FCC MAIL SECTION

DOCKET FILE COPY ORIGINAL

AUG 14 8 41 AM '98

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

In the Matters of	)	
	)	
Deployment of Wireline Services Offering Advanced Telecommunications Capability	)	CC Docket No. 98-147
	)	
Petition of Bell Atlantic Corporation For Relief from Barriers to Deployment of Advanced Telecommunications Services	)	CC Docket No. 98-11
	)	
Petition of U S WEST Communications, Inc. For Relief from Barriers to Deployment of Advanced Telecommunications Services	)	CC Docket No. 98-26
	)	
Petition of Ameritech Corporation to Remove Barriers to Investment in Advanced Telecommunications Technology	)	CC Docket No. 98-32
	)	
Petition of the Alliance for Public Technology Requesting Issuance of Notice of Inquiry and Notice of Proposed Rulemaking to Implement Section 706 of the 1996 Telecommunications Act	)	CCB/CPD No. 98-15 RM 9244
	)	
Petition of the Association for Local Telecommunications Services (ALTS) for a Declaratory Ruling Establishing Conditions Necessary to Promote Deployment of Advanced Telecommunications Capability Under Section 706 of the Telecommunications Act of 1996	)	CC Docket No. 98-78
	)	
Southwestern Bell Telephone Company, Pacific Bell, and Nevada Bell Petition for Relief from Regulation Pursuant to Section 706 of the Telecommunications Act of 1996 and 47 U.S.C. § 160 for ADSL Infrastructure and Service	)	CC Docket No. 98-91

MEMORANDUM OPINION AND ORDER, AND NOTICE OF PROPOSED RULEMAKING

Adopted: August 6, 1998 **Released: August 7, 1998**

Comment Date: **September 21, 1998**
Reply Comment Date: **October 13, 1998**

By the Commission: Commissioners Ness, Powell and Tristani issuing separate statements.

TABLE OF CONTENTS

Paragraph

I. INTRODUCTION 1

II. OVERVIEW 6

III. EXECUTIVE SUMMARY 18

IV. BACKGROUND 20
- A. Statutory Framework 20
- B. Petitions Before the Commission 23
- C. Advanced Services 28

V. MEMORANDUM OPINION AND ORDER 32
- A. Applicability of Section 251(c) to Incumbent Local Exchange Carriers . . . 32
  - 1. Introduction 32
  - 2. Statutory Classification of Advanced Services 33
    - a. Telecommunications Services 34
    - b. Telephone Exchange Service or Exchange Access 38
  - 3. Interconnection 45
  - 4. Unbundled Network Elements 50
  - 5. Resale Obligations Under Section 251(c)(4) 59
  - 6. Collocation 62
- B. Forbearance and LATA Boundary Modifications 65
  - 1. Background 65
  - 2. Discussion 69
    - a. Forbearance 69
    - b. LATA Boundary Modifications 80

VI. NOTICE OF PROPOSED RULEMAKING 83
- A. Introduction 83
- B. Provision of Advanced Services through a Separate Affiliate 85

1. Background 89
2. Advanced Services Affiliates 92
   a. Circumstances Under Which an Advanced Services Affiliate Would Not Be an Incumbent LEC 95
   b. Transfers from an Incumbent LEC to an Advanced Services Affiliate 104
3. State Regulation 116

C. Measures to Promote Competition in the Local Market 118
1. Collocation Requirements 118
   a. Background 118
   b. Adoption of National Standards 122
   c. Collocation Equipment 126
   d. Allocation of Space 136
   e. Space Exhaustion 145
   f. Effects of Additional Collocation Requirements 150
2. Local Loop Requirements 151
   a. Overview 151
   b. Background 152
   c. Adoption of National Standards 154
   d. Loops and Operations Support Systems 157
   e. Loop Spectrum Management 159
   f. Uniform Standards for Attachment of Electronic Equipment at the Central Office End of a Loop 163
   g. Redefining the Local Loop to Ensure Competitive LEC Access to Loops Capable of Providing Advanced Services . 164
   h. Unbundling Loops Passing through Remote Terminals . . . 165
   i. Effects of Additional Requirements for Local Loops 177

D. Unbundling Obligations Under Section 251(c)(3) 178
E. Resale Obligations Under Section 251(c)(4) 185
F. Targeted InterLATA Relief 190

VII. PROCEDURAL MATTERS 197
A. Ex Parte Presentations 197
B. Initial Paperwork Reduction Act Analysis 198
C. Initial Regulatory Flexibility Analysis 199
D. Comment Filing Procedures 200
E. Further Information 206

VIII. ORDERING CLAUSES 207

APPENDIX A -- LIST OF COMMENTERS
APPENDIX B -- DESCRIPTION OF xDSL TECHNOLOGY
APPENDIX C -- DESCRIPTION OF INTEGRATED DIGITAL LOOP CARRIER SYSTEMS
APPENDIX D -- INITIAL REGULATORY FLEXIBILITY ANALYSIS

I. INTRODUCTION

1. One of the fundamental goals of the Telecommunications Act of 1996 (1996 Act)[1] is to promote innovation and investment by all participants in the telecommunications marketplace, both incumbents and new entrants, in order to stimulate competition for all services, including advanced services. Congress provided the blueprint in the 1996 Act for ensuring that all markets are open to competition, while encouraging the rapid deployment of new telecommunications technologies.[2] In this proceeding, we take steps to implement Congress' framework with respect to advanced services.

2. As the demand for high-speed, high-capacity advanced services increases, incumbent telecommunications companies and new entrants alike are deploying innovative new technologies to meet that demand. The role of the Commission is not to pick winners or losers, or select the "best" technology to meet consumer demand, but rather to ensure that the marketplace is conducive to investment, innovation, and meeting the needs of consumers.

3. This item is issued in response to six petitions suggesting action we should take to speed the deployment by wireline carriers of advanced services. Although the parties filing these petitions seek relief pursuant to section 706[3] of the 1996 Act, our authority to take action lies in the heart of the Communications Act of 1934 (the Act), in sections 201, 202, 251 and 271. For purposes of this item, we use the term "advanced services" to mean wireline, broadband[4] telecommunications services, such as services that rely on digital subscriber line technology (commonly referred to as xDSL)[5] and packet-switched technology.[6]

---

[1] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, *codified at* 47 U.S.C. §§ 151 *et seq.* Hereinafter, all citations to the 1996 Act will be to the 1996 Act as it is codified in the United States Code. The 1996 Act amended the Communications Act of 1934. We will refer to the Communications Act of 1934, as amended, as the "Communications Act" or as the "Act."

[2] Preamble to Pub. L. 104-104, 110 Stat. 56 (1996).

[3] Pub.L. 104-104, Title VII, § 706, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157.

[4] The term "broadband" is generally used to convey sufficient capacity -- or "bandwidth" -- to transport large amounts of information. As technology evolves, the concept of "broadband" will evolve with it: we may consider today's "broadband" services to be "narrowband" services when tomorrow's technologies appear.

[5] The "x" in xDSL is a place holder for the various types of DSL service, such as ADSL (asymmetric digital subscriber line), HDSL (high-speed digital subscriber line), UDSL (universal digital subscriber line), VDSL (very-high speed digital subscriber line), and RADSL (rate-adaptive digital subscriber line). We discuss the functionality offered by xDSL in greater detail in section IV(C), *infra*.

