to the Supplemental IRFA

3. In the Supplemental IRFA, we stated that any rule changes would impose minimum burdens on small entities, including both telecommunications carriers that request collocation and the incumbent LECs that, under section 251(c)(6) of the Communications Act, must provide collocation to requesting carriers. We also solicited comments on alternatives to

¹ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

² *Second Further Notice*, 15 FCC Rcd at 17882-87, paras. 26-42.

³ *Id.* at 17882, para. 26.

the proposed rules that would minimize the impact that any changes to our rules might have on small entities.⁴ In their comments, OPASTCO states that the Supplemental IRFA did not provide “the flexibility necessary to accommodate the needs of small [incumbent LECs] and their customers.”⁵ OPASTCO also states that the Supplemental IRFA does not specify the specific requirements that might be imposed on small incumbent LECs or the extent to which those requirements might burden small incumbent LECs.⁶ Finally, OPASTCO states that the Supplemental IRFA failed “to describe the ‘significant alternatives’ for small [incumbent LECs] that [were] presumptively under consideration” in this rulemaking.⁷ As noted above, OPASTCO filed comments specifically directed to the Supplemental IRFA and to issues that were raised in the *Notice* but not addressed in this *Order* which is limited to issues that the D.C. Circuit remanded. In making the determinations reflected in the *Order*, we have considered the impact of our actions on small entities.

C. Description and Estimate of the Number of Small Entities To Which Rules Will Apply

4. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of entities that will be affected by the rules.⁸ The RFA defines “small entity” as having the same meaning as the term “small business,” “small organization,” and “small governmental jurisdiction.”⁹ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act, unless the Commission has developed one or more definitions that are appropriate to its activities.¹⁰ Under the Small Business Act, a “small business concern” is one that: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) meets any additional criteria established by the Small Business Administration (SBA).¹¹ In this *Order*, we take a number of steps that may affect small entities that either provide or obtain collocation pursuant to section 251(c)(6) of the Communications Act. The requirements we adopt will require small incumbent LECs to change their collocation practices. As Congress contemplated in enacting section 251(c)(6), however,

⁴ *Id.* at 17886, para. 41.

⁵ See OPASTCO Comments at 6.

⁶ *Id.*

⁷ *Id.*

⁸ 5 U.S.C. §§ 603(b)(3), 604(a)(3).

⁹ 5 U.S.C. § 601(6).

¹⁰ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, established one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition in the Federal Register.”

¹¹ 15 U.S.C. § 632.

our collocation requirements benefit small competitive local exchange carriers (competitive LECs) in their efforts to compete against incumbent LECs in the provision of telecommunications services, including advanced services. We believe that, on balance, the benefits to small competitive LECs of our actions in this *Order* far outweigh any burdens these place on small incumbent LECs.

5. The most reliable source of information regarding the total numbers of certain common carrier and related providers nationwide, as well as the number of commercial wireless entities, appears to be data the Commission publishes annually in its *Carrier Locator* report, which encompasses data compiled from FCC Form 499-A Telecommunications Reporting Worksheets.¹² According to data in the most recent report, there are 4,822 service providers.¹³ These carriers include, *inter alia*, providers of telephone exchange service, wireline carriers and service providers, LECs, interexchange carriers, competitive access providers, and resellers.

6. We have included small incumbent LECs in this present RFA analysis. A “small business” under the RFA is one that, *inter alia*, meets the pertinent small business size standard (*e.g.*, a telephone communications business having 1,500 or fewer employees), and “is not dominant in its field of operation.”¹⁴ The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent LECs are not dominant in their field of operation because any such dominance is not “national” in scope.¹⁵ We have therefore included small incumbent LECs in this RFA analysis, although we emphasize that this RFA action has no effect on FCC analyses and determinations in other, non-RFA contexts.

7. **Total Number of Telephone Companies Affected.** The United States Bureau of the Census (Census Bureau) reports that, at the end of 1992, there were 3,497 firms engaged in providing telephone services, as defined therein, for at least one year.¹⁶ This number contains a variety of different categories of carriers, including local exchange carriers, interexchange carriers, competitive access providers, cellular carriers, mobile service carriers, operator service

¹² FCC, Common Carrier Bureau, Industry Analysis Division, *Carrier Locator: Interstate Service Providers*, Table 1 (October 2000) (*Carrier Locator*).

