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U.S. Department of Justice, Office of Justice ProgramsNational Institute of JusticeThe Research, Development, and Evaluation Agency of the U.S. Department of Justice

VoIP and Meeting FCC Requirements

Recent rulings by the Federal Communications Commission (FCC) (FCC Order 05–116(pdf, 91 pages))
mandate that commercial VoIP service providers must provide E911 services correct PSAP, but the development, implementation, and processes associated with these technologies are very immature. Incorrectly configured consumer IP devices, or devices that are moved after a location has been pinpointed, can provide false location information to an emergency call taker. A portable IP-based telephony device operating through one or more public wireless WiFi access points will not even provide the limited details that are conveyed via a typical cellular telephone device.

The FCC ruling also requires that a notice be attached to commercial VoIP devices that do not connect to a 911 operator. An area of lesser concern is taxation and E911 assessment fees. As service users drop traditional services and migrate to unregulated VoIP networks, disposition of E911 fees and taxes associated with the traditional telephone service is not well defined, and rules differ from State to State.

Works Cited

The text on this page is taken from the publication *Telephony Implications of Voice over Internet Protocol* , NCJ 212976, February 2006, In Short Fact Sheet, National Institute of Justice. Download a printer-friendly Adobe Acrobat version (pdf, 2 pages).

Date Entered: November 14, 2007

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

In the Matters of	)	
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	
E911 Requirements for IP-Enabled Service Providers	)	WC Docket No. 05-196
	)	

FIRST REPORT AND ORDER AND NOTICE OF PROPOSED RULEMAKING

Adopted: May 19, 2005 **Released: June 3, 2005**

Comment Date: [45 days after publication in the Federal Register]
Reply Comment Date: [75 days after publication in the Federal Register]

By the Commission: Chairman Martin, and Commissioners Abernathy, Copps and Adelstein issuing separate statements.

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I. INTRODUCTION

1. In this Order, we adopt rules requiring providers of interconnected voice over Internet Protocol (VoIP) service to supply enhanced 911 (E911) capabilities to their customers.[1] Interconnected VoIP providers may satisfy this requirement by interconnecting indirectly through a third party such as a competitive local exchange carrier (LEC), interconnecting directly with the Wireline E911 Network, or through any other solution that allows a provider to offer E911 service. The characteristics of interconnected VoIP services have posed challenges for 911/E911 and threaten to compromise public safety.[2] Thus, we require providers of interconnected VoIP service to provide E911 services to all of their customers as a standard feature of the service, rather than as an optional enhancement. We further require them to provide E911 from wherever the customer is using the service, whether at home or away from home.

2. We adopt an immediate E911 requirement that applies to all interconnected VoIP services. In some cases, this requirement relies on the customer to self-report his or her location. We intend in a future order to adopt an advanced E911 solution for interconnected VoIP that must include a method for determining a user's location without assistance from the user as well as firm implementation deadlines for that solution. To this end, we seek comment in the Notice of Proposed Rulemaking (*NPRM*) on possible additional solutions including technical options and possible timelines for implementation.

3. In many ways, our action today is a necessary and logical follow-up to the *Vonage Order* issued late last year.[3] In that order, the Commission determined that Vonage's DigitalVoice service – an interconnected VoIP service – cannot be separated into interstate and intrastate communications and that

[1] The term "interconnected" refers to the ability of the user generally to receive calls from and terminate calls to the public switched telephone network (PSTN), including commercial mobile radio service (CMRS) networks. *See infra* Part III.A.

[2] In this Order, we act on the E911 issues before the other issues pending in the *IP-Enabled Services* proceeding because of the urgent need to address public safety issues related to interconnected VoIP. For example, we are aware of a recent incident in Texas in which it was reported that a 911 call was not completed when an interconnected VoIP user dialed 911 to seek emergency assistance during a home invasion burglary. *See, e.g.*, Attorney General of Texas, *Texas Attorney General Abbott Takes Legal Action to Protect Internet Phone Customers*, News Release (Mar. 22, 2005) <http://www.oag.state.tx.us/oagnews/release.php?id=850&PHPSESSID=251eucgngcvrihiolvs370jo3>; Paul Davidson, *Net-based 911 Fight Puts Lives on Line: Regulatory Issues Among Obstacles*, USA Today (Mar. 1, 2005). In another incident, it was reported that a Connecticut woman was not able to reach an emergency dispatcher by dialing 911 using her interconnected VoIP service when her infant son needed emergency medical attention. *See* Connecticut Attorney General, *Attorney General, DCP Sue Broadband Phone Company for Misrepresenting Its 9-1-1 Emergency Capabilities*, Press Release (May 3, 2005) <http://www.cslib.org/attygenl/mainlinks/tabindex4.htm>; Marian Gail Brown, *Dialing Up Panic with 911*, Connecticut Post (May 2, 2005); *see also* Alicia A. Caldwell, *Pair Crusades for Better Access to 911 from High-Tech Phones*, Orlando Sentinel (May 7, 2005) (describing an incident in which a Florida mother reportedly was not able to reach an emergency dispatcher by dialing 911 using her interconnected VoIP service to get emergency medical assistance for her infant daughter); NASUCA Comments at 49-50.

[3] *See Vonage Holdings Corporation Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission*, WC Docket No. 03-211, Memorandum Opinion and Order, 19 FCC Rcd 22404, 22405, para. 2 (2004) (*Vonage Order*), *appeal pending*, *National Ass'n of State Util. Consumer Advocates v. FCC*, No. 05-71238 (9th Cir. filed Feb. 22, 2005); *id.* at 22432, para. 44 ("[W]e intend to address the 911 issue as soon as possible, perhaps even separately.").

this Commission has the responsibility and obligation to decide whether certain regulations apply to DigitalVoice and other IP-enabled services having similar capabilities.[4] The *Vonage Order* also made clear that questions regarding what regulatory obligations apply to providers of such services would be addressed in the pending *IP-Enabled Services* proceeding.[5] Today, in accord with that statement, we take critical steps to advance the goal of public safety by imposing E911 obligations on certain VoIP providers, steps we believe will have support in the public safety community and the industry.[6]

4. The IP-enabled services marketplace is the latest new frontier of our nation's communications landscape. As such, new entrants and existing stakeholders are rushing to bring IP-enabled facilities and services to this market, relying on new technologies to provide a quickly evolving list of service features and functionalities. Although the Commission is committed to allowing these services to evolve without undue regulation in accord with our nation's policies for Internet services, we are, at the same time, aware of our obligation to promote "safety of life and property"[7] and to "encourage and facilitate the prompt deployment throughout the United States of a seamless, ubiquitous, and reliable end-to-end infrastructure"[8] for public safety. Congress has also established 911 as the national emergency number to enable all citizens to reach emergency services directly and efficiently, irrespective of whether a citizen uses wireline or wireless technology when calling for help by dialing 911.[9] As the Commission previously has stated,[10] and as commenters generally recognize, 911 service is critical to our nation's

[4] *See Vonage Order,* 19 FCC Rcd at 22405, 22424, paras. 1, 32.

[5] On March 10, 2004, the Commission released a Notice of Proposed Rulemaking to examine issues relating to services and applications making use of Internet Protocol (IP), including but not limited to VoIP services (collectively, "IP-enabled services"). *See IP-Enabled Services*, WC Docket No. 04-36, Notice of Proposed Rulemaking, 19 FCC Rcd 4863, 4864, para. 1 n.1 (2004) (*Notice*) (defining the term "IP-enabled services"). Comments were filed by May 28, 2004 and reply comments were filed by July 14, 2004. *See Pleading Cycle Established for Comments in IP-Enabled Services Rulemaking Proceeding*, WC Docket No. 04-36, Public Notice, 19 FCC Rcd 5589 (2004); *Wireline Competition Bureau Extends Reply Comment Deadlines for IP-Enabled Services Rulemaking and SBC's "IP Platform Services" Forbearance Petition*, WC Docket Nos. 04-29, 04-36, Public Notice, 19 FCC Rcd 10474 (2004); *see also* Appendix A (List of Commenters). In the *Notice*, the Commission sought comment on, among other things, the potential applicability of "basic 911," "enhanced 911," and related critical infrastructure regulation to VoIP and other IP-enabled services. *See Notice*, 19 FCC Rcd at 4898-99, para. 53. The remaining issues raised in the *Notice* will be addressed in the pending *IP-Enabled Services* proceeding.

[6] *See, e.g.*, Vonage Comments at 37 ("Vonage understands that it is in the public interest to provide customers access to emergency services, and believes that the continued development of these services is an important national priority.").

[7] *See* 47 U.S.C. § 151.

[8] Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, 113 Stat. 1286, § 2(b) (1999) (911 Act).

[9] *See* 911 Act § 3 (codified at 47 U.S.C. § 251(e)).

[10] *See, e.g.*, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, RM-8143, 11 FCC Rcd 18676, 18679, para. 5 (1996) (*E911 First Report and Order*) ("E911 saves lives and property by helping emergency services personnel do their jobs more quickly and efficiently."); *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements; Petition of the National Telecommunications and Information Administration to Amend Part 25 of the Commission's Rules to Establish Emissions Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band*, CC Docket No. 94-102, IB Docket No.

ability to respond to a host of crises.[11] Efforts by federal, state, and local government, along with the significant efforts by wireline and wireless service providers, have resulted in the nearly ubiquitous deployment of this life-saving service.[12]

5. Our decisions in this Order simply extend our longstanding and continuing commitment to a nationwide communications system that promotes the safety and welfare of all Americans. We believe that it is critically important to impose E911 obligations on interconnected VoIP providers and to set firm but realistic target deadlines for implementation of those requirements. At the same time, however, we allow the providers flexibility to adopt a technological solution that works best for them. In this Order, we take the necessary steps to promote cooperative efforts by state and local governments, public safety answering point (PSAP) administrators, 911 systems service providers, and interconnected VoIP providers that will lead to improved emergency services. Accordingly, today we adopt a balanced approach that takes into consideration the expectations of consumers, the need to strengthen Americans' ability to access public safety in times of crisis, and the needs of entities offering these innovative services.

II. BACKGROUND

A. History of 911 Service

6. Since AT&T first made the digits "9-1-1" available nationally for wireline access to emergency services in 1965,[13] the American public increasingly has come to depend on 911 service; the National Emergency Number Association (NENA) estimates that as of February 2005, some form of 911 service was available to nearly 99 percent of the population in 96 percent of the counties in the United States,[14] and 200 million calls are made to 911 in the United States each year.[15] It should therefore come as no

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99-67, Report and Order and Second Further Notice of Proposed Rulemaking, 18 FCC Rcd 25340, 25340, para. 1 (2003) (*E911 Scope Order*) ("As many citizens, elected representatives, and public safety personnel recognize, 911 service is critical to our Nation's ability to respond to a host of crises.").

[11] *See, e.g.*, AARP Comments at 2; APCO Comments at 4; Arizona Commission Comments at 13-14; Avaya Comments at 17; BRETSA Comments at 1; Cisco Comments at 11; CUB Comments at 28; FERUP Comments at 14; Missouri Commission Comments at 10; NASUCA Comments at 47; NENA Comments at 3; New Jersey Ratepayer Advocate Comments at 17; NCL Comments at 4; CWA Comments at 21; King County Comments at 6; Qwest Comments at 42; TCCFUI Comments at 4; USTA Comments at 40; Utah Commission Comments at 7-8; Cingular Reply at 15; Florida Commission Reply at 22; IAC Reply at 7-8; NASUCA Reply at 43-44; NENA Reply at 2; New Jersey Ratepayer Advocate Reply at 12; NATOA *et al.* Reply at 14-15.

[12] *See E911 Scope Order*, 18 FCC Rcd at 25340, para. 1.

[13] *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Notice of Proposed Rulemaking, 9 FCC Rcd 6170, 6172, para. 3 (1994) (*E911 NPRM*); *Implementation of the 911 Act; The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, WT Docket No. 01-110, CC Docket No. 92-105, Fourth Report and Order and Third Notice of Proposed Rulemaking, and Notice of Proposed Rulemaking, 15 FCC Rcd 17079, 17084, para. 9 (2000) (*N11 Codes Fourth Report and Order*) (citing *E911 First Report and Order*, 11 FCC Rcd at 18678, paras. 1-2).

[14] *See* National Emergency Number Association, *911 Fast Facts* (visited Apr. 25, 2005) <http://www.nena.org/911_facts/911fastfacts.htm> (NENA 911 Fast Facts).

[15] *See id.*

surprise that the American public has developed certain expectations with respect to the availability of 911 and E911 emergency services via certain classes of communications devices.[16]

7. The availability of this critical service is due largely to the efforts of state and local authorities and telecommunications carriers, who have used the 911 abbreviated dialing code to provide access to increasingly advanced and effective emergency service capabilities.[17] Indeed, absent appropriate action by, and funding for, states and localities, there can be no effective 911 service. Responsibility for establishing and designating PSAPs or appropriate default answering points, purchasing customer premises equipment (CPE), retaining and training PSAP personnel, purchasing 911 network services, and implementing a cost recovery mechanism to fund all of the foregoing, among other things, falls squarely on the shoulders of states and localities.

8. At the same time, however, new communications technologies have posed technical and operational challenges to the 911 system, necessitating the adoption of a uniform national approach to ensure that the quality and reliability of 911 service is not damaged by the introduction of such communications technologies. For example, following the introduction of CMRS in the United States, the Commission in 1996 established rules requiring CMRS carriers to implement basic 911 and E911 services.[18] Virtually all CMRS carriers and wireline LECs now provide at least basic 911 service.[19]

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[16] *See generally* Dale N. Hatfield, *A Report on Technical and Operational Issues Impacting the Provision of Wireless Enhanced 911 Services* <http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6513296239> (Hatfield Report). Indeed, one of the criteria the Commission identified in the *E911 Scope Order* as relevant to determining whether particular entities should be subject to some form of 911/E911 regulation was whether customers using the service or device have a reasonable expectation of access to 911 and E911 services. *See E911 Scope Order*, 18 FCC Rcd at 25347, paras. 18-19. Numerous commenters in this proceeding also noted the expectations that Americans have developed with respect to the availability of 911 service. *See, e.g.*, Alcatel Comments at 18-19; APCO Comments at 4, 7; Arizona Commission Comments at 13-14; CenturyTel Comments at 24; Cox Comments at 19; King County E911 Program Comments at 2; SBC Comments at 60; IAC Reply at 7; NENA Reply at 1. *But see* EFF Comments at 5 (questioning the Commission's ability to assess consumer expectations accurately and noting that consumer expectations change over time).

[17] *See N11 Codes Fourth Report and Order*, 15 FCC Rcd at 17084, para. 9 (citing *E911 First Report and Order*, 11 FCC Rcd 18676, paras. 1-2); *see also, e.g.*, Letter from Gino P. Menchini, Commissioner, New York City Department of Information Technology and Telecommunications, and Inspector Charles F. Dowd, Commanding Officer, Communications Division/NYC E-911, New York City Police Department, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 (filed Apr. 22, 2005) (New York City Apr. 22, 2005 *Ex Parte* Letter).

[18] The basic 911 rules require covered carriers to deliver all 911 calls to the appropriate PSAP or a designated answering point. *See* 47 C.F.R. §§ 20.18(b), 64.3001. Basic 911 requirements, however, do not address what information the PSAP should receive from that call; rather they are designed to ensure the appropriate delivery of 911 calls. *See Notice*, 19 FCC Rcd at 4898, para. 52; *E911 First Report and Order*, 11 FCC Rcd at 18679, 20862-69, paras. 4, 29-46. The Commission therefore adopted enhanced 911 rules requiring covered wireless carriers to be capable of delivering the calling party's call back number and the calling party's location information to requesting PSAPs. *See* 47 C.F.R. § 20.18; *E911 First Report and Order*, 11 FCC Rcd at 18689-722, paras. 54-91; *infra* note 41.

[19] *See* Federal Communications Commission, *Basic 911 Carrier Transition Reports* (last modified Nov. 24, 2004) <http://www.fcc.gov/911/basic/reports/>. Although there are no Commission requirements that wireline LECs provide E911 service, some states have laws imposing such requirements. *See, e.g.*, N.J. Stat. Ann. § 52:17C-4

9. Congress adopted the 911 Act to promote and enhance public safety through the use of wireless communications services.[20] More broadly, the 911 Act directed the Commission to designate 911 as the universal emergency assistance number for wireless and wireline calls,[21] which the Commission accomplished in August 1999.[22] The 911 Act further requires the Commission to "consult and cooperate with state and local officials" in its role of encouraging and supporting the deployment of "comprehensive end-to-end emergency communications infrastructure and programs."[23] The Commission continues to meet Congress' mandate,[24] and states and localities continue to make progress towards meeting Congress' goal.[25]

10. As the Commission has previously noted, the emergence of IP as a means of transmitting voice and data and providing other services via wireless, cable, and wireline infrastructure has significant implications for meeting the nation's critical infrastructure and 911 communications needs.[26] Intrado has estimated that while the number of residential 911 calls placed over VoIP services (VoIP 911 calls) will account for less than two percent of all residential 911 calls for the period 2004-2006, the number of residential VoIP 911 calls will rise from 370,000 in 2004 to 3.5 million in 2006.[27] This nearly tenfold increase in expected VoIP 911 calls dictates swift action on our part. Through this Order, we fulfill our role to ensure that the increasingly widespread deployment of a new communications technology does not damage the ability of states and localities to provide reliable and high-quality 911 service to all citizens.