[6] We further describe advanced services in section IV(C), *infra*. We note that services that rely on digital subscriber line technology are but one of the advanced services currently in existence, and we in no way mean to suggest digital subscriber line is the preferred technology. We consider it preferable to provide illustrative

4. This item consists of a Memorandum Opinion and Order (Order) and a Notice of Proposed Rulemaking (NPRM). After clarifying in the Order our views on the applicability of existing statutory requirements in sections 251 and 271 to advanced services, we seek comment on a wide variety of issues associated with the provision of advanced services by wireline carriers. We propose measures to promote the deployment of advanced services in a competitive manner by both incumbent local exchange carriers (LECs) and new entrants.

5. We note that we are also issuing another item today that addresses advanced services, a Notice of Inquiry (NOI), pursuant to our statutory obligation under section 706(b) of the 1996 Act.[7] In the NOI, we seek information on the status of broadband deployment in all market sectors -- including wireless, wireline, cable, and satellite -- and the types of actions we can take in the future if we determine that advanced telecommunications capability is not being deployed to all Americans in a reasonable and timely fashion.[8]

II. OVERVIEW

6. Increasingly, all electronic communications are becoming digital. Print, audio, video, voice and data[9] can all be transmitted in digital form, as collections of ones and zeros. Digitized information can be efficiently transmitted by means of "packet switching." Instead of maintaining an end-to-end channel of communications for the length of the information transfer, packet switching breaks the information up into smaller packets that are transmitted separately over the most efficient route available, and then reassembled, microseconds later, at their destination. Packet-switched transmission of digitized information promises a revolution in information, communications services, and entertainment.[10]

---

examples rather than attempting to create a list of all advanced services.

[7] *See* 47 U.S.C. § 157 note. Section 706(b) of the Telecommunications Act of 1996 requires the Commission to initiate, within 30 months of the enactment of the 1996 Act, an inquiry into the availability of advanced telecommunications capabilities to all Americans. The Commission must complete the inquiry within six months, and must take "immediate action to accelerate the deployment" of advanced telecommunications capability if the inquiry determines that such capability is not being deployed to all Americans in a reasonable and timely fashion. *See id.*

[8] We note that the states recently urged the Commission to initiate an NOI and solicit additional ideas, including those put forth by the states, before granting any specific remedial actions or requests for interim relief proposed in the petitions of Bell Atlantic, the Alliance for Public Technology, Ameritech, U S WEST, and SBC. NARUC Convention Floor Resolution No. 6, "Resolution Regarding Additional Petitions to the FCC for Action Under Section 706" (adopted by the Exec. Comm. on July 30, 1998).

[9] We use the term "data" broadly to refer to a representation of facts, concepts, instructions, or information in a manner suitable for communication, interpretation, or processing.

[10] Packet-switched technology is discussed in further detail in section IV(C), *infra*.

7. High-speed, packet-switched networks offer businesses, residential users, schools and libraries, and other end users of information the ability to access and transport information across the street or across the globe. If ordinary citizens can access these networks at high speeds using existing copper wires, a variety of new services and vast improvements to existing services will be available. In the near future, these services could include real-time video in place of telephony, so that families who connect over the phone can not only talk to each other, but can see each other as well. They could also include feature-length movies on demand, and faster access to the Internet. They are bringing about explosive growth in electronic commerce and new paths for distance learning. The ability of all Americans to access these networks, and to share in their resources, will very likely spur our growth and development as a nation.

8. If all Americans are to have meaningful access to these advanced services, however, there must be a solution to the problem of the "last mile." No matter how fast the network is, if the connection between the network and the end-user is slow, then the end-user cannot take advantage of the network's high-speed capabilities.[11] For example, information generally moves very quickly across the high-speed backbone of the Internet. But its speed may be cut to a tiny fraction when it passes through the ordinary copper telephone line that runs into a residence.. The end-user may not be able to receive data quickly enough to take advantage of broadband applications.[12]

9. The six petitions we have received request that we use various tools, including regulatory forbearance, to facilitate deployment of advanced services. In broad terms, four Bell Operating Companies (BOCs) request that we allow them to provide xDSL-based services in a deregulated environment.[13] At the same time, the Association for Local Telecommunications Services (ALTS) requests a declaratory ruling and commencement of a rulemaking to ensure that competing carriers can deploy xDSL-based services quickly and

---

[11] Although advanced services can also be deployed using other technologies over satellite, cable, and wireless systems, we limit the discussion here to wireline services, because none of the petitioners raise issues about these other technologies.

[12] Consumers may also experience delays in accessing information that stem from sources other than the "last mile." For example, they may experience delays at the servers containing the information they wish to access, or delays relating to congestion in the Internet itself.

[13] *Petition of Bell Atlantic Corporation for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-11 (filed Jan. 26, 1998); *Petition of U S WEST Communications, Inc., for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-26 (filed Feb. 25, 1998); *Petition of Ameritech Corporation to Remove Barriers to Investment in Advanced Telecommunications Capability*, CC Docket No. 98-32 (filed Mar. 5, 1998); *Southwestern Bell Telephone Company, Pacific Bell, and Nevada Bell Petition for Relief from Regulation Pursuant to Section 706 of the Telecommunications Act of 1996 and 47 U.S.C. § 160 for ADSL Infrastructure and Service*, CC Docket No. 98-91 (filed June 9, 1998).

efficiently.[14] Finally, the Alliance for Public Technology (APT) urges the Commission to initiate a Notice of Inquiry and Notice of Proposed Rulemaking to adopt various policies to remove barriers to deployment and actively promote infrastructure investment.[15]

10. Today, incumbent wireline carriers and new entrants are at the early stages of deploying xDSL and other advanced services. Thus, the incumbent does not currently enjoy the overwhelming market power that it possesses in the conventional circuit-switched voice telephony market. Incumbents assert that rules mandating that they give their competitors access to advanced services and the facilities used to provide those services reduce their incentive to invest in these new facilities, and are not necessary given their lack of market power in this area. At the same time, new entrants argue that incumbents are attempting to evade their obligation to provide access to those facilities and services that are critical to competitive participation in the wireline market. We seek in this proceeding to address both of these concerns, and to encourage and enable all companies, both incumbents and new entrants, to provide these advanced services.[16]

11. In the Order, we first conclude that the pro-competitive provisions of the 1996 Act apply equally to advanced services and to circuit-switched voice services. Congress made clear that the 1996 Act is technologically neutral and is designed to ensure competition in all telecommunications markets. We therefore conclude that incumbent LECs are subject to section 251(c) in their provision of advanced services. Specifically, we find that incumbent LECs are subject to the interconnection obligations of sections 251(a) and 251(c)(2) with respect to both their circuit-switched and packet-switched networks. We also clarify that the facilities and equipment used by incumbent LECs to provide advanced services are network elements and subject to the obligations in section 251(c)(3). Thus, for example, all incumbent LECs must provide requesting telecommunications carriers with unbundled loops capable of transporting high-speed digital signals, and must offer unbundled access to the equipment used in the provision of advanced services, subject to considerations of technical feasibility and the provisions of section 251(d)(2). As discussed in the NPRM below, however, to the extent that an incumbent LEC chooses to establish an affiliate that is truly separate from the

---

[14] *Petition of the Association for Local Telecommunications Services (ALTS) for a Declaratory Ruling Establishing Conditions Necessary to Promote Deployment of Advanced Telecommunications Capability Under Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-78 (filed May 27, 1998).