¹³ FCC, Common Carrier Bureau, Industry Analysis Division, *Carrier Locator* at Table 1.

¹⁴ 5 U.S.C. § 601(3).

¹⁵ Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, FCC (May 27, 1999). The Small Business Act contains a definition of “small business concern,” which the RFA incorporates into its own definition of “small business.” See 15 U.S.C. § 632(a) (Small Business Act); 5 U.S.C. § 601(3) (RFA). SBA regulations interpret “small business concern” to include the concept of dominance on a national basis. 13 CFR 121.102(b). Since 1996, out of an abundance of caution, the Commission has included small incumbent LECs in its regulatory flexibility analyses. See, *e.g.*, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket, 96-98, First Report and Order, 11 FCC Rcd 15499, 16144-45 (1996), 61 FR 45476 (Aug. 29, 1996).

¹⁶ U.S. Department of Commerce, Bureau of the Census, *1992 Census of Transportation, Communications, and Utilities: Establishment and Firm Size*, at Firm Size 1-123 (1995) (*1992 Census*).

providers, pay telephone operators, covered specialized mobile radio providers, and resellers. It seems certain that some of these 3,497 telephone service firms may not qualify as small entities or small incumbent LECs because they are not “independently owned and operated.”¹⁷ For example, a personal communications service (PCS) provider that is affiliated with an interexchange carrier having more than 1,500 employees would not meet the definition of a small business. It is reasonable to conclude that fewer than 3,497 telephone service firms are small entity telephone service firms or small incumbent LECs that may be affected by the proposed rules, herein adopted.

8. **Wireline Carriers and Service Providers.** The SBA has developed a definition of small entities for telephone communications companies other than radiotelephone (wireless) companies. The Census Bureau reports that there were 2,321 such telephone companies in operation for at least one year at the end of 1992.¹⁸ According to the SBA's definition, a small business telephone company other than a radiotelephone (wireless) company is one employing no more than 1,500 persons.¹⁹ All but 26 of the 2,321 non-radiotelephone (wireless) companies listed by the Census Bureau were reported to have fewer than 1,000 employees. Thus, even if all 26 of those companies had more than 1,500 employees, there would still be 2,295 non-radiotelephone (wireless) companies that might qualify as small entities or small incumbent LECs. We do not have data specifying the number of these carriers that are not independently owned and operated, and thus are unable at this time to estimate with greater precision the number of wireline carriers and service providers that would qualify as small business concerns under the SBA's definition. Consequently, we estimate that fewer than 2,295 small telephone communications companies other than radiotelephone (wireless) companies are small entities or small incumbent LECs that may be affected by the proposed rules, herein adopted.

9. **Local Exchange Carriers.** Neither the Commission nor the SBA has developed a definition for small providers of local exchange service (LECs). The closest applicable definition under the SBA rules is for telephone communications companies other than radiotelephone (wireless) companies.²⁰ According to the most recent data, there are 1,395 incumbent and other LECs.²¹ We do not have data specifying the number of these carriers that are either dominant in their field of operations, are not independently owned and operated, or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of LECs that would qualify as small business concerns under the SBA's definition. Consequently, we estimate that fewer than 1,395 providers of local exchange service are small entities or small incumbent LECs that may be affected by the proposed rules, herein adopted.

¹⁷ See generally 15 U.S.C. § 632(a)(1).

¹⁸ 1992 Census, *supra*, at Firm Size 1-123.

¹⁹ 13 C.F.R. § 121.201, NAICS codes 51331, 51333, and 51334.

²⁰ 13 C.F.R. § 121.201, NAICS codes 51331, 51333, and 51334.

²¹ FCC, Common Carrier Bureau, Industry Analysis Division, *Carrier Locator* at Table 1.

10. **Interexchange Carriers.** Neither the Commission nor the SBA has developed a definition of small entities specifically applicable to providers of interexchange services (IXCs). The closest applicable definition under the SBA rules is for telephone communications companies other than radiotelephone (wireless) companies.²² According to the most recent data, there are 204 carriers engaged in the provision of interexchange services.²³ We do not have data specifying the number of these carriers that are not independently owned and operated or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of IXCs that would qualify as small business concerns under the SBA's definition. Consequently, we estimate that there are less than 204 small entity IXCs that may be affected by the proposed rules, herein adopted.