B. 911 Technical and Operational Issues

11. 911 service features, and the ability of PSAPs to make use of them, vary from location to location and network to network. 911 service generally, however, falls into two categories – basic and enhanced.

(2005); Me. Rev. Stat. Ann. tit. 25, § 2933 (2005). Wireline LECs provide some level of enhanced 911 service (*i.e.*, at least a call back number) for callers located in 93% of counties with 911 coverage. *See* NENA 911 Fast Facts.

[20] *See* H.R. Rep. No. 106-25 at 1.

[21] *See* 911 Act § 3(a) (codified at 47 U.S.C. § 251(e)(3)).

[22] *See N11 Codes Fourth Report and Order*, 15 FCC Rcd at 17083-85, paras. 8-14.

[23] 911 Act § 3(b).

[24] *See, e.g.*, *Implementation of the 911 Act; The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, CC Docket No. 92-105, WT Docket No. 00-110, Fifth Report and Order, First Report and Order and Memorandum Opinion and Order on Reconsideration, 16 FCC Rcd 22264 (2001) (*N11 Codes Fifth Report and Order*); Federal Communications Commission, *State 911 Deployment Plans* (last modified Nov. 24, 2004) <http://www.fcc.gov/911/stateplans/>; Federal Communications Commission, *Wireless E911 Coordination Initiative* (last modified Apr. 23, 2004) <http://wireless.fcc.gov/outreach/e911/>.

[25] *See, e.g.*, Federal Communications Commission, *Enhanced 911 Reports* (last modified Nov. 24, 2004) <http://www.fcc.gov/911/enhanced/reports/> (providing access to carrier generated reports regarding wireless E911 deployment).

[26] *See Notice*, 19 FCC Rcd at 4897-98, para. 51.

[27] *See* Intrado Inc., *VoIP 9-1-1 Frequently Asked Questions* (visited Apr. 20, 2005) <http://www.intrado.com/main/home/news/features/voipfaq.jsp>.

12. ***Basic 911.*** Basic 911 service is a forwarding arrangement in which calls dialed to 911 are transmitted from the service provider's switch to a single geographically appropriate PSAP or public safety agency, usually over dedicated emergency trunks.[28] Basic 911 networks are not capable of processing the caller's location, but simply forward all 911 calls to the appropriate PSAP or public safety agency.[29] Nor does basic 911 provide PSAP call takers with the caller's location information or, in some cases, a call back number.[30] Although some emergency systems provide only basic 911 service, most systems have implemented E911 service.[31]

13. ***E911.*** E911 systems route 911 calls through the use of a Selective Router to a geographically appropriate PSAP based on the caller's location.[32] E911 also provides the call taker with the caller's call back number, referred to as Automatic Numbering Information (ANI),[33] and, in many cases, location information – a capability referred to as Automatic Location Identification (ALI). Both wireline and wireless carriers provide E911 services in many localities.

14. ***Wireline E911.*** The core of the existing wireline E911 network is a dedicated, redundant, highly reliable wireline network (Wireline E911 Network), which is interconnected with but largely separate from the PSTN.[34] The Wireline E911 Network generally has been implemented, operated, and

[28] *See E911 NPRM*, 9 FCC Rcd at 6171, para. 5.

[29] *See* Hatfield Report at 3. This limitation of basic 911 service can be problematic when a single end office serves a geographic area that encompasses multiple political jurisdictions; call takers not only must determine the caller's location but also determine which jurisdiction's first responders should be dispatched. *See id.* at 4-5.

[30] *See* Hatfield Report at 3-4.

[31] *See* NENA 911 Fast Facts.

[32] *See* Hatfield Report at 5. Thus, unlike normal phone calls, 911 calls are routed based on the calling number (which is linked to a particular geographic area and political jurisdiction), not the called number. *See id.*; *see also E911 First Report and Order*, 11 FCC Rcd at 18679, para. 5. The Selective Router is described in greater detail in para. 15 *infra*.

[33] The use of the term "ANI" is not intended as a reference to billing number presentation provided as part of Feature Group B or D local exchange services. Although the number presented to a PSAP on a wireline E911 call may be derived from Feature Group B or D services, the number presented to a PSAP on a wireless or VoIP call may be generated by several other means. Thus, the term ANI merely identifies a call back number associated with the caller. The term does not reflect a specific service or technology. *See* 47 C.F.R. § 20.3.

[34] *See* Hatfield Report at 5; Letter from Cindy Schonhaut, Director, Federal Regulatory Affairs, Level 3 Communications, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 2 (filed Apr. 7, 2005) (Level 3 Apr. 7, 2005 *Ex Parte* Letter). Our description of the Wireline E911 Network is intended to be illustrative, not definitive. As the Commission has noted previously, there are a variety of situations existing in the more than 6,000 PSAPs across the nation, including differences in state laws and regulations governing the provision of 911 services, the configuration of wireless systems, the technical sophistication of existing 911 network components, and existing agreements between carriers and PSAPs. *See, e.g.*, Letter from Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, to Marlys R. Davis, E911 Program Manager, Department of Information and Administrative Services, King County, Washington, CC Docket No. 94-102 at 3 (dated May 7, 2001) (*King County Letter*), *pet. recon. denied*, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Request of King County, Washington*, CC Docket No. 94-102, Order on Reconsideration, 17 FCC Rcd 14789, 14790, para. 3 (2002) (*King County Reconsideration Order*).

maintained by a subset of incumbent LECs, and generally is paid for by PSAPs through tariffs. [35] Network implementations vary from carrier to carrier and jurisdiction to jurisdiction, but usually are based on a 25-year-old architecture and implemented with legacy components that place significant limitations on the functions that can be performed over the network.[36]

15. In a typical implementation, the Wireline E911 Network includes the Selective Router, which receives 911 calls from competitive and incumbent LEC central offices over dedicated trunks.[37] The Selective Router, after querying an incumbent LEC-maintained Selective Router Database (SRDB) to determine which PSAP serves the caller's geographic area, forwards the calls to the PSAP that has been designated to serve the caller's area, along with the caller's phone number (ANI). The PSAP then forwards the caller's ANI to an incumbent LEC-maintained Automatic Location Information database (ALI Database),[38] which returns the caller's physical address (that has previously been verified by comparison to a separate database known as the Master Street Address Guide (MSAG)).[39] The Wireline E911 Network thus consists of: the Selective Router; the trunk line(s) between the Selective Router and the PSAP; the ALI Database; the SRDB; the trunk line(s) between the ALI database and the PSAP; and the MSAG.[40]

16. ***Wireless E911.*** Under the Commission's wireless E911 rules, wireless carriers are obligated to "provide the telephone number of the originator of a 911 call" (*i.e.*, ANI) and information regarding the caller's location (*i.e.*, ALI) to any PSAP that has requested that such information be delivered with 911 calls.[41]

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[35] Incumbent LECs own and operate most of the Selective Routers, ALI Databases, the trunks to carry 911 calls, and sometimes the CPE upon which a PSAP's 911 system is based. The service between the incumbent LEC and PSAP is contractual in nature and paid for by the PSAP typically through a special tariff filed with the state public utility commission. *See, e.g.*, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, 14 FCC Rcd 20850, 20886-87, paras. 92, 94 (1999) (*E911 Second Memorandum Opinion and Order*); *E911 First Report and Order*, 11 FCC Rcd at 18710, para. 66. States and localities have developed cost recovery mechanisms to fund PSAPs. *See infra* Part III.D.

[36] *See* Hatfield Report at 14.

[37] The Selective Router also is known as an E911 Control Office or E911 Tandem. *See id.* at 5. The presence of and functionality provided by the Selective Router is the key characteristic that distinguishes basic 911 from E911 service. *See id.*

[38] The SRDB and the ALI Database may be the same database.

[39] The ALI Database may also return additional information, such as the name of the individual who is billed for telephone service at that address.

[40] *See King County Letter* at 3-6; *King County Reconsideration Order*, 17 FCC Rcd at 14792-96, paras. 8-16; Hatfield Report at 3-5.

[41] The Commission's wireless E911 requirements are comprised of two phases. Pursuant to the Phase I rules, wireless carriers are required to provide a call back number for the handset placing the 911 call and report the location of the cell site or base station that received the call. The Phase I rules required compliance by April 1, 1998, or within six months of a PSAP request, whichever is later. *See* 47 C.F.R. § 20.18(d). Under the Phase II rules, wireless carriers are required to provide more accurate 911 call location information. *See* 47 C.F.R. § 20.18(e). The degree of location accuracy required under the Phase II rules varies, depending on whether the carrier utilizes a network-based or handset-based solution. *See* 47 C.F.R. § 20.18(h).

17. The mobile nature of wireless technology and service presents significant obstacles to making E911 effective – in particular the provision to PSAPs of accurate ALI.[42] Specifically, the mobility of wireless subscribers renders the use of permanent street addresses as a location indicator useless, and in fact may require the provision of real-time location updates to the PSAP.[43] Wireless carriers therefore have developed various techniques to provision ANI and ALI to the PSAP that involve enhancements and/or "add-ons" to the existing Wireline E911 Network.[44] Many of these techniques involve the use of "pseudo-ANI" or "p-ANI": a "number, consisting of the same number of digits as ANI, that is not a North American Numbering Plan telephone directory number and may be used in place of ANI to convey special meaning" to the Selective Router, PSAP, and other elements of the 911 system.[45] For example, Selective Routers that have been programmed to handle p-ANI will be able to properly route 911 calls from any wireless subscriber to a geographically appropriate PSAP, even if the caller has an NPA-NXX number[46] not associated with his or her location.[47] PSAPs that are equipped to handle p-ANI can distinguish wireless from wireline calls, and can use the p-ANI to query the ALI Database for non-traditional location information.[48] Forms of p-ANI known as "Emergency Services Routing Key" (ESRK), "Emergency Services Query Key" (ESQK), and "Emergency Services Routing Digits" (ESRD) currently are used to cause the Wireline E911 Network to properly handle and process E911 calls placed by CMRS subscribers.[49]

18. Development and implementation of these enhancements required significant cooperative efforts from wireless and wireline providers, manufacturers, third-party providers, state and local governments, public safety authorities, and consumer interest groups.[50] The Commission ultimately held, however, that in the absence of an agreement to the contrary, the appropriate demarcation point for allocating responsibilities and costs between wireless carriers and PSAPs for such enhancements is the input to the Selective Router.[51] Thus, a wireless carrier is responsible for all hardware and software components and

[42] *See E911 First Report and Order*, 11 FCC Rcd at 18680, para. 7.

[43] *See* Hatfield Report at 9.

[44] *See E911 Second Memorandum Opinion and Order*, 14 FCC Rcd at 20881-86, paras. 75-92. For a detailed description of the E911 implementations utilized by wireless carriers, *see* Hatfield Report at 9-11. *See also* NENA, NENA Generic E9-1-1 Requirements Technical Information Document, Issue 1 at 7 (July 23, 2004) <http://www.nena9-1-1.org/9-1-1TechStandards/TechInfoDocs/E9-1-1%20Requirements%2008-502u.pdf> (NENA TID).

[45] *See* 47 C.F.R. § 20.3. The special meaning assigned to the pseudo-ANI is determined by agreements, as necessary, between the system originating the call, intermediate systems handling and routing the call, and the destination system. *See id.*

[46] Telephone numbers consist of ten digits in the form NPA-NXX-XXXX. The first three digits, or the "NPA," refer to the area code. The second three digits, or the "NXX," refer to the central office code. *See* 47 C.F.R. §§ 52.7(a), (c).

[47] *See King County Reconsideration Order*, 17 FCC Rcd at 14792-93, para 8 n.17; Hatfield Report at 9-11; NENA TID at 4-5.

[48] *See King County Reconsideration Order*, 17 FCC Rcd at 14792-93, para 8 n.17; Hatfield Report at 9-11; NENA TID at 17-18, 19-20.

[49] *See generally* NENA TID.

[50] *See E911 Second Memorandum Opinion and Order*, 14 FCC Rcd at 20855, para. 10.

[51] *See King County Reconsideration Order*, 17 FCC Rcd at 14790-91, para 4.

functionalities that precede the Selective Router, including the trunk from the carrier's Mobile Switching Center to the Selective Router, and the particular databases, interface devices, and trunk lines that may be needed to deliver E911 data to the PSAP.[52] The PSAP is responsible for any costs associated with the Selective Router itself, any required upgrades to the Selective Router, the ALI Database and any upgrades thereto, the SRDB and any upgrades thereto, the MSAG, the trunk from the Selective Router to the PSAP, and the PSAP CPE.[53]

C. The IP-Enabled Services Notice

19. In the *Notice*, we asked, among other things, about the potential applicability of "basic 911," "enhanced 911," and related critical infrastructure regulation to VoIP and other IP-enabled services.[54] Specifically, after noting that the Commission previously found in the *E911 Scope Order* that it has statutory authority under sections 1, 4(i), and 251(e)(3) of the Communications Act of 1934, as amended (Act),[55] to determine what entities should be subject to the Commission's 911 and E911 rules,[56] the Commission sought comment on whether it should exercise its regulatory authority in the context of IP-enabled services.[57] The Commission further sought comment on the appropriate criteria for determining whether and to what extent IP-enabled services should fall within the scope of its 911 and E911 regulatory framework,[58] and whether IP-enabled services are technically and operationally capable of meeting the Commission's basic and/or E911 rules or of providing analogous functionalities that would meet the intent of the 911 Act and the Commission's regulations.[59]

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[52] *See id.*

[53] *See id.*

[54] *See Notice*, 19 FCC Rcd at 4898-99, para. 53.

[55] 47 U.S.C. §§ 151, 154(i), 251(e)(3).

[56] *See Notice*, 19 FCC Rcd at 4898-99, para. 53 n.160 (citing *E911 Scope Order*, 18 FCC Rcd at 25345-46, paras. 13-15).

[57] *See id.* at 4898-99, 4900-01, paras. 53, 55-56.

[58] *See id.* at 4900-01, paras. 55-56. The *Notice* sets forth four criteria the Commission previously has used to determine whether particular entities should, in the public interest, be subject to some form of 911/E911 regulation: (1) the entity offers real-time, two-way switched voice service, interconnected with the public switched network, either on a stand-alone basis or packaged with other telecommunications services; (2) customers using the service or device have a reasonable expectation of access to 911 and E911 services; (3) the service competes with traditional CMRS or wireline local exchange service; and (4) it is technically and operationally feasible for the service or device to support E911. *See id.* at 4900, para. 55. The Commission first relied on these criteria in the *E911 Scope Order*, where the Commission made clear that factors other than the four listed criteria could also inform the Commission's decision regarding what 911/E911 obligations should be imposed on a service provider. *See id.* (citing *E911 Scope Order*, 18 FCC Rcd at 25347, para. 19). In the *Notice*, the Commission sought comment on whether VoIP services, and other IP-enabled services, satisfy these four criteria. The Commission also sought comment on whether these four criteria provide the appropriate analytical framework for determining whether, and to what extent, IP-enabled services should fall within the scope of the Commission's 911/E911 regulatory framework, and whether modifications to these criteria, or other criteria, would better serve the public interest in light of the variety of IP-enabled services and their very different functionalities. *See id.*

[59] *See Notice*, 19 FCC Rcd at 4898-900, paras. 53-54.

D. The Vonage Order

20. On November 12, 2004, the Commission released the *Vonage Order*, in which it preempted an order of the Minnesota Public Utilities Commission (Minnesota Commission) that applied Minnesota's traditional "telephone company" regulations to Vonage's DigitalVoice service.[60] Vonage's DigitalVoice service is a portable service that is available anywhere the Vonage customer is able to obtain a broadband connection.[61] Vonage does not supply that broadband connection.[62] Vonage's DigitalVoice service assigns its users North American Numbering Plan (NANP) numbers and provides them the ability to place and receive calls to and from the PSTN.[63] As described more fully in that order, the Commission held that DigitalVoice cannot be separated into interstate and intrastate communications for compliance with Minnesota's requirements without negating valid federal policies and rules.[64] Thus, without classifying Vonage's service as either an information service or as a telecommunications service under the Act, the Commission preempted the Minnesota Commission's requirements and ruled that the Minnesota Commission "may not require Vonage to comply with its certification, tariffing or other related requirements as conditions to offering DigitalVoice in that State."[65] The Commission expressed no opinion with respect to the applicability to Vonage of Minnesota's general laws governing entities conducting business within the state.[66] Appeals of that order were filed before a number of United States Courts of Appeals.[67]

E. NENA Standards Development

21. Consistent with the December 2003 agreement between NENA and the Voice on the Net (VON) Coalition, industry participants, state agencies and commissions, public safety officials and PSAPs, and the Association of Public-Safety Communications Officials - International, Inc. (APCO) have been working together under the auspices of NENA to develop solutions that will lead to VoIP subscribers

[60] *See Vonage Order*, 19 FCC Rcd at 22411, para. 14. DigitalVoice is an IP-enabled service that provides real-time, multidirectional voice functionality to its end users over any broadband connection. *See id.* at 22407, para. 7.