[15] *See Petition of the Alliance for Public Technology Requesting Issuance of Notice of Inquiry and Notice of Proposed Rulemaking to Implement Section 706 of the 1996 Telecommunications Act,* CCB/CPD No. 98-15 (filed Feb. 18, 1998).

[16] *See* Letter from Larry Irving, Assistant Secretary for Communications and Information, National Telecommunications and Information Administration, U.S. Department of Commerce, to William E. Kennard, Chairman, Federal Communications Commission, CC Docket Nos. 98-91, 98-32, 98-26, and 98-11 at 2 (filed July 17, 1998) (NTIA July 17 *ex parte*).

incumbent to provide these advanced services, that affiliate would not be an incumbent LEC under the Act, and would therefore not be subject to incumbent LEC regulation.[17]

12. Second, we deny in the Order the petitions of Ameritech, Bell Atlantic, SBC,[18] and U S WEST to the extent that they request us to forbear from applying the requirements of sections 251(c) and/or 271 with respect to their provision of advanced services. We conclude that Congress did not provide us with the statutory authority to forbear from these critical market-opening provisions of the Act until their requirements have been fully implemented. We also decline to grant the requests to create a single, global LATA for packet-switched services, because we believe that such a determination could effectively eviscerate section 271 and circumvent the procompetitive incentives for opening the local market that Congress sought to achieve through that section of the Act.

13. We are committed, however, to ensuring that incumbent LECs make their decisions to invest in and deploy advanced telecommunications services based on the market and their business plans, rather than regulation. Accordingly, in the NPRM, we propose an optional alternative pathway for incumbent LECs that would allow separate affiliates to provide advanced services free from incumbent LEC regulation. In particular, if an incumbent LEC chooses to offer advanced services through an affiliate that is truly separate from the incumbent, that affiliate would not be deemed an incumbent LEC and therefore would not be subject to incumbent LEC regulation, including the obligations under section 251(c). We make specific proposals in the NPRM on how separate an affiliate would need to be so that it would not be deemed an incumbent LEC. Our proposals reflect our view that, if the advanced services affiliate derives an unfair advantage from its relationship with the incumbent, that affiliate would have to be viewed as stepping into the shoes of the incumbent LEC and would be subject to all the requirements that Congress established for incumbent LECs.

14. In addition, we seek to facilitate the ability of competing carriers to offer advanced services on an equal footing with incumbent carriers and their affiliates. In particular, to provide advanced services, new entrants may need to collocate equipment on an incumbent LEC's premises for interconnection and access to unbundled network elements, such as loops. Consequently, we grant ALTS' request that we initiate a rulemaking to strengthen collocation requirements, which will reduce the costs and delays associated with collocation. We also seek comment on whether to review and revise our rules regarding the provision of loops to eliminate barriers to entry for competing providers. Specifically, we seek comment on whether we should revise our definition of the loop, or require sub-loop unbundling in recognition of new technological and market developments. We also seek

[17] We recognize that the corporate holding company may be the entity that would establish the affiliate, rather than the incumbent LEC per se.

[18] This petition was actually filed by SBC's incumbent LEC entities, Southwestern Bell Telephone Company, Pacific Bell, and Nevada Bell.

comment on how to unbundle loops that pass through remote concentration devices. We note that, to the extent an incumbent LEC chooses to establish a separate affiliate to provide advanced services, the incumbent LEC should have an additional incentive to improve its processes and provide unbundled elements and collocation space as quickly and cheaply as possible to all competitors, including its advanced services affiliate.

15. In addition, we seek comment on the specific unbundling obligations for network elements used to provide advanced services and on whether we should modify the current unbundling rules in light of technological and market advances.

16. Finally, we seek comment on a number of proposals that would provide tailored relief to incumbent LECs and/or their affiliates. In particular, we seek comment on whether limited LATA boundary modifications or other targeted interLATA relief would be appropriate in certain circumstances.

17. We recognize the importance of the issues we raise in the NPRM to the deployment of advanced services by both incumbents and competitors. We further recognize the importance of regulatory certainty and the impact it has on the ability of all carriers to plan and develop their products and services. We therefore seek to issue an order resolving the issues raised in the NPRM as expeditiously as possible.

III. EXECUTIVE SUMMARY

18. In the Order, we take the following steps:

Obligations of Incumbent LECs That Provide Advanced Services on an Integrated Basis

- We clarify, in response to a petition by ALTS, that sections 251 and 252 apply to advanced telecommunications facilities and services offered by an incumbent local exchange carrier (LEC) as defined in the Communications Act, *i.e.*, the local telephone operating company. An affiliate is not an incumbent LEC unless it is a successor or assign of the incumbent LEC, or comparable to the incumbent LEC, as set forth in the statute. For example, we find that an incumbent LEC is subject to the interconnection obligations of section 251(c)(2) with respect to both circuit-switched and packet-switched networks.

- We also clarify, in response to the ALTS petition, that the facilities and equipment used by incumbent LECs to provide advanced services are network elements and subject to section 251(c). Thus, upon request, the incumbent LEC must provide new entrants with unbundled loops capable of transporting high-speed digital signals, and must offer unbundled access to the equipment used in the provision of advanced services, to the extent technically feasible and subject to the provisions of section 251(d)(2).

- We also declare that, pursuant to the terms of section 251(c)(4), the incumbent LEC must offer for resale, at wholesale rates, any advanced services that the incumbent offers to subscribers that are not telecommunications carriers.

Forbearance from Sections 251(c) and 271

- We deny requests to forbear from application of sections 251(c) and/or 271, concluding that we do not have the statutory authority to forbear from either section prior to its full implementation.

- We deny requests for large-scale changes in LATA boundaries (such as Ameritech's request for a global, "data LATA") because that would be functionally the same as forbearing from section 271 for advanced services and would eviscerate section 271 for those services. In the NPRM, we seek comment on more targeted LATA boundary modification issues.

19. In the Notice of Proposed Rulemaking, we make the following tentative conclusions and seek comment on the following issues:

Provision of Advanced Services Through a Separate Affiliate

- We propose an optional alternative pathway for incumbent LECs that would allow separate affiliates to provide advanced services free from incumbent LEC regulation. As a non-incumbent LEC, an advanced services affiliate would not be subject to the requirements of section 251(c). We also tentatively conclude that, to the extent such an affiliate provides interstate exchange access service, the affiliate: (1) would be presumed to be nondominant, and, therefore, not subject to price cap regulation or rate of return regulation for such services; and (2) would not be required to file tariffs for such services.

- We tentatively conclude that an advanced services affiliate that meets the following specific structural separation and nondiscrimination requirements will not be an incumbent LEC: (1) the incumbent must "operate independently" from its affiliate; (2) transactions must be on an arm's length basis, reduced to writing, and made available for public inspection; (3) the incumbent and affiliate must maintain separate books, records, and accounts; (4) the incumbent and advanced services affiliate must have separate officers, directors, and employees; (5) the affiliate must not obtain credit under any arrangement that would permit a creditor, upon default, to have recourse to the assets of the incumbent; (6) the incumbent LEC, in dealing with its advanced services affiliate may not discriminate in favor of its affiliate in the provision of any goods, services, facilities or information or in the establishment of standards; and (7) an advanced services affiliate must interconnect with the incumbent LEC pursuant to tariff or pursuant to an interconnection agreement, and

whatever network elements, facilities, interfaces and systems are provided by the incumbent LEC to the affiliate must also be made available to unaffiliated entities.