11. **Competitive Access Providers.** Neither the Commission nor the SBA has developed a definition of small entities specifically applicable to competitive access services providers (CAPs). The closest applicable definition under the SBA rules is for telephone communications companies other than except radiotelephone (wireless) companies.²⁴ According to the most recent data, there are 349 CAPs and competitive LECs engaged in the provision of competitive local exchange services.²⁵ We do not have data specifying the number of these carriers that are not independently owned and operated, or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of CAPs that would qualify as small business concerns under the SBA's definition. Consequently, we estimate that there are less than 349 small entity CAPs providing competitive local exchange services that may be affected by the proposed rules, herein adopted.

12. **Resellers (including debit card providers).** Neither the Commission nor the SBA has developed a definition of small entities specifically applicable to resellers. The closest applicable SBA definition for a reseller is a telephone communications company other than radiotelephone (wireless) companies.²⁶ According to the most recent data, there are 541 local and toll resellers engaged in the resale of telephone service.²⁷ We do not have data specifying the number of these carriers that are not independently owned and operated or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of resellers that would qualify as small business concerns under the SBA's definition. Consequently, we estimate that there are fewer than 541 small local and toll resellers that may be affected by the proposed rules, herein adopted.

²² 13 C.F.R. § 121.201, NAICS codes 51331, 51333, and 51334.

²³ FCC, Common Carrier Bureau, Industry Analysis Division, *Carrier Locator* at Table 1.

²⁴ 13 C.F.R. § 121.201, NAICS codes 51331, 51333, and 51334.

²⁵ FCC, Common Carrier Bureau, Industry Analysis Division, *Carrier Locator* at Table 1.

²⁶ 13 C.F.R. § 121.201, NAICS codes 51331, 51333, and 51334.

²⁷ FCC, Common Carrier Bureau, Industry Analysis Division, *Carrier Locator* at Table 1.

13. **Wireless Communications Services.** This service can be used for fixed, mobile, radiolocation and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (WCS) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years. The SBA has approved these definitions.²⁸ The Commission auctioned geographic area licenses in the WCS service. In the auction, there were seven winning bidders that qualified as very small business entities, and one that qualified as a small business entity. We conclude that the number of geographic area WS licenses affected includes these eight entities.

D. Description of Projected Reporting, Record Keeping, and Other Compliance Requirements

14. The *Order* imposes nominal increases in projected reporting, record keeping, and other compliance requirements. Both of these changes affect small and large companies equally. First, the order requires a competitive LEC that is requesting incumbent-LEC provisioned cross-connects pursuant to section 201 of the Act to provide a short certification that the amount of interstate traffic to be transmitted over the cross-connect constitutes more than ten percent of all traffic transmitted over that cross-connect. This certification requirement stems from jurisdictional considerations. Thus, it is not possible to exempt small entities from compliance with the certification requirement.

15. In the *Order*, we require that an incumbent LEC must allow a requesting carrier to submit physical collocation space preferences prior to assigning that carrier space. This will enable the requesting carrier to request the space that best fits its operational needs. We also amend our existing space report rule to require that, upon request, an incumbent LEC must submit to the requesting carrier a report describing in detail the space that is available for collocation in a particular incumbent LEC premises. Thus, the new rule requires more detailed information within a report that already must be provided. A professional would likely prepare the additional information in a limited period of time. To give the rule any meaning, this report must be generated by small and large entities alike. Otherwise, carriers requesting collocation at a small incumbent LEC’s facility would not have the all of the information available to make an educated space preference request.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered

16. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small

²⁸ See Letter from A. Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, FCC (Dec. 2, 1998).

entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.²⁹

17. In this *Order*, we adopt collocation rules in implementation of section 251(c)(6) of the Communications Act. These rules respond to the D.C. Circuit's decision in *GTE v. FCC*, remanding certain rules the Commission had adopted to implement that provision. Our actions will affect both telecommunications carriers that request collocation and the incumbent LECs that, under section 251(c)(6), must provide collocation. As indicated above, both groups of carriers include entities that, for purposes of this FRFA, are classified as small entities. Neither section 251(c)(6) nor the D.C. Circuit decision permits the Commission to exempt any incumbent LECs, including those that are small entities, from their collocation obligations. Indeed, section 10(d) of the Communications Act precludes the Commission from forbearing from the application of section 251(c)(6) to any entity prior to that section's full implementation, an event that has not yet occurred.³⁰

18. In this *Order*, we take a number of steps that may affect small entities that either provide or obtain collocation pursuant to section 251(c)(6) of the Communications Act. The requirements we adopt will require incumbent LECs to change their collocation practices. As Congress contemplated in enacting section 251(c)(6), our collocation requirements benefit small competitive LECs in their efforts to compete against incumbent LECs, both large and small, in the provision of telecommunications services, including advanced services. We believe that, on balance, the benefits to small competitive LECs of our actions in this *Order* far outweigh any burdens the *Order* places on small incumbent LECs.