[61] *See id.* at 22406, para. 5.

[62] *See id.*

[63] *See id.* at 22407-08, paras. 8-9.

[64] *See id.* at 22411-12, para. 14.

[65] *Id.* at 22432, para. 46.

[66] *See id.* at 22405, para. 1.

[67] *See, e.g.*, *California v. FCC*, No. 05-70007 (9th Cir. filed Jan. 3, 2005); *New York v. FCC*, No. 05-1060 (2d Cir. filed Jan. 7, 2005); *Pub. Util. Comm'n of Ohio v. FCC*, No. 05-3056 (6th Cir. filed Jan. 7, 2005); *Minnesota Pub. Util. Comm'n v. FCC*, No. 05-1069 (8th Cir. filed Jan. 6, 2005); *Nat'l Ass'n of State Util. Consumer Advocates v. FCC*, No. 05-1122 (8th Cir. filed Jan. 11, 2005). Each of these cases was consolidated in the United States Court of Appeals for the Ninth Circuit (Ninth Circuit) in *California v. FCC*. *See California v. FCC* (No. 05-70007). On April 15, 2005, however, the Ninth Circuit granted a motion by the state of California and the California Public Utility Commission for voluntary dismissal, and currently is considering a motion to transfer the remaining cases to the United States Court of Appeals for the Eighth Circuit. *See* Petitioners Joint Motion to Transfer Proceedings and Amend Briefing Schedule, *National Ass'n of State Util. Consumer Advocates v. FCC*, No. 05-71238 (9th Cir. filed Feb. 22, 2005).

receiving E911 functionality.[68] Specifically, NENA is expected to publish within the next few months an "I2" standard designed to allow VoIP providers to deliver 911 calls through the Wireline E911 Network with call back numbers and location information.[69] The Commission applauds NENA's leadership and industry's efforts in this regard, which will likely play a critical role in the provision of E911 services by interconnected VoIP service providers.

III. DISCUSSION

22. In this Order, we define "interconnected VoIP service" and require providers of this type of VoIP service to incorporate E911 service into all such offerings within the period of time specified below. We commit ourselves to swift and vigorous enforcement of the rules we adopt today. Because we have not decided whether interconnected VoIP services are telecommunications services or information services, we analyze the issues addressed in this Order primarily under our Title I ancillary jurisdiction to encompass both types of service. We decline to exempt providers of interconnected VoIP services from liability under state law related to their E911 services. Accompanying today's Order is an *NPRM* that addresses a number of issues raised by our decision today.

A. Scope

23. Our first task is to determine what IP-enabled services should be the focus of our concern. We begin by limiting our inquiry to VoIP services, for which some type of 911 capability is most relevant.[70] The Commission previously has determined that customers today lack any expectation that 911 will function for non-voice services like data services.[71] The record clearly indicates, however, that consumers expect that VoIP services that are interconnected with the PSTN will function in some ways

[68] *See* VON Coalition and NENA, *Public Safety and Internet Leaders Connect on 911*, Press Release (Dec. 1, 2003) <http://www.von.org/usr_files/VOIP%20press%20release%20FINAL%20112803> (setting forth agreement for how two industry groups will work together as VoIP is deployed).

[69] *See* Letter from Cronan O'Connell, Vice President-Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, at 2 (filed Apr. 11, 2005) (Qwest Apr. 11, 2005 *Ex Parte* Letter) ("I2 NENA Specifications targeted for completion in April/May 2005"); VON Coalition and NENA, *Answering the Call for 9-1-1 Emergency Services in an Internet World* at 7 (Jan. 2005) <http://www.von.org/usr_files/911%20VON%20White%20Paper%201-12-05%20final.pdf > (VON/NENA Jan. 2005 White Paper) (stating that I2 specification will be available in the second quarter of 2005).

[70] *Cf. Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CC Docket Nos. 90-571, 98-67, CG Docket No. 03-123, Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, 19 FCC Rcd 12475, 12521-22, paras. 116-18 (2004) (granting extension of waiver exempting Video Relay Services providers from requirement automatically and immediately to transfer emergency calls to an appropriate PSAP); *Provision of Improved Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CC Docket No. 98-67, Order on Reconsideration, 18 FCC Rcd 4761, 4766, para. 12 (2003) ("waiv[ing] the TRS mandatory minimum standard requiring emergency call handling for a five year period as applied to IP Relay providers").

[71] *Cf. E911 Scope Order*, 18 FCC Rcd at 25351, para. 28 (exempting from mobile satellite service 911 requirements any service that utilizes terrestrial temporary fixed earth station terminals which are designed only for data services). As the Commission stated in the context of mobile satellite service 911 obligations, we may revisit this exemption in the future should the technology or consumer expectations change. *See id*.

like a "regular telephone" service.[72] At least regarding the ability to provide access to emergency services by dialing 911, we find these expectations to be reasonable. If a VoIP service subscriber is able to receive calls from other VoIP service users *and* from telephones connected to the PSTN, and is able to place calls to other VoIP service users *and* to telephones connected to the PSTN, a customer reasonably could expect to be able to dial 911 using that service to access appropriate emergency services.[73] Thus, we believe that a service that enables a customer to do everything (or nearly everything[74]) the customer could do using an analog telephone, and more, can at least reasonably be expected and required to route 911 calls to the appropriate destination.

24. The E911 rules the Commission adopts today apply to those VoIP services that can be used to receive telephone calls that originate on the PSTN and can be used to terminate calls to the PSTN – "interconnected VoIP services." Although the Commission has not adopted a formal definition of "VoIP," we use the term generally to include any IP-enabled services offering real-time, multidirectional voice functionality, including, but not limited to, services that mimic traditional telephony.[75] Thus, an interconnected VoIP service is one we define for purposes of the present Order as bearing the following characteristics: (1) the service enables real-time, two-way voice communications; (2) the service requires

[72] *See, e.g.*, APT Comments at 6 (stating that "[c]onsumers have expectations that VOIP services are fundamentally equivalent to telephony services" and quoting a Vonage advertisement stating that VoIP service is "like the home phone service you have today" (citing Vonage, http://www.vonage.com/learn_tour.php (visited May 20, 2004))); Alcatel Comments at 18-19 (stating that customers have a reasonable expectation that 911/E911 services will be available for most VoIP services, and noting that voice functions provided as part of an Xbox video game service are a VoIP service for which such an expectation is not reasonable because a video game service is not a replacement for PSTN service); Nebraska Commission Comments at 6 (claiming that consumers would expect a service to offer similar protections as compared to traditional local exchange service if the service uses NANP numbers; utilizes the PSTN in either originating or terminating service; is advertised or used as telephone service or as a replacement service for POTS; and is functionally equivalent to traditional telephony); New Jersey Ratepayer Advocate Comments at 16, 22 (stating that consumers likely will expect to have rapid access to emergency services via 911 for VoIP services that are marketed and sold as a substitute for traditional telephone service – which we understand generally are interconnected VoIP services); SBC Comments at 58-61 (arguing that consumers would be more likely to expect that 911 service would work for interconnected real-time voice services than for strictly peer-to-peer services or data services); Time Warner Comments at 8; Letter from Glenn S. Richards, Counsel for VON Coalition, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 4 (filed May 12, 2005) (VON Coalition May 12, 2005 *Ex Parte* Letter); *cf.* EFF Comments at 3-4 (arguing that evaluating consumer expectations is difficult and that at a minimum the Commission should presume that services with no PSTN nexus should be exempt from traditional telecommunications regulation).

[73] *See, e.g.*, King County Comments at 2 ("The service provider of any device that functions like a telephone and has the ability to connect to the Public Switched Telephone Network (PSTN) to deliver voice calls should be required to provide E911 service to their customers. The public expectation is that any device that can make voice phone calls can call 911.").

[74] For example, some VoIP services that have full interconnection to the PSTN may not be line powered and so, unlike an analog telephone connected to the PSTN, may not work in a power outage. *See, e.g.*, New Jersey Ratepayer Advocate Comments at 23 (stating that packet switched networks do not have the same built-in power source that circuit switched networks do, and thus are more susceptible to service outages); Sonic.net Comments at 3; Montana Commission Comments at 5; Letter from Kathleen Grillo, Vice President – Federal Regulatory, Verizon, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. 2 at 4 (filed Apr. 15, 2005) (Verizon Apr. 15, 2005 *Ex Parte* Letter) (stating in VoiceWing's Terms of Service that a power or broadband service outage will prevent all service, including 911 service).

[75] *See Notice*, 19 FCC Rcd at 4866, para. 3 n.7.

a broadband connection from the user's location;[76] (3) the service requires IP-compatible CPE;[77] and (4) the service offering permits users generally to receive calls that originate on the PSTN *and* to terminate calls to the PSTN.[78] We make no findings today regarding whether a VoIP service that is

[76] *Cf. Vonage Order*, 19 FCC Rcd at 22424, para. 32. While we recognize that some kinds of VoIP service can be supported over a dialup connection, we expect that most VoIP services will be used over a broadband connection. We seek comment in the *NPRM* on whether we should expand the scope of the present Order to include VoIP services that do not require a broadband connection. *See infra* Part IV.

[77] The term "IP-compatible CPE" refers to end-user equipment that processes, receives, or transmits IP packets. Users may in some cases attach conventional analog telephones to certain IP-compatible CPE in order to use an interconnected VoIP service. For example, IP-compatible CPE includes, but is not limited to, (1) terminal adapters, which contain an IP digital signal processing unit that performs digital-to-audio and audio-to-digital conversion and have a standard telephone jack connection for connecting to a conventional analog telephone; (2) a native IP telephone; or (3) a personal computer with a microphone and speakers, and software to perform the conversion (softphone). *See Vonage Order*, 19 FCC Rcd at 22407, para. 6; *see also Petition for Declaratory Ruling That Pulver.com's Free World Dialup Is Neither Telecommunications Nor a Telecommunications Service*, WC Docket No. 03-45, Memorandum Opinion and Order, 19 FCC Rcd 3307, 3308 n.2 (2004) (*Pulver Order*).

[78] *Cf. Vonage Order*, 19 FCC Rcd at 22407-08, paras. 8-9 (describing the origination and termination of Vonage DigitalVoice calls to and from the PSTN). The instant Order does not apply to providers of other IP-based services such as instant messaging or Internet gaming because although such services may contain a voice component, customers of these services cannot place calls to and receive calls from the PSTN. The rules we adopt today apply to interconnected VoIP services rather than the sale or use of IP-compatible CPE, such as an IP-PBX, that itself uses other telecommunications services or VoIP services to terminate traffic to and receive traffic from the PSTN. The rules we adopt in today's Order also apply only to providers that offer a single service that provides the functionality described above. *But see infra* para. 58 (tentatively concluding that separate service offerings that can be combined by the user should also be subject to our E911 requirements). Thus, the E911 requirements we impose in this Order apply to all VoIP services that are encompassed within the scope of the *Vonage Order*. In the *Vonage Order*, the Commission preempted certain state regulation of Vonage's "DigitalVoice" VoIP service, and indicated that the Commission would preempt similar state regulation of other types of IP-enabled services having basic characteristics similar to DigitalVoice. It is incumbent on this Commission to ensure that customers of these services are still able to obtain access to appropriate emergency services when dialing 911. We further note that imposing E911 regulation on interconnected VoIP service providers is consistent with the four criteria the Commission identified in the *E911 Scope Order* that have been used to determine whether particular entities should be subject to some form of 911/E911 regulation. *See supra* note 58 (citing *Notice*, 19 FCC Rcd at 4900, para. 55 (setting forth the four criteria)). In addition, the criteria we use to define the scope of the present Order are similar, though not identical, to proposals suggested by some commenters. For instance, NCTA proposes that the Commission impose certain requirements, such as 911 requirements, on VoIP services that: (1) use NANP resources; (2) receive calls from – or terminate them to – the PSTN; (3) represent a possible replacement for POTS; and (4) use IP transmission between the service provider and the end user customer, including use of an IP terminal adapter and/or IP-based telephone set. NCTA, *Balancing Responsibilities and Rights: A Regulatory Model for Facilities-Based VoIP Competition*, at 4, 22 (Feb. 2004) <http://www.ncta.com/PDF_files/VoIPWhitePaper.pdf> (NCTA VoIP White Paper). *See also* Level 3 Comments at 3, 25 (stating that VoIP providers should be required to provide "911 and E911 (where technically and operationally feasible) for those services that compete with traditional PSTN services and for which consumers have an expectation of such access"); SBC Comments at 58-61 (stating that it is most important to ensure that interconnected VoIP services offer 911 calling capabilities, as opposed to data-only services or services that are not interconnected to the PSTN); Time Warner Comments at 8, 13 (proposing that the scope of VoIP services subject to an E911 service obligation "be limited to those services that: (1) assign their subscribers NANP numbers; and (2) allow subscribers to receive calls from and terminate calls to the PSTN"); Letter from John T. Nakahata, Counsel for Microsoft, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 (filed May 8, 2005) (urging the Commission to limit the scope of the VoIP services that would be subject to an E911 mandate to "consumer real-time, two-way switched voice services offered for a fee that are

interconnected with the PSTN should be classified as a telecommunications service or an information service under the Act.[79]

25. While the rules we adopt today apply to providers of all interconnected VoIP services, we recognize that certain VoIP services pose significant E911 implementation challenges. For example, the mobility enabled by a VoIP service that can be used from any broadband connection creates challenges similar to those presented in the wireless context.[80] These "portable" VoIP service providers often have no reliable way to discern from where their customers are accessing the VoIP service.[81] The

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interconnected with the PSTN, capable of both receiving calls from and terminating calls to the PSTN, and for which the service provider assigns the end users using the VoIP service a unique working North American Numbering Plan telephone number (other than numbers, such as toll-free numbers, that are used to reach a database that determines the destination telephone number)"); Letter from Henry Goldberg, Counsel for Skype, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1 (filed May 10, 2005) (Skype May 10, 2005 *Ex Parte* Letter) (urging the Commission to impose E911 obligations on interconnected VoIP providers that use NANP phone numbers and "include or enable use of either traditional CPE or CPE that, like traditional CPE, is always on and offers a dial tone"); VON Coalition May 12, 2005 *Ex Parte* Letter, Attach. at 4.

[79] *Cf. Vonage Order*, 19 FCC Rcd 22414, para. 18 (declining to classify Vonage's specific service as a telecommunications service or an information service under the Act).

[80] In general, providers of solely "fixed" VoIP services (*i.e.*, those that are not portable) face fewer technical obstacles to providing their customers with E911 service. *See, e.g.*, Letter from Bennett L. Ross, General Counsel-D.C., BellSouth D.C., Inc. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1-2 (filed May 12, 2005) (BellSouth May 12, 2005 *Ex Parte* Letter) (comparing E911 challenges for fixed and nomadic services); *see also* VON Coalition May 12, 2005 *Ex Parte* Letter, Attach. at 4 (claiming that the most "workable" definition of fixed services is defining those VoIP services that are "incapable of being nomadic"). It appears that most fixed VoIP service providers already have deployed, or are in the process of deploying, E911 services very much like those provided to wireline telephone customers. *See, e.g.*, Letter from James L. Casserly, Counsel for Comcast, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1 (filed May 12, 2005) ("The VoIP service that Comcast is currently offering . . . is E911 capable. Comcast selectively routes its customers' 911 calls to the appropriate PSAPs, and Automatic Location information associated with the customer's service address is transmitted to the PSAPs along with the caller's telephone number."); NCTA Comments at 13-14 (listing various cable operators that already provide E911); Cablevision*, Optimum Voice Terms of Service, Part B* (visited May 9, 2005) <http://www.optimumvoice.com/index.jhtml?pageType=terms_of_service> (providing that "[e]nhanced 911 (E-911) is a feature of the Optimum Voice service that allows emergency operators to automatically know the telephone number and address of the dialing party"); Cox, *VoIP: Ready for Prime Time*, at 2 (visited May 9, 2005) <http://www.cox.com/about/NewsRoom/files/VoIPreadyMay04.pdf> ("Cox's managed VoIP technology enables Enhanced 911 (E-911) service, while some Internet Telephony providers do not.").