- We seek comment on how transfers to advanced services affiliates of, among other things, facilities and customer accounts, should affect the regulatory status of the affiliates. We are committed to ensuring that the separate affiliate is a realistic option for incumbent LECs. We must evaluate, however, whether certain transfers would render an advanced services affiliate an "assign" of the incumbent LEC.

- To the extent that an advanced services affiliate provides advanced services on an intrastate basis, we encourage states to treat the affiliate equivalently to any other competing carrier offering advanced services.

Collocation and Loop Requirements

- We, in response to a request by ALTS, initiate a rulemaking to adopt strengthened collocation requirements. We seek comment on a number of measures that would optimize the space available for collocation and would reduce unnecessary costs and delays, and thereby facilitate deployment of advanced services, particularly to residential and rural customers. For example, we seek comment on whether we should require incumbent LECs to allow collocation of equipment that includes switching functionality. We also tentatively conclude that incumbent LECs should be required to offer alternative collocation arrangements, including cageless collocation. We further tentatively conclude that, upon request, incumbent LECs should provide competitors with written information regarding space availability in the incumbent's facilities, and that incumbent LECs that deny physical collocation, citing space constraints, should allow competitors to tour the incumbent's premises.

- We also seek comment on whether we should revise our rules regarding the provision of loops to competitors in order further to eliminate barriers to entry for entities that seek to provide advanced services. Specifically, we seek comment on: (1) whether the operations support system rules adequately ensure that competitive LECs have access to loop information; (2) how we should address loop spectrum interference issues and whether we should require loop spectrum unbundling; and (3) whether we should revise our definition of the local loop to take account of new technological developments. We also seek comment on how carriers should unbundle loops that pass through remote concentration devices.

Unbundling Obligations Under Section 251(c)(3)

- We seek comment on the specific unbundling obligations that apply to network elements used to provide advanced services. In addition, we seek comment on whether we should adopt additional criteria when considering the extent to which network elements must be made available on an unbundled basis. We also seek comment on whether we should find section 251(c)(3) to be fully implemented on a service-by-service basis.

Resale Obligations Under Section 251(c)(4)

- We seek comment on whether we should modify our prior interpretation of the requirements of section 251(c)(4) and require incumbent LECs to make available for resale, at wholesale rates, certain advanced exchange access services that they generally offer to subscribers that are not telecommunications carriers.

Limited InterLATA Relief

- We seek comment on the scope of the incidental, interLATA exception in section 271.
- We seek comment on types of LATA boundary modifications that might encourage deployment of advanced services to elementary and secondary schools and classrooms, and other educational institutions.
- We tentatively conclude that modification of LATA boundaries may be necessary for subscribers in rural areas to have high-speed connections to the Internet.
- We seek comment on whether we have authority to take other targeted actions to facilitate deployment of advanced services and, if so, on the criteria we should use in evaluating such requests.

IV. BACKGROUND

A. Statutory Framework

20. In the 1996 Act, Congress established a "pro-competitive, deregulatory national policy framework" for telecommunications, opening all telecommunications markets to competition so as to make advanced telecommunications and information technologies and services available to all Americans.[19] Congress enacted provisions opening incumbent LECs' networks to competitors, and gave the Commission the authority to adopt rules in this area to further the competitive goals of the 1996 Act.

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

21. At the core of the Act's market-opening provisions are sections 251 and 271.[20] In section 251, Congress sought to open local telecommunications markets to competition by reducing inherent economic and operational advantages possessed by incumbents. Section 251 requires incumbent LECs to share their networks in a manner that enables competitors to choose among three methods of entry -- the construction of new networks, the use of unbundled elements of the incumbent's network, and resale. Thus, section 251 requires incumbent LECs to offer at cost-based rates nondiscriminatory interconnection with their networks[21] and access to unbundled network elements.[22] Section 251 also requires incumbent LECs to make their retail services available at wholesale rates so they can be resold by new entrants.[23] Together with other pro-competitive provisions of the Act, section 251 provides new entrants with the ability to offer competitive telecommunications services.

22. Section 271 conditions the provision of in-region, interLATA services by BOCs on compliance with certain requirements, including compliance with a competitive checklist.[24] The critical market-opening requirements of section 251 are incorporated into this competitive checklist. Thus, through section 271, Congress requires BOCs to demonstrate that they have opened their local markets to competition before they are authorized to enter the in-region long distance market.

B. Petitions Before the Commission

23. A number of parties have filed petitions pursuant to section 706, seeking regulatory forbearance, initiation of a rulemaking, and declaratory rulings with respect to the provision of xDSL and packet-switched services. On January 26, 1998, Bell Atlantic filed a petition with the Commission pursuant to section 706 of the 1996 Act.[25] Bell Atlantic asks the Commission to forbear from applying the provisions of sections 251 and 271 of the Act to its advanced services. Specifically, Bell Atlantic asks the Commission to permit it to offer xDSL and other high-speed broadband services free from pricing, unbundling, and separations

---

[20] 47 U.S.C. §§ 251, 271.

[21] 47 U.S.C. § 251(c)(2)(D).

[22] 47 U.S.C. § 251(c)(3).

[23] 47 U.S.C. § 251(c)(4).

[24] 47 U.S.C. § 271.

[25] *Commission Seeks Comment on Bell Atlantic Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-11, Public Notice, 13 FCC Rcd 2495 (1998). On February 25, 1998, the Chief, Policy and Program Planning Division, Common Carrier Bureau, issued an Order granting the motion of the Commercial Internet eXchange Association (CIX) requesting an extension of the comment deadline in the above-mentioned docket. *Bell Atlantic's Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket 98-11, Order, 13 FCC Rcd 4495 (1998).

restrictions. In addition, Bell Atlantic asks the Commission to forbear from applying section 271 of the Act to its high-speed broadband services, or, in the alternative, to modify LATA boundaries, so as to permit it to carry in-region interLATA traffic.[26]

24. On February 18, 1998, APT filed a petition asking the Commission to initiate a rulemaking to address various issues related to the deployment of advanced services.[27] APT urges the Commission to apply section 251(c) only to the existing incumbent LEC network and not to advanced services.[28] In conjunction with this request, APT asks the Commission to explore the possibility of requiring the incumbent LEC to use a separate subsidiary as a marketing device for its advanced services.[29] APT also asks the Commission to address various pricing issues, such as the development of an Internet service provider access charge that would be acceptable to the Internet industry.[30] APT also urges the Commission to consider what type of conditions could be attached to the Commission's approval of future mergers that would promote the objectives of section 706.[31] Finally, APT asks the Commission to consider "establishing a federal/state policy framework for developing and supporting community/provider partnerships designed to aggregate effective demand for community-based applications" of new services.[32]

25. On February 25, 1998, and March 5, 1998, respectively, U S WEST and Ameritech filed petitions with the Commission pursuant to section 706 of the 1996 Act.[33]

---

[26] Bell Atlantic Petition at 11.

[27] *Alliance for Public Technology Petitions the Commission for Issuance of a Notice of Inquiry and a Notice of Proposed Rulemaking to Implement Section 706 of the Telecommunications Act*, RM 9844, Public Notice, 13 FCC Rcd 5126 (1998).