19. As set forth more fully below, we believe that our actions in this *Order* are consistent with the RFA. Specifically, as OPASTCO urges, the requirements we adopt provide substantial flexibility to incumbent LECs, including small incumbent LECs, in implementing section 251(c)(6).³¹ Our requirements, however, stop short of allowing any incumbent LEC to act inconsistent with that statutory provision. Any such action would be inconsistent with the requirements of section 251(c)(6) and would upset the balance reflected in the statute. Such action also would substantially burden competitive LECs, including those that are small entities, in their efforts to compete against incumbent LECs.

20. The record makes clear that, absent the adoption of rules addressing the matters remanded by the D.C. Circuit, incumbent LECs will impede requesting carriers' collocation efforts. Our actions in this *Order* should benefit requesting carriers, many of which may be small entities, by reducing barriers they encounter in seeking to compete effectively in the provision of advanced services and other telecommunications services. Our actions seek to

²⁹ 5 U.S.C. § 603(c).

³⁰ 47 U.S.C. § 160(d).

³¹ See OPASTCO Comments at 6; para. 3, *supra*. We note that OPASTCO does not address directly any of the issues remanded by the D.C. Circuit and thus does not raise any specific alternatives we might consider in this *Order*.

balance the property interests of the incumbent LECs, including small incumbent LECs, with the public interest in promoting innovation and competition. We conclude that rules that are more restrictive or less restrictive would not strike the appropriate balance.

21. In this *Order*, we adopt standards that determine which competitive LECs, including small carriers, may collocate equipment at incumbent LEC premises pursuant to section 251(c)(6). These standards provide that equipment is “*necessary* for interconnection or access to unbundled network elements” within the meaning of section 251(c)(6) if an inability to deploy that equipment would, as a practical, economic, or operational matter, preclude the requesting carrier from obtaining interconnection or access to unbundled network elements as contemplated in sections 251(c)(2) and 251(c)(3). We also find that multifunction equipment meets the “*necessary*” standard only if the primary purpose and function of the equipment, as the requesting carrier seeks to deploy it, would be practically, economically, or operationally necessary for that carrier to obtain “equal in quality” interconnection or “nondiscriminatory access” to one or more unbundled network elements. We reject incumbent LEC and competitive LEC requests for alternative equipment standards because we believe such standards would be inconsistent with section 251(c)(6).³² We also find that standards more favorable to the incumbent LECs would thwart competition without significantly improving the interests of the incumbent LECs, while standards more favorable to competitive LECs would not properly take into consideration the property interests of the incumbent LECs. Therefore, we select the alternative that best balances the impact on each party, including small entities, and maximizes benefits.

22. We also conclude that switching and routing equipment generally meets our equipment standard because an inability to deploy that equipment would, as a practical, economic, and operational matter, preclude a requesting carrier from accessing all the features, functions, and capabilities of unbundled local loops. An incumbent LEC therefore generally must allow requesting carriers to collocate the relatively small switching and routing equipment that technological advances have enabled manufacturers to develop. An incumbent LEC, however, generally need not allow collocation of traditional circuit switches, which are very large pieces of equipment. We find, in light of the practical, economic, and operational availability of the relatively small switches and routers and the materially lesser burden collocation of these switches and routers imposes on an incumbent’s property interests, that traditional circuit switches generally do not meet our equipment standard. We believe that this approach toward switching and routing equipment furthers the purposes behind the RFA, because it allows small competitive LECs flexibility in configuring their networks while precluding the collocation of switching and routing equipment that would infringe small incumbent LECs’ property interests. We note that any alternative that might allow a small incumbent LEC to generally preclude the collocation of relatively small switches and routers within its premises would violate the statutory mandate that incumbent LECs, both large and small, provide for the collocation of “*necessary*” equipment.