[81] *See Vonage Order*, 19 FCC Rcd at 22406, para. 5; *see also Pulver Order*, 19 FCC Rcd at 3322, para. 22; Letter from James R. Hobson, Counsel for Greater Harris County (Texas) 9-1-1, Tarrant County (Texas) 9-1-1, and NENA to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 3 (Greater Harris County/Tarrant County/NENA Apr. 15, 2005 *Ex Parte* Letter) ("Since the application is separate from the transmission facility, it is highly unlikely the VoIP service provider knows where its subscriber is using the service at a given time."); Letter from James K. Smith, Executive Director - Federal Regulatory, SBC Telecommunications, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket Nos. 04-36, 04-29 and 03-211, Attach. at 19 (filed Oct. 8, 2004) (stating that it is "[i]nfeasible to locate [the] geographic end point on the IP side of an IP-PSTN communication" because "IP communications are routed to devices, not geographic locations"). The record demonstrates that there currently are no solutions that allow a provider of portable VoIP services to determine the location of an end user absent the end user affirmatively telling the service provider where he or she is. *See* Greater Harris County/Tarrant County/NENA Apr. 15, 2005 *Ex Parte* Letter, Attach. at 3 ("[T]he subscriber must play an active role in identifying his or her location for accurate 9-1-1 call routing and ALI purposes.").

Commission's past experience with setting national rules for 911/E911 service is informative, and we expect that our adoption today of E911 service obligations for providers of interconnected VoIP service will speed the further creation and adoption of such services, similar to the manner in which the Commission's adoption of E911 service obligations in the wireless context helped foster the widespread availability of E911 services for mobile wireless users, where it formerly was not possible for wireless carriers automatically to determine the precise geographic location of their customers.[82] We recognize and applaud the progress that has already been made to ensure that VoIP customers have E911 services.[83]

[82] *But see* Letter from John T. Nakahata, Counsel to Level 3, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 6-7 (filed May 12, 2005) (Level 3 May 12, 2005 *Ex Parte* Letter).

[83] *See supra* note 80. For instance, some VoIP service providers have contracted with a third party such as a competitive LEC to indirectly interconnect with the Wireline E911 Network at the Selective Router. *See, e.g.*, Letter from Glenn T. Reynolds, Vice President – Federal Regulatory, BellSouth Corporation to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 3 (BellSouth Apr. 19, 2005 *Ex Parte* Letter). In addition, a VoIP service provider has established direct interconnection with the Selective Router(s) in at least one state. *See* Letter from William B. Wilhelm, Jr., Counsel for Vonage, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. 1 (filed May 9, 2005) (Vonage May 9, 2005 *Ex Parte* Letter) (explaining that in Rhode Island Vonage routes calls directly to the Selective Router that services the Rhode Island PSAP). Further, several incumbent LECs are offering, or have announced their intent to offer, VoIP service providers direct interconnection to their Selective Routers through tariff, contract, or a combination thereof. *See* Letter from Cronan O'Connell, Vice President – Federal Regulatory, Qwest to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1, Attach. at 6, 8 (Qwest Apr. 12, 2005 *Ex Parte* Letter); Verizon, *Verizon Identifies Solution Enabling VoIP Companies to Connect to E911 Emergency Calling System*, Press Release (rel. Apr. 26, 2005) <http://newscenter.verizon.com>; Letter from Glenn T. Reynolds, Vice President – Federal Regulatory, BellSouth, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 (filed May 11, 2005) (setting forth BellSouth's "commitment to expeditious development and provision of an additional product allowing VoIP providers to purchase direct connection to the E911 selective routers"); *see also, e.g.*, Letter from Mary Boyd, Vice President Government & External Affairs, Intrado, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 7 (filed Apr. 4, 2005) (Intrado Apr. 4, 2005 *Ex Parte* Letter) (stating that VoIP service providers can use existing 911/E911 infrastructure for certain services); NENA *Ex Parte* Comments, WC Docket No. 04-36 at 7 (filed Feb. 22, 2005) (stating that competitive LECs and cable VoIP providers already have access to systems necessary to provide E911 service). We further understand that it is technically possible today for interconnected VoIP providers to deliver a 911 caller's call back number and location to a geographically appropriate PSAP over the Wireline E911 Network utilizing location information provided by the caller. *See, e.g.*, Letter from Jeffrey A. Citron, Chairman and CEO, Vonage Holdings Corp., to Christopher Rice, Executive Vice President, Network Planning & Engineering, SBC, WC Docket 04-36 at 1 (filed Mar. 30, 2005) (Vonage Mar. 30, 2005 *Ex Parte* Letter) (noting that Vonage has already deployed a VoIP E911 solution in Rhode Island and trialed a solution in Qwest's King County territory); Intrado Apr. 4, 2005 *Ex Parte* Letter, Attach. at 5 ("Technology exists to enable full E9-1-1 for VoIP subscribers regardless of movement and [telephone number] assignment."); Letter from William B. Wilhelm, Jr., Counsel for Vonage Holdings Corp., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1-2 (filed Apr. 7, 2005) (Vonage Apr. 7, 2005 *Ex Parte* Letter) (noting interim solution trial with Verizon in New York and 911 access made available by SBC to its VoIP affiliate); New York City Apr. 22, 2005 *Ex Parte* Letter (stating that New York is working with Vonage and others so that VoIP users will have access to the City's 911 emergency response system); Verizon Apr. 15, 2005 *Ex Parte* Letter at 1 (noting that a Verizon VoIP 911 solution is being developed in New York City); Letter from Kathleen Grillo, Vice President, Federal Regulatory, Verizon to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 2-3 (filed May 11, 2005) (Verizon May 11, 2005 *Ex Parte* Letter) (detailing New York City solution); Qwest Apr. 12, 2005 *Ex Parte* Letter at 1, Attach. at 6-8 (discussing the Vonage/Qwest King County trial and Qwest's PS/ALI offering); Letter from William B. Wilhelm, Jr., Counsel for Vonage Holdings Corp., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 2 (filed Apr. 18, 2005) (Vonage Apr. 18, 2005 *Ex Parte* Letter) (noting that "Qwest's cooperation has shown that implementing the I2 solution is technically feasible"); Greater Harris County/Tarrant County/NENA Apr. 15, 2005 *Ex Parte* Letter, Attach. at 1, 5; Letter from Mary Boyd, Vice

We stress, however, that should the need arise, we stand ready to expand the scope or substance of the rules we adopt today if necessary to ensure that the public interest is fully protected. Indeed, the *NPRM* that accompanies today's Order seeks comment on whether further intervention is necessary in this area.[84]

B. Authority

26. We conclude that we have authority under Title I of the Act to impose E911 requirements on interconnected VoIP providers, and commenters largely agree.[85] In addition, we conclude that we have authority to adopt these rules under our plenary numbering authority pursuant to section 251(e) of the Act.[86] We find that regardless of the regulatory classification, the Commission has ancillary jurisdiction to promote public safety by adopting E911 rules for interconnected VoIP services. This Order, however, in no way prejudges how the Commission might ultimately classify these services. To the extent that the Commission later finds these services to be telecommunications services, the Commission would have additional authority under Title II to adopt these rules.

27. Ancillary jurisdiction may be employed, in the Commission's discretion, when Title I of the Act gives the Commission subject matter jurisdiction over the service to be regulated[87] and the assertion of

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President Government & External Affairs, Intrado, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 10 (filed Apr. 19, 2005) (Intrado Apr. 19, 2005 *Ex Parte* Letter) (identifying two I2 solutions "operational today"); BellSouth Apr. 19, 2005 *Ex Parte* Letter at 1 (stating "there are numerous E911 solutions available today to any VoIP provider interested in providing such service to their end users"); Letter from Bruce A. White, Vice President and General Counsel, TeleCommunication Systems, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 25-28 (filed Apr. 22, 2005) (describing the TeleCommunication Systems, Inc. VoIP 911 offering currently being trialed in Kansas City) (TCS Apr. 22, 2005 *Ex Parte* Letter).

[84] *See infra* Part IV.

[85] *See, e.g.*, AT&T Comments at 29; BellSouth Comments at 63; Comcast Comments at 15; Cox Comments at 22-25; NCTA Comments at 23-24; NENA Comments at 2; Net2Phone Comments at 8-9; New Jersey Ratepayer Advocate Comments at 18; SBC Comments at 57, 95-98; USCCB *et al.* Comments at 29-35; AT&T Reply at 19-21; Cingular Reply at 9-10. *But see* CompTel/Ascent Comments at 19; New York City Comments at 2-5; Sprint Comments at 27-29.

[86] 47 U.S.C. § 251(e).

[87] *See United States v. Southwestern Cable Co.*, 392 U.S. 157, 177-78 (1968) (*Southwestern Cable*). *Southwestern Cable*, the lead case on the ancillary jurisdiction doctrine, upheld certain regulations applied to cable television systems at a time before the Commission had an express congressional grant of regulatory authority over that medium. *See id*. at 170-71. In *Midwest Video I*, the Supreme Court expanded upon its holding in *Southwestern Cable*. The plurality stated that "the critical question in this case is whether the Commission has reasonably determined that its origination rule will 'further the achievement of long-established regulatory goals in the field of television broadcasting by increasing the number of outlets for community self-expression and augmenting the public's choice of programs and types of services . . . .'" *United States v. Midwest Video Corp.*, 406 U.S. 649, 667-68 (1972) (*Midwest Video I*) (quoting *Amendment of Part 74, Subpart K, of the Commission's Rules and Regulations Relative to Community Antenna Television Systems; and Inquiry into the Development of Communications Technology and Services to Formulate Regulatory Policy and Rulemaking and/or Legislative Proposals*, Docket No. 18397, First Report and Order, 20 FCC 2d 201, 202 (1969) (*CATV First Report and Order*)). The Court later restricted the scope of *Midwest Video I* by finding that if the basis for jurisdiction over cable is that the authority is ancillary to the regulation of broadcasting, the cable regulation cannot be antithetical to a basic regulatory parameter established for broadcast. *See FCC v. Midwest Video Corp.*, 440 U.S. 689, 700 (1979) (*Midwest Video II*); *see also American Library Ass'n v. FCC*, No. 04-1037, slip op. (D.C. Cir. May 6, 2005) (holding that the Commission lacked authority to impose broadcast content redistribution rules on equipment

jurisdiction is "reasonably ancillary to the effective performance of [its] various responsibilities."[88] Both predicates for ancillary jurisdiction are satisfied here.

28. First, based on sections 1 and 2(a) of the Act,[89] coupled with the definitions set forth in section 3(33) ("radio communication") and section 3(52) ("wire communication"),[90] we find that interconnected VoIP is covered by the Commission's general jurisdictional grant. Specifically, section 1 states that the Commission is created "[f]or the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges," and that the agency "shall execute and enforce the provisions of th[e] Act."[91] Section 2(a), in turn, confers on the Commission regulatory authority over all interstate communication by wire or radio.[92] In the *Notice*, the Commission adopted no formal definition of "VoIP" but used the term generally to include "any IP-enabled services offering real-time, multidirectional voice functionality, including, but not limited to, services that mimic traditional telephony."[93] Recently, in the *Vonage Order*, the Commission found that Vonage's DigitalVoice service – an interconnected VoIP service – is subject to the Commission's interstate jurisdiction.[94] Consistent with that conclusion, we find that interconnected VoIP services are covered by the statutory definitions of "wire communication" and/or "radio communication" because they involve "transmission of [voice] by aid of wire, cable, or other like connection . . ." and/or "transmission by radio . . ." of voice. Therefore, these services come within the scope of the Commission's subject matter jurisdiction granted in section 2(a) of the Act.

29. Second, our analysis requires us to evaluate whether imposing a E911 requirement is reasonably ancillary to the effective performance of the Commission's various responsibilities. Based on the record

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manufacturers using ancillary jurisdiction because the equipment at issue was not subject to the Commission's subject matter jurisdiction over wire and radio communications).

[88] *Southwestern Cable*, 392 U.S. at 178.

[89] 47 U.S.C. §§ 151, 152(a).

[90] Section 3(33) of the Act defines the term "radio communication" or "communication by radio" to mean "the transmission by radio of writing, signs, signals, pictures, and sounds of all kinds, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding, and delivery of communications) incidental to such transmission." 47 U.S.C. § 153(33). Section 3(52) of the Act defines the term "wire communication" or "communication by wire" to mean "the transmission of writing, signs, signals, pictures, and sounds of all kinds by aid of wire, cable, or other like connection between the points of origin and reception of such transmission, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding, and delivery of communications) incidental to such transmission." 47 U.S.C. § 153(52).

[91] 47 U.S.C. § 151.

[92] *See* 47 U.S.C. § 152(a) (stating that the provisions of the Act "shall apply to all interstate and foreign communication by wire or radio and all interstate and foreign transmission of energy by radio, which originates and/or is received within the United States, and to all persons engaged within the United States in such communication or such transmission of energy by radio. . .").

[93] *Notice*, 19 FCC Rcd at 4866, para. 3 n.7.

[94] *See Vonage Order*, 19 FCC Rcd at 22413-14, para. 18. In addition, the Commission adopted an order declaring that pulver.com's Free World Dialup VoIP service is an information service under the Act and is subject to federal jurisdiction. *See Pulver Order*, 19 FCC Rcd at 3311, para. 8.

in this matter, we find that the requisite nexus exists. The Act charges the Commission with responsibility for making available "a rapid, efficient, Nation-wide, and world-wide wire and radio communication service . . . for the purpose of *promoting safety of life and property* through the use of wire and radio communication."[95] In light of this statutory mandate, promoting an effective nationwide 911/E911 emergency access system has become one of the Commission's primary public safety responsibilities under the Act. As the Commission has recognized, "[i]t is difficult to identify a nationwide wire or radio communication service more immediately associated with promoting safety of life and property than 911."[96] Indeed, the Commission has previously relied on Title I to satisfy both prongs of the standard for asserting ancillary jurisdiction: (1) subject matter jurisdiction; and (2) the statutory goal furthered by the regulation. For example, in *Rural Telephone Coalition v. FCC*, the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) upheld the Commission's assertion of ancillary jurisdiction to establish a funding mechanism to support universal service in the absence of specific statutory authority as ancillary to its responsibilities under section 1 of the Act to "further the objective of making communications service available to all Americans at reasonable

[95] 47 U.S.C. § 151 (emphasis added). Our actions today are not in conflict or otherwise inconsistent with any other provision of the Act. We acknowledge that section 230 of the Act provides that "[i]t is the policy of the United States - to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation." 47 U.S.C. § 230(b)(2). We do not, however, believe that this policy statement precludes us from adopting E911 rules for interconnected VoIP providers here. We note that the Commission's discussion of section 230 in the *Vonage Order* as cautioning against regulation was limited to "traditional common carrier economic regulations." *Vonage Order*, 19 FCC Rcd at 22426, para. 35.

In addition, while we acknowledge that there are generally intrastate components to interconnected VoIP service and E911 service, we reject any argument that 911/E911 services are purely intrastate and therefore the Commission has no jurisdiction in this area. The Commission has long maintained a federal role in wireline and wireless 911/E911 issues. *See generally, e.g.*, *E911 Scope Order*, 18 FCC Rcd 25340; *N11 Codes Fifth Report and Order*, 16 FCC Rcd 22264; *E911 First Report and Order*, 11 FCC Rcd 18676; *Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, Second Report and Order, 9 FCC Rcd 3911, 3925, para. 35 (1994) (*Part 63 Notification Order*) ("We reject suggestions that the reliability and efficiency of 911 systems are not of Commission interest."). The Commission's assertion of federal jurisdiction over 911/E911 matters has since been ratified twice by Congress. *See* 911 Act § 2(a)(4) (finding that "improved public safety remains an important public health objective of Federal, State, and local governments and substantially facilitates interstate and foreign commerce"). *See generally* 911 Act; Ensuring Needed Help Arrives Near Callers Employing 911 Act of 2004, Pub. Law 108-494 (2004) (codified at 47 U.S.C. § 901 nt.) (ENHANCE 911 Act of 2004). Indeed, similar to the Commission's conclusions in the wireless 911/E911 context, we identify various inseverable, nationwide aspects of E911 operations for interconnected VoIP services, including: (1) ubiquitous E911 operational compatibility; (2) avoiding state-by-state technical and operational requirements that would burden equipment manufacturers and providers; and (3) avoiding confusion by end users who attempt to contact emergency services while using the interconnected VoIP service away from their primary locations. *See E911 First Report and Order*, 11 FCC Rcd at 18729-30, para. 104.