[28] APT Petition at 2.

[29] *Id.* at 17.

[30] *Id.* at 2-3.

[31] *Id.* at 3.

[32] *Id.* at 3. We note that we do not address all of the issues raised by the APT Petition in the context of this rulemaking, but rather only address those issues discussed in the NPRM below.

[33] *Commission Seeks Comment on U S WEST Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-26, Public Notice, 13 FCC Rcd 4739 (1998); *Commission Seeks Comment on Ameritech Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-32, Public Notice, 13 FCC Rcd 4741 (1998). On March 16, 1998, the Chief, Policy and Program Planning Division, Common Carrier Bureau, issued an Order granting the motion of ALTS to consolidate the pleading cycles of the Bell Atlantic, U S WEST, and Ameritech petitions. *Petition of Bell Atlantic for Relief from Barriers to Deployment of Advanced Telecommunications Services, Petition of U S WEST for Relief from Barriers to Deployment of Advanced Telecommunications Services, Petition of Ameritech for Relief from Barriers to Deployment of Advanced Telecommunications Services, Motion to Consolidate Filing of*

Like Bell Atlantic, both U S WEST and Ameritech ask the Commission not to apply section 251(c) to their respective high-speed data services.[34] In addition, U S WEST argues that the Commission should either forbear from applying section 271 to its "data carriage," or in the alternative define LATA boundaries so as to permit U S WEST to aggregate data traffic across present LATA boundaries.[35] Ameritech contends that the Commission should create "one global LATA for packet-switched services."[36] Ameritech also asks the Commission to clarify that its separate affiliate need comply only with the separation requirements adopted in the *Competitive Carrier Fifth Report and Order*,[37] in order to be regulated as a non-incumbent LEC and, therefore, not be subject to the obligations of section 251(c).[38]

26. On May 27, 1998, ALTS filed a petition for declaratory ruling pursuant to section 706 of the 1996 Act.[39] The ALTS petition asks the Commission to clarify that the obligations of sections 251, 252 and 271 of the Act apply fully to digital and broadband services and facilities.[40] ALTS suggests, for example, that the Commission declare that incumbent LECs are obligated to unbundle a full range of loops and electronic elements attached to loops. In addition, ALTS asks the Commission to initiate a rulemaking to strengthen its collocation rules in order to reduce obstacles to competitive provision of telecommunications services.[41]

Comments and Replies by the Association for Local Telecommunications Services, Order, 13 FCC Rcd 5179 (1998).

[34] Ameritech Petition at 22-27; U S WEST Petition at 44-52.

[35] U S WEST Petition at 44.

[36] Ameritech Petition at 13.

[37] *Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Therefor*, CC Docket No. 79-252, Fifth Report and Order, 98 F.C.C. 2d 1191 (1984) (*Competitive Carrier Fifth Report and Order*).

[38] Ameritech Petition at 14-22.

[39] *Pleading Cycle Established for Comments on Association for Local Telecommunications Services Petition for Declaratory Ruling Regarding Section 706*, CC Docket No. 98-78, Public Notice, DA 98-1019 (rel. May 28, 1998).

[40] ALTS Petition at 2.

[41] *Id.* at 18-22.

27. On June 9, 1998, SBC filed a petition with the Commission pursuant to section 706 of the 1996 Act.[42] SBC does not ask the Commission to forbear from applying the provisions of section 271 of the Act, but rather seeks forbearance from the unbundling and resale provisions of sections 251(c) and 252 of the Act with respect to its ADSL facilities and services.[43] SBC also seeks relief from dominant carrier treatment of its ADSL service.[44] In addition, SBC seeks relief from the "most favored nation" obligation of section 252(i) of the Act.[45] We address many of the issues raised by all six of these petitions in both the Order and NPRM.

C. Advanced Services

28. The existing telephone network in the United States, with a line running into virtually every home and business, has worked admirably for the provision of ordinary voice telephony. Until recently, however, it was not thought to be suitable for interactive video or high speed data communications. First, the copper telephone wire running the "last mile" to each home was generally thought to be capable of carrying only a relatively modest stream of information. Second, the public telephone network is circuit-switched, that is, it maintains an end-to-end channel of communication for the entire duration of the call. While this is a useful means of transmitting ordinary voice telephony, it is not efficient for transmitting data and other types of information.

29. xDSL technology, coupled with packet-switched networks, addresses both of these constraints. Two xDSL modems are attached to each telephone loop: one at the subscriber's premises, and one at the telephone company's central office. The use of xDSL modems allows transmission of data over the copper loop at vastly higher speeds than those used for voice telephony or analog data transmission.[46] Further, the customer can potentially

---

[42] *Pleading Cycle Established for Comments on SBC Petition for Relief from Regulation Pursuant to Section 706 of the Telecommunications Act and 47 U.S.C. § 160 for ADSL Infrastructure and Service*, CC Docket No. 98-91, Public Notice, DA 98-1111 (rel. June 11, 1998).

[43] SBC Petition at 25-28.

[44] *Id.* at 30-32.

[45] *Id.* at 33-34.

[46] An ordinary voice channel, in the United States, generally allows transmission of digital information at the rate of 56,000 bits per second. By contrast, the most widely deployed xDSL service (known as ADSL) allows data to be transmitted to the home or residence at up to several *million* bits per second, depending on loop length, loop design, and the technology deployed. Provision of xDSL service is subject to a variety of important technical constraints. One is the length of the subscriber loop: ADSL, the most widely deployed xDSL-based service, generally requires loops of less than 18,000 feet using current technology. Another is the quality of the loop, which must be free of excessive bridged taps, loading coils, and other impediments. "Conditioning" loops to remove those impediments, or constructing fiber-based digital loop carrier systems to overcome loop length difficulties, can be expensive. For further explanation of these loop electronics, see *infra* nn.314, 315.

make ordinary voice calls over the public switched network at the same time as he or she is using the same line for high-speed data transmission.[47]

30. In circumstances in which the xDSL-equipped line carries separate POTS ("plain old telephone service") and data channels, the carrier must separate those two streams when they reach the telephone company's central office. This is done in a device known as a digital subscriber line access multiplexer, or DSLAM. The DSLAM and central office xDSL modem send the customer's POTS traffic to the public, circuit-switched telephone network. The DSLAM sends the customer's data traffic (combined with that of other xDSL users) to a packet-switched data network. Thus, the data traffic, after traversing the local loop, avoids the circuit-switched telephone network altogether.

31. Once on the packet-switched network, the data traffic is routed to the location selected by the customer, for example, a corporate local area network or an Internet service provider. That location may itself be a gateway to a new packet-switched network or set of networks, like the Internet. We have attached a diagram illustrating this network architecture as Appendix B.

V. MEMORANDUM OPINION AND ORDER

A. Applicability of Section 251(c) to Incumbent Local Exchange Carriers

1. Introduction

32. In this section, we address several issues that ALTS raises in its petition for a declaratory ruling.[48] First, as described in greater detail below, we grant the ALTS petition to the extent it asks the Commission to clarify that the obligations of sections 251 and 252 of the Act apply to advanced services and the facilities used to provide those services. We hold that, pursuant to the Act and our implementing orders, incumbent LECs are required to (1) provide interconnection for advanced services; and (2) provide access to unbundled network elements, including conditioned loops capable of transmitting high-speed digital signals, used by the incumbent LEC to provide advanced services. We also note that under the plain terms of the Act, incumbent LECs have an obligation to offer for resale, pursuant to section 251(c)(4), all advanced services that they generally provide to subscribers who are not telecommunications carriers. Finally, for the reasons discussed below, we conclude that incumbent LECs have an obligation under the statute and our implementing rules to offer collocation arrangements that reduce unnecessary costs and delays for competitors and that optimize the amount of space available for collocation.