³² See *Order* at part V.B.2.

23. In addition, in this *Order*, we eliminate the requirement that, pursuant to section 251(c)(6), an incumbent LEC allow competitive LECs to construct and maintain cross-connects outside of their immediate physical collocation space at the incumbent's premises. We considered maintaining this requirement, but that alternative would be inconsistent with the Communications Act and would not properly take into consideration the property interests of the incumbent LECs. The elimination of this requirement gives small incumbent LECs flexibility that was not available under the Commission's prior collocation rules.

24. We find that sections 201 and 251 of the Communications Act provide statutory authority to require an incumbent LEC to provision cross-connects between collocated carriers, and we require that an incumbent LEC provide such cross-connects upon reasonable request. We considered not requiring incumbent LECs to provision cross-connects between collocated carriers, but that alternative would allow incumbent LECs to provide collocation to competitive LECs in an unjust, unreasonable, and discriminatory manner. We note that all incumbent LECs, including those that are small carriers, cross-connect their own equipment within their premises. Indeed, those premises are, by design, places where a carrier can cross-connect equipment. The benefits to competition from requiring that a small incumbent LEC provision cross-connects between collocators within its premises far outweigh any additional burden such a requirement may impose on that carrier. In addition, allowing a small incumbent LEC to refrain from provisioning cross-connects between collocated carriers would allow the incumbent to impose unreasonable and discriminatory terms and conditions on collocators, in violation of the Communications Act.

25. In this *Order*, we eliminate the requirement that incumbent LECs allow the requesting carrier to select its physical collocation space from among the unused space in the incumbent's premises as well as requirements constraining how incumbents LEC may configure physical collocation space. We now allow incumbent LECs, in certain circumstances, to restrict physical collocation to space separated from space housing the incumbent's equipment and to require the construction and use of a separate entrance to access physical collocation space. We reject the alternative of retaining the prior rules, because they failed to properly balance the congressional goal of promoting competition against the need to protect an incumbent LEC's property interests against unwarranted intrusion. The elimination of these prior rules gives incumbent LECs, including small entities, flexibility that was not previously available.

26. We recognize, however, that an incumbent LEC has powerful incentives that, left unchecked, may influence it to allocate space in a manner inconsistent with its statutory duty to provide for physical collocation "on rates, terms, and conditions that are just, reasonable, and nondiscriminatory." Accordingly, we establish specific principles that each incumbent LEC, including those that are small carriers, must follow in assigning physical collocation space. These rules are designed to ensure that incumbent LECs, both large and small, act as neutral property owners and managers, rather than as direct competitors of the carriers requesting collocation, in assigning physical collocation space to requesting carriers. Alternatives that would give a small incumbent LEC more flexibility in assigning space might enable it to act unreasonably and discriminatorily in violation of section 251(c)(6). Those alternatives also would burden requesting carriers, including those that are small carriers, by increasing the costs

they incur in competing against incumbent LECs. Therefore, for both statutory and public policy reasons, we do not adopt a different standard for incumbent LECs that are small entities.

27. We also reject the alternative of allowing incumbent LECs, including those that are small entities, to restrict physical collocation to space separated from space housing the incumbent's equipment and to require the construction and use of a separate entrance to access physical collocation space in all instances, because we find that such separation measures would be unreasonable and discriminatory in certain circumstances. We conclude, for example, that an incumbent LEC may require such separation measures only where legitimate security concerns, or operational constraints unrelated to the incumbent's or any of its affiliates' or subsidiaries' competitive concerns, warrant them. We note that this is consistent with the D.C. Circuit's recognition that alternatives other than separation are sufficient to address incumbent LECs' security concerns. To the extent small incumbent LECs encounter security concerns or operational constraints that differ from those incumbent LECs encounter, our rules permit small incumbent LECs to take those differences into account in their space assignment and configuration policies and practices.

F. Report to Congress

28. The Commission will send a copy of the *Order*, including this FRFA, in a report to be sent to Congress pursuant to the SBREFA.³³ In addition, the Commission will send a copy of the *Order*, including the FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Order* and the FRFA (or summaries thereof) will also be published in the Federal Register.³⁴

³³ See 5 U.S.C. § 801(a)(1)(A).

³⁴ See 5 U.S.C. § 604(b).