[96] *E911 NPRM*, 9 FCC Rcd at 6171, para. 7; *see Part 63 Notification Order*, 9 FCC Rcd at 3925, para. 35 ("The reliability of 911 service is integrally related to our responsibilities under Section 1 of the Act, which include 'promoting safety of life and property through the use of wire and radio communication.'"); *see also Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; E911 Phase II Compliance Deadlines for Tier III Carriers*, CC Docket No. 94-102, Order, FCC 05-79 (rel. Apr. 1, 2005); Federal Communications Commission, *FCC Amended Report to Congress on the Deployment of E-911 Phase II Services by Tier III Service Providers* at 2, 11 (Apr. 1, 2005); *E911 Scope Order*, 18 FCC Rcd at 25346, paras. 13, 16; *E911 First Report and Order*, 11 FCC Rcd at 18681, para. 8.

charges."[97] Thus, we conclude that as more consumers begin to rely on interconnected VoIP services for their communications needs, the action we take here ensures that the Commission continues to "further the achievement of long-established regulatory goals"[98] to "promot[e] safety of life and property."[99]

30. Our actions today are consistent with, and a necessary extension of, our prior exercises of authority to ensure public safety. Since 1996, the Commission has acted to impose 911/E911 rules on providers of new technologies.[100] Since that time, the Commission has affirmed and expanded on those efforts by exercising jurisdiction over other services to impose 911/E911 requirements, relying primarily on its Title I authority.[101] That exercise of authority has been ratified, not rebuked, by Congress.[102]

31. Further, we note that our actions here are consistent with other provisions of the Act. For example, we are guided by section 706,[103] which directs the Commission (and state commissions with jurisdiction over telecommunications services) to encourage the deployment of advanced telecommunications capability to all Americans by using measures that "promote competition in the local telecommunications market" and removing "barriers to infrastructure investment."[104] Internet-based services such as interconnected VoIP are commonly accessed via broadband facilities (*i.e.*, advanced telecommunications capabilities under the 1996 Act).[105] The uniform availability of E911 services may spur consumer demand for interconnected VoIP services, in turn driving demand for broadband connections, and consequently encouraging more broadband investment and deployment consistent with the goals of section 706.[106] Indeed, the Commission's most recent *Fourth Section 706 Report to Congress* recognizes the nexus between VoIP services and accomplishing the goals of section 706.[107]

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[97] *Rural Tel. Coalition v. FCC*, 838 F.2d 1307, 1315 (D.C. Cir. 1988).

[98] *Midwest Video I*, 406 U.S. at 667-68 (quoting *CATV First Report and Order*, 20 FCC 2d at 202).

[99] 47 U.S.C. § 151.

[100] *See generally E911 First Report and Order*, 11 FCC Rcd 18676; *E911 Scope Order*, 18 FCC Rcd 25340.

[101] *See E911 Scope Order*, 18 FCC Rcd at 25345-46, paras. 12-16.

[102] *See generally* 911 Act; ENHANCE 911 Act of 2004.

[103] 47 U.S.C. § 157 nt. (incorporating section 706 of the Telecommunications Act of 1996, Pub. Law No. 104-104, 110 Stat. 56 (1996) (1996 Act)).

[104] 47 U.S.C. § 157 nt.; *see also, e.g.*, 47 U.S.C. § 154(o) (requiring the Commission, "[f]or the purpose of obtaining maximum effectiveness from the use of radio and wire communications in connection with safety of life and property," to investigate and study "methods of obtaining the cooperation and coordination of these systems"); 47 U.S.C. § 271(c)(2)(B)(vii) (requiring the Commission, in order to grant a Bell operating company (BOC) interLATA authority, to find that the BOC is providing nondiscriminatory access to 911 and E911 services).

[105] *See* 47 U.S.C. § 157 nt. (c)(1) (defining "advanced telecommunications capability").

[106] *Cf.* Letter from Donna N. Lampert, Counsel for AOL, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1 (filed May 11, 2005) (AOL May 11, 2005 *Ex Parte* Letter) (stating that AOL has a "strong concern that VoIP providers with inferior emergency services reduce consumer confidence in VoIP, negatively affecting AOL").

[107] *See Availability of Advanced Telecommunications Capability in the United States*, GN Docket No. 04-54, Fourth Report to Congress, 19 FCC Rcd 20540, 20578 (2004) ("[S]ubscribership to broadband services will increase in the future as new applications that require broadband access, *such as VoIP*, are introduced into the marketplace, and consumers become more aware of such applications.") (emphasis added).

32. Moreover, as stated above, in recognition of the critical role 911/E911 services play in achieving the Act's goal of promoting safety of life and property, Congress passed the 911 Act, which among other things made 911 the universal emergency telephone number for both wireline and wireless telephone service for the nation.[108] In the 911 Act, Congress made a number of findings regarding wireline and wireless 911 services, including that "improved public safety remains an important public health objective of Federal, State, and local governments and substantially facilitates interstate and foreign commerce," and that "emerging technologies can be a critical component of the end-to-end communications infrastructure connecting the public with emergency [services]."[109] Thus, we believe that our action here to impose E911 obligations on interconnected VoIP providers is consistent with Congress' public safety policy objectives.

33. Finally, as an additional and separate source of authority for the requirements we impose on providers of interconnected VoIP service in this Order, we rely on the plenary numbering authority over U.S. NANP numbers Congress granted this Commission in section 251(e) of the Act and,[110] in particular, Congress' direction to use its plenary numbering authority to designate 911 as the universal emergency telephone number within the United States, which "shall apply to both wireline and wireless telephone service."[111] We exercise our authority under section 251(e) of the Act because interconnected VoIP providers use NANP numbers to provide their services.

34. When the Commission initially implemented the 911 Act, it took actions similar to those we take today under its numbering authority. For instance, in the order implementing the 911 Act, the Commission exercised federal jurisdiction over the establishment of the deadlines by when all carriers had to provide 911 functionality, and adopted various deadlines depending on such things as whether a local community had established a PSAP.[112] The Commission also required carriers to implement certain switching and routing changes to their networks. Specifically, the Commission required all carriers to

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[108] *See* 911 Act § 3(a). *Cf.* ENHANCE 911 Act of 2004, § 102(4) ("[E]nhanced 911 is a high national priority and it requires Federal leadership, working in cooperation with State and local governments and with the numerous organizations dedicated to delivering emergency communications services.").

[109] 47 U.S.C. § 615(a)(3).

[110] 47 U.S.C. § 251(e)(1) (providing that "[t]he Commission shall have exclusive jurisdiction over those portions of the North American Numbering Plan that pertain to the United States."). The Commission has been granted explicit authority to "delegat[e] to State commissions or other entities all or any portion of such jurisdiction." *Id.* The Commission has declared that it has retained its "authority to set policy with respect to all facets of numbering administration in the United States." *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers, Area Code Relief Plan for Dallas and Houston, Ordered by the Public Utility Commission of Texas, Administration of the North American Numbering Plan, Proposed 708 Relief Plan and 630 Numbering Plan Area Code by Ameritech-Illinois*, CC Docket No. 96-98, CC Docket No. 95-185, NSD File No. 96-8, CC Docket No. 92-237, IAD File No. 94-102, Second Report and Order and Memorandum Opinion and Order, 11 FCC Rcd 19392, 19512, para. 268 (1996) (explaining that by retaining exclusive jurisdiction over numbering policy the Commission preserves its ability to act flexibly and expeditiously). However, the Commission has delegated to others the authority to address technical and operational issues, such as the delegation to state commissions of numbering authority to address the technical and operational issues associated with the implementation of 811. *See Use of N11 Codes and Other Abbreviated Dialing Arrangements*, CC Docket No. 92-105, Sixth Report and Order, FCC 05-59, para. 35 (rel. Mar. 14, 2005).

[111] *See* 47 U.S.C. § 251(e)(3).

[112] *See N11 Codes Fifth Report and Order*, 16 FCC Rcd 22266-82, paras. 4-45.

"implement a permissive dialing period, during which emergency calls will be routed to the appropriate emergency response point using either 911 or the seven- or ten-digit number."[113] In order to achieve this, carriers had to "prepare and modify switches to 'translate' the three-digit 911 dialed emergency calls at the appropriate network points to the seven- or ten-digit emergency number in use by those PSAPs, and, subsequently, route the calls to them."[114] The Commission also recognized that the transition to 911 in general required more network changes than required by translation.[115]

35. The Commission's authority to require network changes to provide the E911 features that have long been central to the nation's 911 infrastructure[116] is included within Congress' directive to the Commission to require the establishment of 911 as a "universal emergency telephone number . . . for reporting an emergency to appropriate authorities and requesting assistance."[117]

C. Requirements

36. In this Order, we adopt an immediate E911 solution that applies to all interconnected VoIP services. We find that this requirement most appropriately discharges the Commission's statutory obligation to promote an effective nationwide 911/E911 emergency access system by recognizing the needs of the public safety community to get call back and location information and balancing those needs against existing technological limitations of interconnected VoIP providers.[118] By requiring interconnected VoIP providers to adopt E911 solutions as a top priority, we hope to minimize the likelihood of situations like the recent incidents discussed above.[119] With regard to portable interconnected VoIP services, however, we intend to adopt in a future order an advanced E911 solution for interconnected VoIP that must include a method for determining a user's location without assistance from the user as well as firm implementation deadlines for that solution. To this end, we seek comment in the *NPRM* on possible additional solutions including technical options and possible timelines for implementation.

37. ***Enhanced 911 Service.*** We require that, within 120 days of the effective date of this Order, an interconnected VoIP provider must transmit all 911 calls, as well as a call back number and the caller's "Registered Location" for each call,[120] to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's Registered Location and that has been

[113] *Id*. at 22271, para. 16.

[114] *Id*. at 22272, para. 19.

[115] *See id*. at 22272, para. 20.

[116] *See, e.g.*, *E911 First Report and Order*, 11 FCC Rcd at 18679, para. 5 (explaining that in the previous decade most PSAPs had been upgraded to receive call back and location information to permit more efficient and speedy response by emergency service personnel and that, at the time, 85% of 911 services included some form of enhanced 911).

[117] 47 U.S.C. § 251(e)(3).

[118] *See supra* para. 25. Indeed, the Commission similarly imposed difficult but achievable requirements on CMRS providers in the name of public safety. *See supra* paras. 16-18.

[119] *See supra* note 2 (describing incidents in Texas, Connecticut, and Florida in which users of interconnected VoIP services were reported to be unable to reach emergency dispatchers by dialing 911).

[120] The term "Registered Location" is defined *infra*, para. 46.

designated for telecommunications carriers under section 64.3001 of the Commission's rules.[121] These calls must be routed through the use of ANI and, if necessary, pseudo-ANI,[122] via the dedicated Wireline E911 Network,[123] and the Registered Location must be available from or through the ALI Database. As explained in paragraph 42 *infra*, however, an interconnected VoIP provider need only provide such call back and location information as a PSAP, designated statewide default answering point, or appropriate local emergency authority is capable of receiving and utilizing. While 120 days is an aggressively short amount of time in which to comply with these requirements, the threat to public safety if we delay further is too great and demands near immediate action.

38. Interconnected VoIP providers may satisfy this requirement by interconnecting indirectly through a third party such as a competitive LEC, interconnecting directly with the Wireline E911 Network, or through any other solution that allows a provider to offer E911 service as described above. As an example of the first type of arrangement, Level 3 offers a wholesale product that allows certain interconnected VoIP providers to provide E911 service to their customers.[124] 8x8, Inc. recently announced that it is utilizing Level 3's service to provide E911 service to its Packet8 service subscribers in 2,024 rate centers covering 43 U.S. states.[125] Likewise, Intrado has indicated that it is prepared to operate as a competitive LEC in a number of states to provide indirect interconnection to interconnected VoIP providers,[126] and Pac-West Telecom is offering a similar service in "virtually 100%" of the state of California.[127] We note that the Commission currently requires LECs to provide access to 911 databases and interconnection to 911 facilities to all telecommunications carriers, pursuant to sections 251(a) and (c) and section 271(c)(2)(B)(vii) of the Act.[128] We expect that this would include all the elements

[121] 47 C.F.R. § 64.3001; *see also N11 Codes Fifth Report and Order*, 16 FCC Rcd 22269-77, paras. 10-31.

[122] The terms "ANI" and "pseudo-ANI" as used herein have the same meanings as those set forth in section 20.3 of the Commission's rules. 47 C.F.R. § 20.3.

[123] The term Wireline E911 Network is defined *supra*, para. 14.

[124] *See* Level 3 May 12, 2005 *Ex Parte* Letter at 2 (describing product as suitable for providers of fixed interconnected VoIP services that utilize only "native" telephone numbers); Level 3, *E-911: Enhanced 911 for VoIP* (visited Apr. 26, 2005) <http://www.level3.com/userimages/dotcom/pdf/Level_3_E-911_Fact_Sheet.pdf> (stating that Level 3 offers certain types of VoIP providers the ability to provide full E911 service for approximately 60% of the U.S. households with plans to support 70-80% later in 2005).

[125] *See* 8x8, Inc., *Packet8 E911 'Real' Emergency Phone Service Now Available in Over 2,000 U.S. Rate Centers*, Press Release (rel. May 12, 2005) <http://www.8x8.com/index.php?s=press_releases&item=40>; Level 3, *8x8 Teams with Level 3 to Enhance Residential VoIP Services*, Press Release (rel. June 14, 2004) <http://www.level3.com/press/5013.html>.

[126] *See* Letter from Mary Boyd, Vice President Government & External Affairs, Intrado, to Marlene Dortch, Secretary, FCC, WC Docket 04-36, Attach. at 1, 4-5 (filed Apr. 25, 2005) (Intrado Apr. 25, 2005 *Ex Parte* Letter). Intrado currently provides an array of E911 services to many major VoIP providers, but does not typically provide interconnection. *See id.*; Intrado Apr. 4, 2005 *Ex Parte* Letter, Attach. at 3.

[127] *See* Pac-West Telecomm, Inc., *Pac-West Telecomm Provides E911 Capabilities to VoIP Providers*, Press Release (rel. May 16, 2005) <http://www.pacwest.com/investor/investor_releases.cfm?ticker=PACW&script=415&layout=6&item_id=710492>.

[128] *See* 47 U.S.C. § 251(a)(1) (requiring all telecommunications carriers "to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers"); 47 U.S.C. § 251(c) (requiring incumbent LECs, other than those exempted by section 251(f), to make available unbundled network elements to requesting telecommunications carriers); 47 C.F.R. § 51.319(f) ("An incumbent LEC shall provide a requesting

necessary for telecommunications carriers to provide 911/E911 solutions that are consistent with the requirements of this Order, including NENA's I2 or wireless E911-like solutions.

39. At the same time, the record indicates that incumbent LECs are increasingly offering E911 solutions that allow VoIP providers to interconnect directly to the Wireline E911 Network through tariff, contract, or a combination thereof. For example, Qwest has tariffed E911 offerings that are currently available to VoIP providers and can be coupled with third party service offerings to enable the provision of E911 service to portable interconnected VoIP services, including those that allow their end users to use non-native NPA-NXX numbers.[129] Verizon is developing an E911 solution for interconnected VoIP providers that is comparable to the solution it offers for wireless E911.[130] Verizon has announced that it will offer this solution in New York City beginning in summer 2005 and will roll it out in other locations if the New York City model succeeds.[131] BellSouth currently offers tariffed services similar to those that Qwest uses to provide its VoIP E911 solution and recently announced that it is offering interconnected

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telecommunications carrier with nondiscriminatory access to 911 and E911 databases on an unbundled basis, in accordance with section 251(c)(3) of the Act . . . ."); *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers; Implementation of the Local Competition Provisions of the Telecommunications Act of 1996; Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01-338, 96-98, 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, 17332, para. 557 (2003) ("[B]ecause of the unique nature of 911 and E911 services and the public safety issues inherent in ensuring nondiscriminatory access to such databases, we conclude that . . . competitive carriers must continue to obtain unbundled access to those databases to ensure that their customers have access to emergency services."); 47 U.S.C. § 271(c)(2)(B)(vii)(1) (requiring BOCs to provide nondiscriminatory access to 911 and E911 services to other telecommunications carriers); *Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as Amended, to Provide In-Region, InterLATA Services in Michigan*, CC Docket No. 97-137, Memorandum Opinion and Order, 12 FCC Rcd 20543, 20679, para. 256 (1997) ("[S]ection 271 requires a BOC to provide competitors access to its 911 and E911 services in the same manner that a BOC obtains such access, *i.e.*, at parity."); *id.* ("For facilities-based carriers, nondiscriminatory access to 911 and E911 service also includes the provision of unbundled access to [a BOC's] 911 database and 911 interconnection, including the provision of dedicated trunks from the requesting carrier's switching facilities to the 911 control office . . . ."). Of course, if we find interconnected VoIP to be a telecommunications service, or if a provider of interconnected VoIP holds itself out as a telecommunications carrier and complies with appropriate federal and state requirements, access under these provisions would be available to those providers as well.

[129] *See* Qwest Apr. 12, 2005 *Ex Parte* Letter at 1 (describing Qwest's PS/ALI offering and how such offering can be bundled with a third party ALI database interface to provide E911 service to nomadic VoIP customers); Letter from Cronan O'Connell, Vice President-Federal Regulatory, Qwest to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1 (filed May 12, 2005) (Qwest May 12, 2005 *Ex Parte* Letter). Qwest's E911 offering for interconnected VoIP is essentially the E911 solution that Qwest developed for Multi-Line Telephone Systems, and is sold out of Qwest's retail tariffs. *See* Qwest Apr. 12, 2005 *Ex Parte* Letter, Attach. at 6-7. At least one provider of interconnected VoIP services has found Qwest's offering sufficient. *See* Letter from Jeffery A. Citron, Chairman and CEO, Vonage Holdings Corp., to Richard C. Notebaert, Qwest Communications (dated Apr. 13, 2005) *in* Vonage Apr. 18, 2005 *Ex Parte* Letter ("With the access Qwest has agreed to provide, Vonage will be able to route emergency service calls placed by its customers directly to public safety operators . . . .").