---

[47] We note that, at the present time, not all existing xDSL deployments are taking advantage of that capability; some carriers offer only high-speed data services without the voice component over the xDSL-equipped loop.

[48] *See* ALTS Petition at 10-32.

2. Statutory Classification of Advanced Services

33. Before turning to the specific declaratory rulings requested by ALTS, we first must address the regulatory classification of "advanced services." The specific obligations of the 1996 Act depend on application of the statutory categories established in the Act's definitions section.[49] In particular, we consider whether advanced services constitute "telecommunications services," and, if so, what type of telecommunications service.

a. Telecommunications Services

(1) Background

34. The obligations imposed by sections 251 and 252 of the Act are triggered by the provision of a "telecommunications service."[50] Thus, for example, section 251(a) requirements apply to each "telecommunications carrier,"[51] which is to say, each "provider of telecommunications services."[52] Section 251(c)(3) obligates incumbent LECs to provide unbundled access to "network elements," which is to say, "facilit[ies] or equipment used in the provision of a telecommunications service."[53] The Act defines "telecommunications service" to mean "the offering of telecommunications for a fee directly to the public . . . ."[54] It defines "telecommunications" to mean "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received."[55]

---

[49] *See* 47 U.S.C. § 153.

[50] Under the 1996 Act, any service with a communications component must be either a "telecommunications service" or an "information service" (but not both). *See Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report to Congress, FCC No. 98-67, at ¶¶ 21-48 (rel. Apr. 10, 1998) (*Report to Congress on Universal Service*).

[51] 47 U.S.C. § 251(a).

[52] 47 U.S.C. § 153(44). The definition excludes aggregators of telecommunications services, as defined in section 226. *See* 47 U.S.C. § 226.

[53] 47 U.S.C. §§ 251(c)(3), 153(29).

[54] 47 U.S.C. § 153(46).

[55] 47 U.S.C. § 153(43).

(2) Discussion

35. We conclude that advanced services are telecommunications services. The Commission has repeatedly held that specific packet-switched services are "basic services,"[56] that is to say, pure transmission services.[57] xDSL and packet switching are simply

---

[56] The Commission, under the regime established in its *Computer II* proceeding, classified all services offered over a telecommunications network as either "basic" or "enhanced." A basic service consists of the offering, on a common carrier basis, of "pure transmission capability over a communications path that is virtually transparent in terms of its interaction with customer supplied information." *Amendment of Section 64.702 of the Commission's Rules and Regulations* (*Computer II*), 77 FCC 2d 384, 419-20, ¶¶ 93, 96 (1980) (*Computer II Final Decision*), *recon.*, 84 FCC 2d 50 (1980) (*Reconsideration Order*), *further recon.*, 88 FCC 2d 512 (1981) (*Further Reconsideration Order*), *affirmed sub nom. Computer and Communications Industry Ass'n v. FCC*, 693 F.2d 198 (D.C. Cir. 1982), *cert. denied*, 461 U.S. 938 (1983). An enhanced service, by contrast, includes "any offering over the telecommunications network which is more than a basic transmission service." *Id.* at 420, ¶ 97. We have found that Congress intended the categories of "telecommunications" and "information service," established in the 1996 Act, to parallel these "basic" and "enhanced" categories. *Report to Congress on Universal Service*, ¶ 21. The Commission has concluded that the definitions of "information service" and "enhanced service" should be interpreted to extend to the same functions. *Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as amended*, CC Docket No. 96-149, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 21905 (1996) (*Non-Accounting Safeguards Order*), Order on Reconisderation, 12 FCC Rcd 2297 (1997), *recon. pending, petition for summary review in part denied and motion for voluntary remand granted sub nom., Bell Atlantic v. FCC*, No. 97-1067 (D.C. Cir. filed Mar. 31, 1997), Second Order on Reconsideration, 12 FCC Rcd 8653 (1997), *aff'd sub nom. Bell Atlantic Telephone Cos. v. FCC*, 131 F.3d 1044 (D.C. Cir. 1997), Second Report and Order, 12 FCC Rcd 15756 (1997). In a separate proceeding, we have sought comment on whether the definitions of "telecommunications service" and "basic service" should be interpreted to extend to the same functions. *Amendment of Section 64.702 of the Commission's Rules and Regulations* (*Computer III*), Report and Order, CC Docket No. 85-229, Phase I, 104 FCC 2d 958 (1986) (*Phase I Order*), *recon.*, 2 FCC Rcd 3035 (1987) (*Phase I Recon. Order*), *further recon.*, 3 FCC Rcd 1135 (1988) (*Phase I Further Recon. Order*), *second further recon.*, 4 FCC Rcd 5927 (1989) (*Phase I Second Further Recon.*), *Phase I Order and Phase I Recon. Order, vacated, California v. FCC*, 905 F.2d 1217 (9th Cir. 1990) (*California I*); Phase II, 2 FCC Rcd 3072 (1987) (*Phase II Order*), *recon.*, 3 FCC Rcd 1150 (1988) (*Phase II Recon. Order*), *further recon.*, 4 FCC Rcd 5927 (1989) (*Phase II Further Recon. Order*), *Phase II Order vacated, California I*, 905 F.2d 1217 (9th Cir. 1990); *Computer III Remand Proceedings*, 5 FCC Rcd 7719 (1990) (*ONA Remand Order*), *recon.*, 7 FCC Rcd 909 (1992), *pets. for review denied, California v. FCC*, 4 F.3d 1505 (9th Cir. 1993) (*California II*); *Computer III Remand Proceedings: Bell Operating Company Safeguards and Tier 1 Local Exchange Company Safeguards*, 6 FCC Rcd 7571 (1991) (*BOC Safeguards Order*), *recon. dismissed in part*, Order, 11 FCC Rcd 12513 (1996); *BOC Safeguards Order vacated in part and remanded, California v. FCC*, 39 F.3d 919 (9th Cir. 1994) (*California III*), *cert. denied*, 115 S.Ct. 1427 (1995) (referred to collectively as the *Computer III* proceeding). We note that we are addressing modifications to these rules in another proceeding. *Computer III Further Remand Proceedings, Bell Operating Company Provision of Enhanced Services, 1998 Biennial Regulatory Review -- Review of Computer III and ONA Safeguards and Requirements*, CC Docket Nos. 95-20 and 98-10, Further Notice of Proposed Rulemaking, 13 FCC Rcd 1640 (1998) (*Computer III FNPRM*).