[130] *See* Verizon Apr. 15, 2005 *Ex Parte* Letter at 1; Verizon May 11, 2005 *Ex Parte* Letter at 2-3.

[131] *See* Verizon, *Verizon Identifies Solution Enabling VoIP Companies to Connect to E911 Emergency Calling System*, Press Release (rel. Apr. 26, 2005) <http://newscenter.verizon.com>; *see also* New York City Apr. 22, 2005 *Ex Parte* Letter at 1; Verizon May 11, 2005 *Ex Parte* Letter at 2-3.

VoIP providers access to 911 facilities equivalent to that which it offers CMRS carriers.[132] SBC has offered to negotiate commercial agreements with VoIP providers for direct connection to Selective Routers and ALI databases, comparable to the E911 access that SBC provides to competitive LECs.[133] SBC further has established a new commercial offering that "will enable VoIP providers to offer customers who use their service at a fixed location, such as their home" full E911 service and has stated that it is "willing to develop a wireless-like VOIP 911 capability for VOIP providers" pending receipt of necessary technical information.[134]

40. We are requiring that all interconnected VoIP 911 calls be routed through the dedicated Wireline E911 Network because of the importance of protecting consumers who have embraced this new technology. We recognize that compliance with this obligation is necessarily dependent on the ability of the interconnected VoIP providers to have access to trunks and selective routers via competitive LECs that have negotiated access with the incumbent LECs, through direct connections to the incumbent LECs, or through third-party providers. We expect and strongly encourage all parties involved to work together to develop and deploy VoIP E911 solutions and we point out that incumbent LECs, as common carriers, are subject to sections 201 and 202 of the Act. The Commission will closely monitor these efforts within the industry and will not hesitate to take further action should that be necessary.

41. By requiring that all 911 calls be routed via the dedicated Wireline E911 Network, we are requiring interconnected VoIP service providers to provide E911 service only in those areas where Selective Routers are utilized.[135] We expect that few VoIP 911 calls will be placed in areas that are not interconnected with a dedicated Wireline E911 Network.[136] We further note that nothing in this Order prevents interconnected VoIP providers from entering into mutually acceptable 911 call termination arrangements with PSAPs that are not interconnected with a dedicated Wireline E911 Network. In the attached *NPRM*, we seek comment on whether the Commission need take specific action with respect to such calls.[137]

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[132] *See* BellSouth Apr. 19, 2005 *Ex Parte* Letter at 1; BellSouth May 12, 2005 *Ex Parte* Letter at 3-4 (stating that "[u]sing [BellSouth's CMRS 911] offering as the baseline, BellSouth is offering equivalent 9-1-1 infrastructure network access to VoIP providers"); Letter from Bennett L. Ross, General Counsel-D.C., BellSouth D.C., Inc. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1 (filed May 16, 2005) (BellSouth May 16, 2005 *Ex Parte* Letter) (stating that BellSouth's offering to interconnected VoIP providers "provides the same access as that which BellSouth currently provides to CMRS carriers").

[133] *See* Letter from Christopher T. Rice, Executive Vice President, Network Planning & Engineering, SBC, to Jeffrey A. Citron, Chairman & CEO, Vonage (dated Apr. 18, 2005) (SBC/Vonage Apr. 18, 2005 Letter) *in* Letter from James K. Smith, Executive Director – Federal Regulatory, SBC Services, Inc. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 10 (SBC Apr. 26, 2005 *Ex Parte* Letter) (explaining that SBC currently permits VoIP providers to purchase a tariffed interconnection service called TIPToP and offers access to its Selective Routers and 911 databases pursuant to an optional ancillary agreement).

[134] *See* Letter from James K. Smith, Executive Director - Federal Regulatory, SBC Services, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1, Attach. at 1 (filed May 12, 2004) (SBC May 12, 2005 *Ex Parte* Letter).

[135] *See supra* note 37 (identifying selective routing capability as the key characteristic distinguishing basic 911 and E911).

[136] We note that NENA estimates that 93% of counties with wireline 911 service have E911 service. *See* NENA 911 Fast Facts.

[137] *See infra* Part IV.

42. ***Service Level Obligation.*** For the purposes of these requirements, the phrase "all 911 calls" is defined as "any voice communication initiated by an interconnected VoIP user dialing 911."[138] We recognize that not all PSAPs will immediately be capable of receiving and utilizing the call back number and Registered Location information associated with the E911 requirements outlined above.[139] By way of example, NENA estimates that approximately 26.6 percent of all PSAPs are not currently capable of receiving and utilizing wireless E911 Phase I data.[140] We therefore hold that the E911 requirements set forth above shall be applicable when an interconnected VoIP provider provides service to a Registered Location only to the extent that the PSAP, designated statewide default answering point, or appropriate local emergency authority designated to serve that Registered Location is capable of receiving and utilizing the data, such as ALI or ANI, associated with those requirements. Even in those areas where the PSAP is not capable of receiving or processing location or call back information, however, we conclude that interconnected VoIP providers must transmit all 911 calls to the appropriate PSAP via the Wireline E911 Network. To be clear, this means that interconnected VoIP providers are *always* required to transmit all 911 calls to the appropriate PSAP, designated statewide default answering point, or appropriate local emergency authority utilizing the Selective Router, the trunk line(s) between the Selective Router and the PSAP, and such other elements of the Wireline E911 Network[141] as are necessary in those areas where Selective Routers are utilized.[142]

43. We further hold that the obligation to determine what type of information, such as ALI or ANI, each PSAP is capable of receiving and utilizing rests with the provider of interconnected VoIP services. There is no limit to the number of entities that may engage in the provision of interconnected VoIP services in a given geographic area. It would be unreasonable to require PSAPs to attempt to inform every provider of interconnected VoIP services when the PSAP is prepared to receive and utilize the information associated with E911 service.

44. We decline at this time to adopt performance standards regarding how much time may elapse after an end user updates the Registered Location before the provider has taken such actions as are

[138] We note that end users may not be able to initiate a voice communication, by dialing 911 or otherwise, where their broadband connection has failed or they have lost electrical power. *Cf.* AOL May 11, 2005 *Ex Parte* Letter at 2; Letter from Jennifer L. Phurrough, Counsel for EarthLink, Inc. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 1 (EarthLink May 12, 2005 *Ex Parte* Letter).

[139] The term "Registered Location" is defined *infra*, para. 46.

[140] *See* NENA 911 Fast Facts.

[141] The Wireline E911 Network is described *supra*, paras. 14-15.

[142] We emphasize that interconnected VoIP providers may not fulfill their E911 obligations by routing 911 calls to 10-digit NPA-NXX numbers (so called "administrative numbers") of PSAPs, designated statewide default answering points, or appropriate local emergency authorities where a Selective Router is utilized. *Cf.* NASUCA Comments at 52 ("Delivering 911 calls to the PSAP this way is better than not delivering them at all, but not much better"); New York City Apr. 22, 2005 *Ex Parte* Letter at 1 (stating "the routing by VOIP providers of 911-dialed calls to administrative desks at 911 calling centers is unacceptable and hazardous"); Letter from Gregory Ballentine, President, APCO International, to Kevin J. Martin, Chairman, FCC, WC Docket No 04-36 at 1 (filed Apr. 15, 2005) (APCO Apr. 15, 2005 *Ex Parte* Letter) (stating that while routing 911 calls to administrative numbers is "perhaps acceptable for some PSAPs, such an approach could endanger the public and disrupt already over-burdened PSAP operations" at others). Nothing in this Order, however, prevents interconnected VoIP providers from entering into mutually acceptable 911 call termination arrangements, with PSAPs, designated statewide default answering points, or appropriate local emergency authorities that are not interconnected with a Selective Router through a dedicated Wireline E911 Network. *Cf. id.* at 1.

necessary to provide that end user with the level of E911 service specified in this Order.[143] We request comment, however, on whether such performance standards are necessary and, if so, what form they should take in the *NPRM* issued in conjunction with this Order.[144]

45. We also require interconnected VoIP providers to take certain additional steps to minimize the scope of the 911 issues associated with their service and to facilitate their compliance with our new VoIP E911 rules, as explained below. First, we require interconnected VoIP providers to obtain, and facilitate updating of, customer location information. Second, we preclude interconnected VoIP providers from requiring subscribers to "opt-in" or allowing subscribers to "opt-out" of 911 services and expect that VoIP providers will notify their customers of the limitations of their 911 service offerings.

46. ***Registered Location Requirement***. We recognize that it currently is not always technologically feasible for providers of interconnected VoIP services to automatically determine the location of their end users without end users' active cooperation.[145] We therefore require providers of interconnected VoIP services to obtain location information from their customers.[146] Specifically, interconnected VoIP providers must obtain from each customer, prior to the initiation of service, the physical location at which the service will first be utilized.[147] Furthermore, providers of interconnected VoIP services that can be utilized from more than one physical location must provide their end users one or more methods of updating information regarding the user's physical location. Although we decline to specify any particular method, we require that any method utilized allow an end user to update his or her Registered Location at will and in a timely manner, including at least one option that requires use only of the CPE necessary to access the interconnected VoIP service. We caution interconnected VoIP providers against charging customers to update their Registered Location, as this would discourage customers from doing so and therefore undermine this solution. The most recent location provided to an interconnected VoIP

[143] With a NENA I2 or wireless E911-like solution in place, an interconnected VoIP provider should be able to provide an end user's updated location to a requesting PSAP in "real time." *See* Intrado Apr. 19, 2005 *Ex Parte* Letter, Attach. at 11; Letter from William B. Wilhelm, Jr., Counsel for Vonage Holdings Corp. to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 8 (Vonage May 13, 2005 *Ex Parte* Letter). We understand, however, that updating an end user's location information in the ALI database can require between 24 and 120 hours where a wireless E911-like solution is not in place. *See* Vonage May 9, 2005 *Ex Parte* Letter at 4 (24-48 hours); Qwest May 12, 2005 *Ex Parte* Letter at 2 (72 hours); Level 3 May 12, 2005 *Ex Parte* Letter at 2 (120 hours).

[144] *See infra* Part IV.

[145] *See, e.g.*, 8X8 Comments at 17, 25; Alcatel Comments at 18; AT&T Comments at 30 n.18; Avaya Comments at 19; Dialpad *et al.* Comments at 15; Qwest Comments at 13 n.47; Letter from Ronald W. Del Sesto, Jr., Counsel for Nuvio, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 2 (filed Apr. 1, 2005); Greater Harris County/Tarrant County/NENA Apr. 15, 2005 *Ex Parte* Letter, Attach. at 3; *see also Vonage Order*, 19 FCC Rcd at 22419-21, paras. 24-29 (explaining that VoIP providers have neither the means nor any service-driven reason to track the actual end points of communications).

[146] We emphasize that we are not requiring interconnected VoIP providers to automatically determine the location of their end users. Nothing in these rules, however, prevents an interconnected VoIP provider from automatically obtaining an accurate Registered Location if it is capable of doing so.

[147] Interconnected VoIP providers also must obtain from their existing customers, within 120 days of the effective date of this Order, the physical location at which the service is being utilized.

provider by a customer is the "Registered Location."[148] Interconnected VoIP providers can comply with this requirement directly or by utilizing the services of a third party.

47. ***Customer Requirements.*** In light of the recent incidents involving problems with 911 access from interconnected VoIP services,[149] it is clear that not all providers of interconnected VoIP are including E911 as a standard feature of their services.[150] We find that allowing customers of interconnected VoIP providers to opt-in to or, for that matter, opt-out of E911 service is fundamentally inconsistent with our obligation to "encourage and support efforts by States to deploy comprehensive end-to-end emergency communications infrastructure and programs."[151] Thus, interconnected VoIP providers must, as a condition of providing that service to a consumer, provide that consumer with E911 service as outlined in the requirements above.[152]

48. Further, although many VoIP providers include explanations of the limitations of their 911-like service (or lack thereof) in the Frequently Asked Questions sections on their web sites or in their terms of service,[153] recent incidents make clear that consumers in many cases may not understand that the reasonable expectations they have developed with respect to the availability of 911/E911 service via wireless and traditional wireline telephones may not be met when they utilize interconnected VoIP

[148] We expect that customers of interconnected VoIP service providers will, in almost all cases, be able to provide their Registered Location in the form of a valid street address. We recognize, however, that wireless broadband technologies may increase the possibility that a user's location is not associated with a street address, and request comment on whether some other solution is necessary in that circumstance. *See infra* Part IV.

[149] *See supra* note 2 (describing incidents in Texas, Connecticut, and Florida in which users of interconnected VoIP services reportedly were unable to reach emergency dispatchers by dialing 911).

[150] Some interconnected VoIP providers do not provide any 911 or 911-like service. *See, e.g.*, Net2Phone, *FAQs (Frequently Asked Questions)* (visited Apr. 25, 2005) <http://web.net2phone.com/consumer/voiceline/support_faq.asp#Doyouprovide911service> (Net2Phone FAQ). Other providers require their customers to affirmatively request, or "opt-in" to, the provider's 911 or 911-like services. *See, e.g.*, Packet8, *Feature Details* (visited Apr. 25, 2005) <http://www.packet8.net/about/featuresdetails0604.asp#e911> (Packet8 Feature Details); Vonage, *Vonage Lets You Dial 911* (visited Apr. 25, 2005) <http://www.vonage.com/features.php?feature=911> (Vonage 911 FAQ).

[151] 911 Act § 3(b). The prospect that an individual might opt out of 911 service on his or her primary home communications system also raises serious public policy issues. *See* CUB Comments at 28.

[152] Thus, interconnected VoIP providers must make E911 an included feature of their service, not an optional one. *Cf., e.g.*, Packet8, *Feature Details* (visited Apr. 25, 2005) <http://www.packet8.net/about/featuresdetails0604.asp#e911>. We do not dictate how providers recover their costs for E911. *See infra* Part III.D.

[153] *See, e.g.*, Net2Phone FAQ; Skype, *SkypeOut Frequently Asked Questions* (visited Apr. 25, 2005) <http://www.skype.com/help/faq/skypeout.html#calling>; Skype, *Terms of Service* (visited May 18, 2005) <http://www.skype.com/company/legal/terms/tos_voip.html>; Packet8 Feature Details; Packet8, *Terms and Conditions of Service*, (visited May 18, 2005) <http://www.packet8.net/about/service_terms.asp>; Vonage 911 FAQ; Vonage, Terms of Service (visited May 18, 2005) <http://www.vonage.com/features_terms_service.php?lid=footer_terms>; VoiceWing, FAQs - Product Features (visited Apr. 25, 2005) <https://www22.verizon.com/CustomerHelp/CGI-BIN/SmartHelp.asp?St=221&E=00000000000000779354&K=9408&Sxi=4&dtree=257#622>; VoiceWing, Verizon VoiceWing Terms of Service (visited May 18, 2005) <https://www22.verizon.com/ForYourHome/VOIP/Popup_PrintTos.aspx>.

services.[154] In order to ensure that consumers of interconnected VoIP services are aware of their interconnected VoIP service's actual E911 capabilities, by the effective date of this Order, we require that all providers of interconnected VoIP service specifically advise every subscriber, both new and existing, prominently and in plain language, the circumstances under which E911 service may not be available through the interconnected VoIP service or may be in some way limited by comparison to traditional E911 service.[155] VoIP providers shall obtain and keep a record of affirmative acknowledgement by every subscriber, both new and existing, of having received and understood this advisory. In addition, in order to ensure to the extent possible that the advisory is available to all potential users of an interconnected VoIP service,[156] interconnected VoIP service providers shall distribute to all subscribers, both new and existing, warning stickers or other appropriate labels warning subscribers if E911 service may be limited or not available and instructing the subscriber to place them on and/or near the CPE used in conjunction with the interconnected VoIP service.

49. Additional customer education efforts may well be necessary for users of portable interconnected VoIP, for whom E911 service requires that they notify their service provider affirmatively of their location. For example, customers of portable interconnected VoIP services likely will need to be instructed on how to register their locations with their providers, the need to update that information promptly when they relocate, and how to confirm that the registration is effective.[157] In the attached *NPRM*, we seek comment on whether stronger Commission action is needed with respect to customer notification.[158]

50. ***Compliance Letter.*** We require all interconnected VoIP providers to submit a letter to the Federal Communications Commission detailing their compliance with our rules no later than 120 days after the effective date of this Order. The letter and all other filings related to this Order should be filed with the Commission's Secretary in WC Docket No. 05-196 on a going-forward basis.

51. Because of the vital public safety interests at stake in this proceeding, we are committed to ensuring compliance with the rules we adopt in this Order. Failure to comply with these rules cannot and will not be tolerated, as noncompliance may have a direct effect on the lives of those customers who choose to obtain service from the interconnected VoIP providers covered by this Order. Interconnected

[154] *See supra* note 2 (describing incidents in Texas, Connecticut, and Florida in which users of interconnected VoIP services were unable to reach emergency dispatchers by dialing 911); *see also supra* note 72 (highlighting consumer expectations that interconnected VoIP services will function in some ways like a "regular telephone" service, including with respect to E911 service).