[57] *See Independent Data Communications Manufacturers Association, Inc. Petition for Declaratory Ruling that AT&T's InterSpan Frame Relay Service Is a Basic Service, American Telephone and Telegraph Company Petition for Declaratory Ruling that all Interexchange Carriers be Subject to the Commission's Decision in the IDCMA Petition*, Memorandum Opinion and Order, 10 FCC Rcd 13717 (1995) (*Frame Relay Order*), *recon.*

transmission technologies. To the extent that an advanced service does no more than transport information of the user's choosing between or among user-specified points, without change in the form or content of the information as sent and received, it is "telecommunications," as defined by the Act. Moreover, to the extent that such a service is offered for a fee directly to the public, it is a "telecommunications service."[58]

36. Incumbent LECs have proposed, and are currently offering, a variety of services in which they use xDSL technology and packet switching to provide members of the public with a transparent, unenhanced, transmission path. Neither the petitioners, nor any commenter, disagree with our conclusion that a carrier offering such a service is offering a "telecommunications service."[59] An end-user may utilize a telecommunications service together with an information service, as in the case of Internet access. In such a case, however, we treat the two services separately: the first service is a telecommunications service (*e.g.*, the xDSL-enabled transmission path), and the second service is an information service, in this case Internet access.[60]

37. We note that, pursuant to the Commission's *Computer Inquiry* and *Open Network Architecture* (*ONA*) proceedings, BOCs are permitted to offer information services on either an integrated basis, *i.e.* through the regulated telephone company, or through a separate affiliate. The BOCs are obligated, however, to unbundle and make available to competing information service providers (ISPs): (1) the network services that underlie the BOCs' own information services (pursuant to the *Computer Inquiry* proceedings); and (2) additional network services that the BOCs do not use in their information service offerings (pursuant to *ONA*).[61] We note that BOCs offering information services to end users of their advanced service offerings, such as xDSL, are under a continuing obligation to offer competing ISPs

---

pending; *American Telephone and Telegraph Company, for Authority under Section 214 of the Communications Act of 1934, as amended, to Install and Operate Packet Switches at Specified Telephone Company Locations in the United States,* Memorandum Opinion, Order and Authorization, 94 FCC 2d 48 (1983); *Computer II Final Decision*, 77 FCC 2d at 420, ¶ 95 ("Use internal to the carrier's facility of . . . bandwidth compression techniques, . . . packet switching, error control techniques, etc. that facilitate economical, reliable movement of information does not alter the nature of the basic service."); *see generally, Report to Congress on Universal Service*, at ¶ 41. So long as the user sees no protocol conversion on the service level, it is irrelevant whether protocol processing takes place internal to the call. *See Non-Accounting Safeguards Order*, 11 FCC Rcd at 21958, ¶ 106; *see also Computer III Phase II Order*, 2 FCC Rcd at 3081-82, ¶¶ 64-71 (1987).

[58] *See* 47 U.S.C. § 153(46).

[59] *See, e.g.,* CIX Comments (CC Docket No. 98-11) at 13, 15; AT&T Reply Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 11.

[60] *See Frame Relay Order*, 10 FCC Rcd at 13722-23, ¶¶ 40-46; *Report to Congress on Universal Service*, at ¶ 60; CIX Comments (CC Docket No. 98-11) at 15.

[61] We also note that GTE is subject to ONA. *See Application of Open Network Architecture and Nondiscrimination Safeguards to GTE Corporation*, 9 FCC Rcd 4922, 4924, 4932-36, ¶¶ 3, 16-24 (1994).

nondiscriminatory access to the telecommunications services utilized by the BOC information services. In the NPRM, we seek comment on whether we should apply any similar safeguards if a BOC affiliate offers advanced services in conjunction with a BOC information service.[62]

b. Telephone Exchange Service or Exchange Access

(1) Background

38. Certain obligations under section 251 turn on whether the carrier is providing "telephone exchange service" or "exchange access."[63] Pursuant to section 251(c)(2), an incumbent LEC must provide interconnection only "for the transmission and routing of telephone exchange service and exchange access."[64] Section 251(b) applies to each "local exchange carrier"; section 153(26), in turn, defines "local exchange carrier" to include any person "engaged in the provision of telephone exchange service or exchange access."[65]

39. Prior to 1996, the Communications Act defined "telephone exchange service" to include "service within a telephone exchange, or within a connected system of telephone exchanges within the same exchange area operated to furnish to subscribers intercommunicating service of the character ordinarily furnished by a single exchange and which is covered by the exchange service charge."[66] In the 1996 Act, Congress expanded that definition to include "comparable service provided through a system of switches, transmission equipment, or other facilities (or combination thereof) by which a subscriber can originate and

---

[62] *See infra* ¶ 49.

[63] The Act defines "telephone exchange service" as:

> (A) service within a telephone exchange, or within a connected system of telephone exchanges within the same exchange area operated to furnish to subscribers intercommunicating service of the character ordinarily furnished by a single exchange, and which is covered by the exchange service charge, or (B) comparable service provided through a system of switches, transmission equipment, or other facilities (or combination thereof) by which a subscriber can originate and terminate a telecommunications service.

47 U.S.C. § 153(47). The Act defines "exchange access" as "the offering of access to telephone exchange services or facilities for the purpose of the origination or termination of telephone toll services." 47 U.S.C. § 153(16). "Telephone toll service" means "telephone service between stations in different exchange areas for which there is made a separate charge not included in contracts with subscribers for exchange service." 47 U.S.C. § 153(48).

[64] 47 U.S.C. § 251(c)(2).

[65] 47 U.S.C. §§ 251(b), 153(26).

[66] This language is now 47 U.S.C. § 153(47)(A).

terminate a telecommunications service."[67] The Act defines "exchange access" to mean "the offering of access to telephone exchange services or facilities for the purpose of the origination or termination of telephone toll services."[68]

(2) Discussion

40. We conclude that advanced services offered by incumbent LECs are either "telephone exchange service" or "exchange access." At this time, we do not decide whether, or to what extent, specific xDSL-based services offered by incumbent LECs are "telephone exchange service" as opposed to "exchange access." We note, however, that this question has been raised in other pending proceedings, and we will continue to address it on a case-by-case basis.[69]

41. Nothing in the statutory language or legislative history limits these terms to the provision of voice, or conventional circuit-switched service. Indeed, Congress in the 1996 Act expanded the scope of the "telephone exchange service" definition to include, for the first time, "comparable service" provided by a telecommunications carrier.[70] The plain language of the statute thus refutes any attempt to tie these statutory definitions to a particular technology.[71] Consequently, we reject U S WEST's contention that those terms refer only to

---

[67] 47 U.S.C. § 153(47)(B).

[68] 47 U.S.C. § 153(16).

[69] *See, e.g., GTE Telephone Operations, GTOC Tariff No. 1, GTOC Transmittal No. 1148 (GTE DSL Solutions -- ADSL Service)*, CCB/CPD 98-79 (set for investigation May 28, 1998); *SBC Communications, Inc., Pacific Bell Telephone Company, Pacific Transmittal No. 1986*, CC Docket No. 98-103 (set for investigation June 28, 1998).

[70] 47 U.S.C. § 153(47)(B). This amendment in turn has modified the scope of "exchange access," which the Act defines as "the offering of access *to telephone exchange services or facilities* for the purpose of the origination or termination of telephone toll services." 47 U.S.C. § 153(16) (emphasis added).