[155] Such circumstances include, but are not limited to, relocation of the end user's IP-compatible CPE, use by the end user of a non-native telephone number, broadband connection failure, loss of electrical power, and delays that may occur in making a Registered Location available in or through the ALI database. *See, e.g.*, AOL May 11, 2005 *Ex Parte* Letter at 2 (stating that VoIP service does not work during power outages without backup power capabilities or during broadband service interruptions); EarthLink May 12, 2005 *Ex Parte* Letter at 1 (same).

[156] Some users of an interconnected VoIP service will not be subscribers. Guests at a subscriber's premises, for example, may not know their host's phone service is provided via interconnected VoIP.

[157] *See supra* para. 46. We have seen examples of customer notification efforts. Verizon, for example, includes in the terms and conditions for its VoiceWing VoIP product a detailed description of the service's 911 capabilities and limitations. *See* Verizon Apr. 15, 2005 *Ex Parte* Letter, Attach. at 3-4. This description contains instructions for notifying Verizon when the customer uses the service at a new location, as well as an explanation of potential 911 service interruptions due to power outages or network congestion. *See id.*

[158] *See infra* para. 59.

VoIP providers who do not comply fully with the requirements set forth in this Order will be subject to swift enforcement action by the Commission, including substantial proposed forfeitures and, in appropriate cases, cease and desist orders and proceedings to revoke any Commission licenses held by the interconnected VoIP provider.

D. 911 Funding

52. We believe that the requirements we establish today will significantly expand and improve interconnected VoIP 911 service while substantially reducing the threat to 911 funding that some VoIP services currently pose.[159] First, we recognize that while some state laws today may already require 911 funding contributions from providers of interconnected VoIP, interconnected VoIP providers may not be covered by existing state 911 funding mechanisms in other states.[160] But even in the latter circumstance, the record does not indicate that states are receiving no 911 funding contributions from interconnected VoIP providers. On the contrary, the record indicates that many interconnected VoIP providers currently are contributing to state 911 funding mechanisms.[161] In addition, states have the option of collecting 911 charges from wholesale providers with whom interconnected VoIP providers contract to provide E911 service, rather than assessing those charges on the interconnected VoIP providers directly. For example, we have explained that interconnected VoIP providers often enlist a competitive LEC partner in order to obtain interconnection to the Wireline E911 Network, and we believe that as a result of this Order, many more will do so.[162] In that situation, states may impose 911 funding obligations on the competitive LEC partners of interconnected VoIP providers, regardless of whether the VoIP providers themselves are under any obligation to contribute.[163] Similarly, states may be able to impose funding obligations on systems service providers, such as incumbent LECs, that provide direct interconnection to interconnected VoIP providers. We believe that the ability to assess 911 funds on interconnected VoIP providers indirectly should narrow any gap in 911 funding attributable to consumers switching to interconnected VoIP service.

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[159] Some commenters have expressed concern about the effect of increased use of VoIP services on 911 funding. *See, e.g.*, APCO Comments at 9; BellSouth Comments at 52; BRETSA Comments at 4, 6; CUB Comments at 27; FERUP Comments at 15; Global Crossing Comments at 15; King Country Comments at 3-5; Missouri Commission Comments at 4; NARUC Comments at 8; NASUCA Comments at 55; NCL Comments at 5; NENA Comments at 8; Spokane County Comments at 1; TCCFUI Comments at 3-4; TCSEC Comments at 3-5; AT&T Reply at 22; Intrado Reply at 2-3; NASUCA Reply at 50-51; New Jersey Ratepayer Advocate Reply at 24-25.

[160] *See, e.g.*, Letter from Robert M. Gurss, Director of Legal and Government Affairs, APCO, to Marlene Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. (filed May 10, 2005) (describing state funding mechanisms). States may be in the process of modifying their 911 funding requirements to cover interconnected VoIP providers. *See, e.g.*, H.F. No. 2103, 84th Leg. Sess., Reg. Sess. (Minn. 2005) (proposing to expand applicability of state 911/E911 law beyond telecommunications service providers to include "other entit[ies] determined by the commissioner to be capable of providing effective and efficient components of the 911 system"). We use the term "state" for purposes of this discussion, although we recognize that in many areas, local authorities are responsible for 911 funding.

[161] According to NENA and the VON Coalition, 75% of signatories to the VON/NENA Agreement currently are paying into state and local 911 funds. *See* VON/NENA Jan. 2005 White Paper at 10.

[162] *See supra* para. 38.

[163] Because 911 contribution obligations are typically assessed on a per-line basis, states may need to explore other means of collecting an appropriate amount from competitive LECs on behalf of their interconnected VoIP partners, such as a per-subscriber basis. Similarly, if an interconnected VoIP provider interconnects directly with a systems service provider or PSAP, states may need to explore collecting amounts from these entities, which could pass the charges through to the interconnected VoIP provider.

53. Second, the record indicates that the network components that have been developed to make wireless E911 possible can also be used for VoIP E911, which should make the implementation process simpler and far less expensive than the initial upgrades necessary for wireless E911.[164] For that reason, we do not expect the rules we adopt today to impose substantial implementation costs on PSAPs.[165] In short, we believe that the rules we adopt today will neither contribute to the diminishment of 911 funding nor require a substantial increase in 911 spending by state and local jurisdictions.

E. Liability

54. We decline to exempt providers of interconnected VoIP service from liability under state law related to their E911 services. Although the *Notice* did not directly address the issue, Intrado, among others, requests that the Commission insulate these VoIP providers from liability to the same extent that Congress insulated wireless carriers from liability related to the provision of 911/E911 service in the wireless context.[166] In the 911 Act, Congress gave wireless carriers providing 911 service liability protection equal to that available to wireline carriers for 911 calls.[167] Congress has enacted no similar

[164] *See supra* para. 17 & note 122 (explaining that wireless E911 requires that PSAPs be able to receive and process pseudo-ANI, and that interconnected VoIP providers may utilize pseudo-ANI to deliver non-traditional location information to the PSAP). For this reason, we do not require that a cost recovery mechanism be in place for PSAPs before a VoIP provider must comply with the E911 obligations we establish today. In this respect we deviate from the wireless E911 scheme, under which a PSAP must have a means of covering its costs of receiving and utilizing the data elements associated with wireless E911 calls before a wireless carrier is required to provide E911 pursuant to that PSAP's request. *See* 47 C.F.R. § 20.18(j); *see also E911 Second Memorandum Opinion and Order*, 14 FCC Rcd at 20860, para. 23. There is no need to specify a cost recovery mechanism for interconnected VoIP providers because their rates are not regulated, so they are fully able to recover their E911 costs by raising their rates. *Cf. E911 Second Memorandum Opinion and Order*, 14 FCC Rcd at 20854, para. 7 (eliminating a cost recovery mechanism requirement for wireless carriers' costs because wireless carriers' rates were unregulated, giving them full flexibility to recover their costs without a mandatory mechanism). To the extent that it becomes a concern, we believe that the demarcation point that the Commission established for wireless E911 cost allocation would be equally appropriate for VoIP. *See King County Letter*; *King County Reconsideration Order,* 17 FCC Rcd 14789.

[165] In fact, APCO's concerns about PSAP costs focused on the expense of responding to stopgap solutions, such as routing VoIP 911 calls to PSAPs' administrative numbers, and indicated a preference for a uniform VoIP E911 approach such as the one we adopt today. *See* APCO Apr. 15, 2005 *Ex Parte* Letter at 2 (stating that VoIP providers should be required to provide their customers with "full access to existing [E911] capability" rather than being permitted to route their calls to PSAPs' administrative numbers because PSAPs "lack the resources to be constantly upgrading and modifying their operations to be compatible with the latest technological fads").

[166] *See* Intrado Apr. 4, 2005 *Ex Parte* Letter, Attach. at 14 (seeking the Commission to provide VoIP service providers with the same liability protection that wireless carriers receive under 47 U.S.C. § 615a); AOL May 11, 2005 *Ex Parte* Letter at 2 (same); *see also* NCTA VoIP White Paper at 22 n.29 ("As with all service providers that offer 911/E911 capabilities, VoIP service providers should be protected by statutory and other limitations on liability pertaining to the provision of 911/E911 services."); Letter from Robert W. Quinn, Jr., Federal Government Affairs, Vice President, AT&T to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36 at 5 (filed May 9, 2005) (seeking the Commission to provide VoIP providers with "liability immunity" if they comply with notice and disclosure obligations and/or E911); Level 3 May 12, 2005 *Ex Parte* Letter at 6 ("Without a clear liability limitation, retail and wholesale VoIP providers may be reluctant to work on solutions for these vexing issues.").

[167] *See* 47 U.S.C. § 615a; 911 Act § 4 (providing wireless carriers, wireless users and PSAPs in a State the same degree of liability protection related to 911/E911 service as local exchange carriers, users and PSAPs have under federal or state law with respect to local exchange service in that State); *see also* TCS Apr. 22, 2005 *Ex Parte*

protection for providers of interconnected VoIP service. As the Commission has said in an analogous context, before we would consider taking any action to preempt liability under state law, the Commission would need to demonstrate that limiting liability is essential to achieving the goals of the Act.[168]

55. No commenter has identified a source of authority for the Commission to limit liability in this way.[169] Limiting liability related to the use or provision of E911 services is not necessary to the creation or use of E911 services, and we are not persuaded that absent the liability protection sought by Intrado and others, interconnected VoIP providers will be unwilling or unable to provide E911 services. Rather, the record shows that some interconnected VoIP providers have already begun deploying E911 services.[170] In addition, to the extent individual interconnected VoIP providers believe they need this type of liability protection, they may seek to protect themselves from liability for negligence through their customer contracts and through their agreements with PSAPs, as some interconnected VoIP providers have done.[171]

IV. NOTICE OF PROPOSED RULEMAKING

56. In this *NPRM*, we seek comment on what additional steps the Commission should take to ensure that providers of VoIP services that interconnect with the nation's PSTN provide ubiquitous and reliable E911 service.[172] The Order that accompanies this *NPRM* is this Commission's first step to ensure that the life-saving benefits of E911 service that wireline telephone and wireless telephone users have come to rely on also are extended to citizens who choose to communicate using interconnected VoIP services. Due to the existing state of technology, today's Order relies in some cases on users to provide the location information that will be delivered to PSAPs in an emergency, and thus is an immediate step toward a more advanced solution in which the user automatically can be located without assistance from the user. We seek comment on what the Commission can do to further the development of this new technology,

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Letter, Attach. at 41 (stating that wireless and wireline carriers are insulated from liability except for gross negligence).

[168] *See E911 First Report and Order*, 11 FCC Rcd at 18728, para. 100; *see also Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 04-102, Memorandum Opinion and Order, 12 FCC Rcd 22665, 22731-34, paras. 137-42 (1997). As the Commission noted in the *E911 First Report and Order*, the D.C. Circuit has struck down, as infringing on the jurisdiction of state courts, a Federal Energy Regulatory Commission (FERC) ruling that conditioned the granting of licenses for dams on a rule of strict liability for property damage caused by seismically-induced dam failure, and noted that FERC failed to show that the action was essential to achieving the goals of the Federal Power Act. *See E911 First Report and Order*, 11 FCC Rcd at 18728, para. 100 (citing *South Carolina Pub. Serv. Authority v. FERC*, 850 F.2d 788 (D.C. Cir. 1988)).

[169] *See, e.g.*, TCS Apr. 22, 2005 *Ex Parte* Letter, Attach. (noting that VoIP service providers do not receive the same liability protection as wireline and wireless carriers).

[170] *See, e.g.*, Letter from Glenn S. Richards, Counsel for VON Coalition, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 13-14 (filed Apr. 15, 2005) (listing progress various entities are making in providing emergency services to VoIP users today).

[171] *See* Verizon Apr. 15, 2005 *Ex Parte* Letter, Attach. 2 at 9 (disclaiming liability in VoiceWing's Terms of Service for inability to access emergency service personnel through 911, E911, or otherwise); Letter from James K. Smith, Executive Director – Federal Regulatory, SBC Services, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 8, para. 15 (filed Apr. 12, 2005) (exempting the VoIP service provider from liability related to the provision of VoIP 911 service except for gross negligence, recklessness or intentional misconduct).

[172] We hereby incorporate the comments and *ex parte* presentations in WC Docket No. 04-36 into this docket. Commenters need not resubmit material previously filed in that proceeding.

and on issues raised by today's Order, including whether the Commission should expand the scope and requirements of this Order. Commenters should take note of the Commission's view that while a provider of VoIP service enjoys the opportunity to introduce new and exciting public interest benefits to the communications marketplace, and to profit from those offerings, that opportunity brings with it the responsibility to ensure that public safety is protected.

57. As the Commission previously has discussed, one of the central customer benefits of portable interconnected VoIP services is the lack of geographic restrictions.[173] However, because portable interconnected VoIP services may be offered independent of geography, currently there is no way for portable VoIP providers reliably and automatically to provide location information to PSAPs for these services without the customer's active cooperation. What can the Commission do to facilitate the development of techniques for automatically identifying the geographic location of users of this type of VoIP service? What role should the Commission play to further the evolution of E911 service and E911 systems that do not depend on a customer providing his or her location information? A number of possible methods have been proposed to automatically identify the location of a VoIP user, including gathering location information through the use of: an access jack inventory; a wireless access point inventory; access point mapping and triangulation; HDTV signal triangulation; and various GPS-based solutions.[174] What role would be most productive for the Commission to play in facilitating the adoption of one or more of these possible solutions, or facilitating some other solution, to automatically identify a VoIP service customer's location? Are any of these solutions more promising than others? Are there any reasons why certain of these solutions are unworkable? What other solutions could be used to provide location information automatically in the VoIP service context? Should the Commission require all terminal adapters or other equipment used in the provision of interconnected VoIP service sold as of June 1, 2006 to be capable of providing location information automatically, whether embedded in other equipment or sold to customers as a separate device? Under what authority could the Commission take such actions?

58. We also seek comment on issues raised by our decision today to impose E911 service obligations on providers of interconnected VoIP services. The scope of today's Order is limited to providers of interconnected VoIP services. We seek comment on whether the Commission should extend these obligations, or similar obligations, to providers of other VoIP services that are not covered by the rules adopted today. For instance, what E911 obligations, if any, should apply to VoIP services that are not fully interconnected to the PSTN? Specifically, should E911 obligations apply to VoIP services that enable users to terminate calls to the PSTN but do not permit users to receive calls that originate on the PSTN? Should E911 obligations apply to the converse situation in which a VoIP service enables users to receive calls from the PSTN but does not permit the user to make calls terminating to the PSTN?[175] We tentatively conclude that a provider of a VoIP service offering that permits users generally to receive calls that originate on the PSTN and separately makes available a different offering that permits users generally to terminate calls to the PSTN should be subject to the rules we adopt in today's Order if a user can combine those separate offerings or can use them simultaneously or in immediate succession. Are there any other services upon which the Commission should impose E911 obligations, including any IP-based voice services that do not require a broadband connection?

[173] *See Vonage Order*, 19 FCC Rcd 22420, 22422, paras. 25, 29.

[174] *See* Intrado Apr. 19, 2005 *Ex Parte* Letter, Attach. at 14.

[175] *See supra* para. 24.

59. Does the Commission need to adopt regulations in addition to those imposed by today's Order to ensure that interconnected VoIP service customers obtain the required level of E911 services? It is our expectation that end-user updates of Registered Location information will take place immediately. If this is not feasible, what performance standards should the Commission adopt regarding the length of time between when an end user updates Registered Location information and when the service provider takes the actions necessary to enable E911 from that new location? How should such requirements be structured? How should providers of interconnected VoIP service satisfy the requirements we adopt today in cases in which a subscriber's Registered Location is not associated with a street address? What requirements, if any, should we impose on providers of interconnected VoIP service in geographic areas served by PSAPs that are not connected to a Selective Router? How should the use of wireless broadband connections such as Wi-Fi or WiMax impact the applicability of the obligations we adopt today? Would providers of wireless interconnected VoIP service be more appropriately subject to our existing 911/E911 rules for CMRS? Should the Commission require VoIP service providers to create redundant systems for providing E911 services, such as requiring redundant trunks to each Selective Router and/or requiring that multiple Selective Routers be able to route calls to each PSAP? We also seek comment on whether the Commission should impose additional or more restrictive customer notification requirements relating to E911 on VoIP providers, and on the sufficiency of our customer acknowledgement requirements.

60. Should the Commission impose reporting obligations on VoIP service providers other than the compliance letter we impose in today's Order? Are there other ways for the Commission to monitor implementation of its E911 rules without imposing reporting requirements? We note that the Commission has imposed progress reporting requirements in the past for implementation and enforcement of 911/E911 transition deadlines for wireless[176] and wireline providers.[177] Should the Commission require interconnected VoIP providers to report what progress they are making in developing ways to locate automatically a user who dials 911? Should the Commission require reporting of any other information by interconnected VoIP providers? If the Commission adopts additional reporting requirements, what are the appropriate deadlines for such progress reports? Under what authority could the Commission take such actions?