[71] *See* Comments of Senators Stevens and Burns, *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45 (Report to Congress) (filed Jan. 26, 1998), at 2, n.1:

> [The 1996 amendment] would not have been necessary had Congress intended to limit telephone exchange service to traditional voice telephony. The new definition was intended to ensure that the definition of local exchange carrier, which hinges in large part on the definition of telephone exchange service, was not made useless by the replacement of circuit switched technology with other means -- for example packet switches or computer intranets -- of communicating information within a local area.

local circuit-switched voice telephone service or close substitutes, and the provision of access to such services.[72]

42. We note that in a typical xDSL service architecture, the incumbent LEC uses a DSLAM to direct the end-user's data traffic into a packet-switched network, and across that packet-switched network to a terminating point selected by the end-user. Every end-user's traffic is routed onto the same packet-switched network, and there is no technical barrier to any end-user establishing a connection with any customer located on that network (or, indeed, on any network connected to that network).[73] We see nothing in this service architecture mandating a conclusion that advanced services offered by incumbent LECs fall outside of the "telephone exchange service" or "exchange access" definitions set forth in the Act.

43. U S WEST's reliance on the fact that the Commission in the *Local Competition Order* noted that CMRS carriers "provide local, two-way switched voice service," as part of the analysis leading to its conclusion that such carriers provide telephone exchange service, is misplaced.[74] The Commission nowhere suggested that two-way voice service is a *necessary* component of telephone exchange service.[75] It certainly did not suggest that two-way voice service is a necessary component of exchange access.

44. We also reject U S WEST's contention that it is not subject to section 251(c) for its provision of advanced services because such services are neither "telephone exchange services" nor "exchange access services."[76] To the extent that it offers advanced services, U S WEST contends, it is not acting as a "local exchange carrier" or "incumbent local exchange carrier," and the obligations imposed by section 251(c) on incumbent local exchange carriers do not apply. Because we have determined that advanced services offered by incumbent LECs are telephone exchange service or exchange access, we need not and do not address the

---

[72] *See* U S WEST Comments (CC Docket No. 98-78) at 15-17; *see also* U S WEST Reply Comments (CC Docket No. 98-26) at 19-20; *see also* NTIA July 17 *Ex Parte* at 7, n.22 ("neither [section 251(c)] nor its legislative history suggests that its requirements apply only to an ILECs' circuit-switched facilities and services").

[73] Subscribers typically set up what are termed "permanent virtual connections" in routing their traffic across a packet-switched network. Such a connection, which gives the end user an "always-on" connection over a preset physical path, is easier to provision than a "switched virtual circuit," in which the connection path is determined on a call-by-call basis. A "permanent virtual connection," however, is not so "permanent" as the term would suggest. Any subscriber located on a packet-switched network can request the establishment of a permanent virtual connection connecting its own computers with those of any other subscriber. Indeed, it appears that customers can easily create and tear down different permanent virtual connections to different destinations on the network, giving them a degree of "switched" functionality.

[74] *See* U S WEST Comments (CC Docket No. 98-78) at 16 & n.16.

[75] *See Local Competition Order*, 11 FCC Rcd at 15999, ¶ 1013.

[76] *See* U S WEST Petition at 45, n.24; U S WEST Comments (CC Docket Nos. 98-11, 98-32) at 7; U S WEST Reply Comments (CC Docket No. 98-26) at 18-20.

section 251(c) obligations of an incumbent local exchange carrier offering services other than telephone exchange service or exchange access.[77]

3. Interconnection

a. Background

45. Section 251(a) of the Act requires all "telecommunications carriers" to "interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers." Section 251(c)(2) imposes interconnection obligations on incumbent LECs for purposes of transmitting and routing telephone exchange or exchange access traffic.

b. Discussion

46. We agree with ALTS that the interconnection obligations of section 251 of the Act apply equally to facilities and equipment used to provide data transport functionality and voice functionality.[78] Because advanced services that provide members of the public with a transparent, unenhanced transmission path are telecommunications services, all carriers offering such services are subject to the requirements of section 251(a), including the interconnection obligation set out in section 251(a)(1). In addition, because such services offered by an incumbent LEC are either "telephone exchange services" or "exchange access," the incumbent LEC is subject to the interconnection obligations of section 251(c). Thus, any telecommunications carrier in need of interconnection with an incumbent LEC network "for purposes of transmitting and routing telephone exchange traffic or exchange access traffic or both" is entitled to interconnection pursuant to section 251(c)(2) of the Act.[79]

47. For purposes of determining the interconnection obligation of carriers, the Act does not draw a regulatory distinction between voice and data services.[80] In particular, the Commission drew no such distinction in the *Local Competition Order*, when it required incumbent LECs to offer interconnection with competitors for the transmission and routing of

---

[77] *See supra* ¶¶ 40-43.

[78] ALTS Petition at 12-14; *see also* Level 3 Comments (CC Docket No. 98-78) at 4; MCI Comments (CC Docket No. 98-78) at 2; NEXTLINK Comments (CC Docket No. 98-78) at 13-14; Teleport Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 10; TRA Comments (CC Docket No. 98-78) at 2; WorldCom Comments (CC Docket No. 98-78) at 2; LCI Comments (CC Docket No. 98-78) at 6, 8. *But see, e.g.*, SBC Comments (CC Docket No. 98-78) at 19-21; USTA Comments (CC Docket No. 98-78) at 2, 4-7.

[79] *Local Competition Order*, 11 FCC Rcd at 15594, ¶ 184.

[80] *See supra* ¶¶ 40-43.

telephone exchange and exchange access traffic. Thus, the interconnection obligations of incumbent LECs apply to packet-switched as well as circuit-switched services.

48. The ability of competitive LECs to interconnect with incumbent LEC data networks "will permit all carriers, including small entities and small incumbent LECs, to plan regional or national networks using the same interconnection points in similar networks nationwide."[81] Our rules make it possible for competing telecommunications providers to offer seamless service to end-users by interconnecting with incumbents' networks. We therefore grant the ALTS request that we declare that the interconnection obligations of sections 251(a) and 251(c)(2) apply to incumbents' packet-switched telecommunications networks and the telecommunications services offered over them.

49. We reject BellSouth's argument that Congress intended that section 251(c) not apply to new technology not yet deployed in 1996.[82] Nothing in the statute or legislative history indicates that it was intended to apply only to existing technology. Moreover, Congress was well aware of the Internet and packet-switched services in 1996,[83] and the statutory terms do not include any exemption for those services.[84]

4. Unbundled Network Elements

a. Background

50. We next consider the unbundling obligations of section 251(c)(3). Section 251(c)(3) requires incumbent LECs 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 . . . ."[85] Section 153(29) defines "network element" to include any "facility or equipment used in the provision of a telecommunications service" along with the "features, functions, and capabilities that are provided by means of such facility or equipment."[86] The Commission noted in the *Local Competition Order*, however, that section 251(d)(2) gave it authority "to refrain from

---

[81] *Local Competition Order*, 11 FCC Rcd at 15592, ¶ 179.

[82] *See* BellSouth Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 10-11.

[83] For example, Congress in the 1996 Act favored "the continued development of the Internet," which the Act defines as "the international computer network of . . . interoperable packet-switched data services." 47 U.S.C. § 230(b)(1), (e)(1); *see also* 47 U.S.C. § 223.

[84] *See, e.g.*, WorldCom Comments (CC Docket Nos. 98-11, 98-26, 98-32) at 30.

[85] 47 U.S.C. § 251(c)(3); *see also Local Competition Order*, 11 FCC Rcd at 15640, ¶ 278.

[86] 47 U.S.C. § 153(29); *see also Local Competition Order*, 11 FCC Rcd at 15627-34, ¶¶ 249-64.