61. We seek comment on what role states can and should play to help implement the E911 rules we adopt today. We recognize the historic and important role of states and localities in public safety matters. State and local governments have filled an especially important role in creating and regulating 911/E911 operations – a role states have shouldered even in the context of wireless services.[178] Should state and local governments play a role similar to the roles they play in implementing the Commission's wireless 911/E911 rules? Should the Commission take any action to facilitate the states' ability to collect 911 fees from interconnected VoIP providers, either directly or indirectly? How can the Commission and the states work together to ensure the public's safety?

62. Should the Commission adopt any customer privacy protections related to provision of E911 service by interconnected VoIP service providers? The E911 rules we adopt today when fully

[176] *See, e.g.*, 47 C.F.R. § 20.18(i) (requiring certain wireless licensees to "report to the Commission their plans for implementing Phase II enhanced 911 service, including the location-determination technology they plan to employ and the procedure they intend to use to verify conformance with the Phase II accuracy requirements" and to update those plans within thirty days of the adoption of any change).

[177] *See N11 Codes Fifth Report and Order*, 16 FCC Rcd at 22281-82, paras. 42-45.

[178] *See, e.g., id.* at 22283-85, paras. 48-52*; see also supra* para. 7 & note 35.

implemented will require interconnected VoIP service providers to transmit a customer's Registered Location to an appropriate PSAP, which necessarily requires providers of such services to maintain a list of their customers' Registered Location, and makes that information available to public safety professionals and others when the customer dials 911. Wireline and wireless telecommunications carriers are already subject to privacy requirements.[179] Should the Commission adopt similar privacy protections in the context of interconnected VoIP service? Under what authority could we adopt such rules?

63. Finally, we seek comment on whether persons with disabilities can use interconnected VoIP service and other VoIP services to directly call a PSAP via a TTY in light of the requirement in Title II of the Americans with Disabilities Act (ADA) that PSAPs be directly accessible by TTYs.[180] Furthermore, as we noted in the *Notice*, the Commission in 1999 released a Notice of Inquiry raising specific questions regarding the application of the disability accessibility provisions found in sections 251(a)(2) and 255 of the Act in the context of "IP telephony" and "computer-based equipment that replicates telecommunications functionality."[181] That Notice sought comment on the extent to which Internet telephony was impairing access to communications services among people with disabilities, the efforts that manufacturers were taking to render new technologies accessible, and the degree to which these technologies should be subjected to the same disability access requirements as traditional telephony facilities.[182] We ask commenters to refresh the record in that proceeding in light of today's Order by filing comments in this docket. Are there any steps that the Commission needs to take to ensure that people with disabilities who desire to use interconnected VoIP service obtain access to E911 services? What is the basis of the Commission's authority to impose any obligations that commenters feel are warranted?

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[179] Section 222 of the Act prevents telecommunications carriers from disclosing customer proprietary network information (CPNI), including customer location information, without customer approval. *See* 47 U.S.C. § 222(c)(1). The Act excludes from the definition of CPNI a customer's address that is listed in a directory. *See* 47 U.S.C. § 222(h)(3). We also note that Congress in the 911 Act provided certain privacy protections related to wireless carriers' ability automatically to obtain and transmit precise customer location information, and exceptions from those rules for the provision of E911 service. *See* 911 Act § 5 (amending section 222 by, *inter alia*, adding new sections 47 U.S.C. § 222(d)(4), (f) (concerning wireless location information) and 47 U.S.C. § 222(g) (concerning subscriber information)). Also, in redesignating former section 47 U.S.C. § 222(f) as section 47 U.S.C. § 222(h), the 911 Act amended an existing definition and added new definitions. *See* 47 U.S.C. § 222(h)(1)(A), (4)-(7). We note that section 222 applies to telecommunications carriers. Interconnected VoIP service providers to date have not been classified as telecommunications carriers under the Act.

[180] *See* 42 U.S.C. §§ 12131-12134. Pursuant to the ADA requirements, telephone emergency services, including 911 services, are required to provide direct access to individuals who use telecommunication devices for the deaf (TDDs, or as now commonly called, TTYs) and computer modems, without relying on outside relay services or third party services. *See* 28 C.F.R. § 35.162; *see also* 28 C.F.R. § 35.160(a) (providing that a public entity shall "take appropriate steps to ensure that communications with applicants, participants, and members of the public with disabilities are as effective as communications with others"); 28 C.F.R. § 35.161 (stating that "[w]here a public entity communicates by telephone with applicants and beneficiaries, TDD's or equally effective telecommunication systems shall be used to communicate with individuals with impaired hearing or speech").

[181] *Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996; Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities*, WT Docket No. 96-198, Report and Order and Further Notice of Inquiry, 16 FCC Rcd 6417, 6483-84, para. 175 (1999) (*Disability Access Order*); *see generally id*. at 6483-6486, paras. 173-85.

[182] *See id.*, 16 FCC Rcd at 6484-86, paras. 179-85.

V. PROCEDURAL MATTERS

A. *Ex Parte* Presentations

64. This matter shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.[183] Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one or two sentence description of the views and arguments presented is generally required.[184] Other requirements pertaining to oral and written presentations are set forth in section 1.1206(b) of the Commission's rules.

B. Comment Filing Procedures

65. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. **All filings related to this Order and the Notice of Proposed Rulemaking should refer to WC Docket No. 05-196**. We hereby incorporate the comments and *ex parte* presentations in WC Docket No. 04-36 into WC Docket No. 05-196. Commenters need not resubmit material previously filed in that proceeding. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://www.fcc.gov/cgb/ecfs/ or the Federal eRulemaking Portal: http://www.regulations.gov. Filers should follow the instructions provided on the website for submitting comments.

    - For ECFS filers, if multiple docket or rulemaking numbers appear in the caption of this proceeding, filers must transmit one electronic copy of the comments for each docket or rulemaking number referenced in the caption. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions, filers should send an e-mail to ecfs@fcc.gov, and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.

- Paper Filers: Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

  Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

[183] 47 C.F.R. §§ 1.200 *et seq*.

[184] *See* 47 C.F.R. § 1.1206(b)(2).

- The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE., Suite 110, Washington, DC 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

- U.S. Postal Service first-class, Express, and Priority mail should be addressed to 445 12th Street, SW, Washington DC 20554.

66. All filings must be addressed to the Commission's Secretary, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, 445 12th Street, SW, Washington, DC 20554. Parties should also send a copy of their filings to Janice Myles, Competition Policy Division, Wireline Competition Bureau, Federal Communications Commission, Room 5-C140, 445 12th Street, SW, Washington, D.C. 20554, or by e-mail to janice.myles@fcc.gov. Parties shall also serve one copy with the Commission's copy contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW, Room CY-B402, Washington, D.C. 20554, (202) 488-5300, or via e-mail to fcc@bcpiweb.com.

67. Documents in WC Docket Nos. 04-36 and 05-196 are available for public inspection and copying during business hours at the FCC Reference Information Center, Portals II, 445 12th St. SW, Room CY-A257, Washington, DC 20554. The documents may also be purchased from BCPI, telephone (202) 488-5300, facsimile (202) 488-5563, TTY (202) 488-5562, e-mail fcc@bcpiweb.com.

C. Accessible Formats

68. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at (202) 418-0531 (voice), (202) 418-7365 (TTY).

D. Regulatory Flexibility Analyses

69. As required by the Regulatory Flexibility Act of 1980, *see* 5 U.S.C. § 604, the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA) of the possible significant economic impact on small entities of the policies and rules addressed in this document. The FRFA is set forth in Appendix C.

70. As required by the Regulatory Flexibility Act of 1980, *see* 5 U.S.C. § 603, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules addressed in this document. The IRFA is set forth in Appendix C. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments filed in response to this Notice of Proposed Rulemaking as set forth in paragraph 65, and have a separate and distinct heading designating them as responses to the IRFA.

E. Paperwork Reduction Act Analysis

71. This document contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new information collection requirements contained in this proceeding.

F. Congressional Review Act

72. The Commission will send a copy of this Report and Order in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act (CRA), *see* 5 U.S.C. § 801(a)(1)(A).

VI. ORDERING CLAUSES

73. Accordingly, IT IS ORDERED that pursuant to sections 1, 4(i), 4(j), 251(e) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 251(e), 303(r), the Report and Order in WC Docket No. 04-36 IS ADOPTED, and that Part 9 of the Commission's Rules, 47 C.F.R. Part 9, is added as set forth in Appendix B. The Order shall become effective 30 days after publication in the Federal Register subject to OMB approval for new information collection requirements.[185] Accordingly, subject to such OMB approval: (i) the customer notification requirements set forth in paragraphs 48 and 49 of the Order shall become effective upon the effective date of the Order; (ii) the compliance letter described in paragraph 50 of the Order must be submitted to the Commission no later than 120 days after the effective date of the Order; and (iii) all other requirements shall become effective 120 days after the effective date of the Order.

74. IT IS FURTHER ORDERED that pursuant to the authority contained in sections 1, 4(i), 4(j), 251(e), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 251(e), 303(r), the Notice of Proposed Rulemaking in WC Docket No. 05-196 IS ADOPTED.

75. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this First Report and Order and Notice of Proposed Rulemaking, including the Final Regulatory Flexibility Analysis and the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch

[185] In light of the importance of these rules, the Commission is seeking emergency approval from OMB. The Commission will issue a public notice announcing the date upon which the information collection requirements set forth in this Order shall become effective following receipt of such emergency approval.

Secretary

APPENDIX A
LIST OF COMMENTERS

Comments in WC Docket No. 04-36

Comments	Abbreviation
8X8, Inc.	8X8
AARP	AARP
ACN Communications Services, Inc.	ACN
Ad Hoc Telecommunications Users Committee	Ad Hoc
Alcatel North America	Alcatel
Alliance for Public Technology	APT
America's Rural Consortium	ARC
American Foundation for the Blind	AFB
American Public Communications Council	APCC
Amherst, Massachusetts Cable Advisory Committee	Amherst CAC
Arizona Corporation Commission	Arizona Commission
Artic Slope Telephone Association Cooperative, Inc. Cellular Mobile Systems of St. Cloud, LLC d/b/a Cellular 2000 Comanche County Telephone, Inc. DeKalb Telephone Cooperative, Inc. d/b/a DTC Communications Grand River Mutual Telephone Corporation Interstate 35 Telephone Company KanOkla Telephone Association, Inc. Siskiyou Telephone Company Uintah Basin Telecommunications Association, Inc. Vermont Telephone Company, Inc. Wheat State Telephone, Inc.	Artic Slope *et al.*
Association for Communications Technology Professionals in Higher Education	ACUTA
Association for Local Telecommunications Services	ALTS
Association of Public-Safety Communications Officials-International, Inc.	APCO
AT&T Corporation	AT&T
Attorney General of the State of New York	New York Attorney General
Avaya, Inc.	Avaya
BellSouth Corporation	BellSouth
Bend Broadband Cebridge Connections, Inc. Insight Communications Company, Inc. Susquehanna Communication	Bend Broadband *et al.*
Boulder Regional Emergency Telephone Service Authority	BRETSA
BT Americas Inc.	BTA
Cablevision Systems Corp.	Cablevision
Callipso Corporation	Callipso
Cbeyond Communications, LLC GlobalCom, Inc. MPower Communications, Corp.	Cbeyond *et al.*

CenturyTel, Inc.	CenturyTel
Charter Communications	Charter
Cheyenne River Sioux Tribe Telephone Authority	Cheyenne Telephone Authority
Cisco Systems, Inc.	Cisco
Citizens Utility Board	CUB
City and County of San Francisco	San Francisco
City of New York	New York City
Comcast Corporation	Comcast
Communication Service for the Deaf, Inc.	CSD
Communications Workers of America	CWA
CompTel/ASCENT	CompTel
Computer & Communications Industry Association	CCIA
Computing Technology Industry Association	CompTIA
Consumer Electronics Association	CEA
Covad Communications	Covad
Cox Communications, Inc.	Cox
CTIA-The Wireless Association	CTIA
Department of Homeland Security	DHS
DialPad Communication, Inc. ICG Communications, Inc. Qovia, Inc. VoicePulse, Inc.	Dialpad *et al.*
DJE Teleconsulting, LLC	DJE
Donald Clark Jackson	Jackson
EarthLink, Inc.	EarthLink
EDUCAUSE	EDUCAUSE
Electronic Frontier Foundation	EFF
Enterprise Communications Association	ECA
Federation for Economically Rational Utility Policy	FERUP
Francois D. Menard	Menard
Frontier and Citizens Telephone Companies	Frontier/Citizens
General Communications, Inc.	GCI
Global Crossing North America, Inc.	Global Crossing
GVNW Consulting, Inc.	GVNW
ICORE, Inc.	ICORE
IEEE-USA	IEEE-USA
Illinois Commerce Commission	Illinois Commerce Commission
Inclusive Technologies	Inclusive Technologies
Independent Telephone & Telecommunications Alliance	ITTA
Information Technology Association of America	ITAA
Information Technology Industry Council	ITIC
Interstate Telcom Consulting, Inc.	ITCI
Ionary Consulting	Ionary
Iowa Utilities Board	Iowa Commission
King County E911 Program	King County
Level 3 Communications LLC	Level 3
Lucent Technologies Inc.	Lucent Technologies
Maine Public Utilities Commissioners	Maine Commissioners
MCI	MCI
Microsoft Corporation	Microsoft

Minnesota Public Utilities Commission	Minnesota Commission
Montana Public Service Commission	Montana Commission
Motorola, Inc.	Motorola
National Association of Regulatory Utility Commission	NARUC
National Association of State Utility Consumer Advocates	NASUCA
National Association of Telecommunications Officers and Advisors National League of Cities National Association of Counties U.S. Conference of Mayors National Association of Towns and Townships Texas Coalition of Cities for Utility Issues Washington Association of Telecommunications Officers and Advisors Greater Metro Telecommunications Consortium Mr. Hood Cable Regulatory Commission Metropolitan Washington Council of Governments Rainier Communications Commission City of Philadelphia City of Tacoma, Washington Montgomery County, Maryland	NATOA *et al.*
National Cable & Telecommunications Association	NCTA
National Consumers League	NCL
National Emergency Number Association	NENA
National Exchange Carrier Association, Inc.	NECA
National Governors Association	NGA
National Grange	National Grange
National Telecommunications Cooperative Association	NTCA
Nebraska Public Service Commission	Nebraska Commission
Nebraska Rural Independent Companies	Nebraska Rural Independent Companies
Net2Phone, Inc.	Net2Phone
New Jersey Board of Public Utilities	New Jersey Commission
New Jersey Division of the Ratepayer Advocate	New Jersey Ratepayer Advocate
New York State Department of Public Service	New York Commission
nexVortex, Inc.	nexVortex
Nortel Networks	Nortel
Nuvio Corporation	Nuvio
Office of Advocacy, U.S. Small Business Administration	SBA
Office of the Attorney General of Texas	Texas Attorney General
Office of the People's Counsel for the District of Columbia	D.C. Counsel
Ohio Public Utilities Commission	Ohio Commission
Omnitor	Omnitor
Organization for the Promotion and Advancement of Small Telecommunications Companies	OPASTCO
Pac-West Telecomm, Inc.	Pac-West
People of the State of California and the California Public Utilities Commission	California Commission
Public Service Commission of the State of Missouri	Missouri Commission
Pulver.com	pulver.com

Qwest Communications International Inc.	Qwest
Rehabilitation Engineering Research Center on Telecommunications Access	RERCTA
Rural Independent Competitive Alliance	RICA
SBC Communications, Inc.	SBC
Self Help for Hard of Hearing People	SHHHP
Skype, Inc.	Skype
Sonic.net, Inc.	Sonic.net
SPI Solutions, Inc.	SPI Solutions
Spokane County 911 Communications	Spokane County 911
Sprint Corporation	Sprint
TCA, Inc. – Telecom Consulting Associates	TCA
Telecommunications for the Deaf, Inc	TDI
Telecommunications Industry Association	TIA
Tellme Networks, Inc	Tellme Networks
Tennessee Regulatory Authority	TRA
Texas Coalition of Cities for Utility Issues	TCCFUI
Texas Commission on State Emergency Communications.	TCSEC
Texas Department of Information Resources	Texas DIR
Time Warner Inc.	Time Warner
Time Warner Telecom	TWTC
TracFone Wireless, Inc.	TracFone
UniPoint Enhanced Services Inc. d/b/a PointOne	PointOne
United States Conference of Catholic Bishops Alliance for Community Media Appalachian People's Actions Coalition Center for Digital Democracy Consumer Action Edgemont Neighborhood Coalition Migrant Legal Action Program	USCCB *et al.*
United States Department of Justice	DOJ
United States Telecom Association	USTA
United Telecom Council The United Power Line Council	UTC *et al.*
USA Datanet Corporation	USAD Datanet
Utah Division of Public Utilities	Utah Commission
Valor Telecommunications of Texas, L.P. and Iowa Telecommunications Services, Inc.	Valor *et al.*
VeriSign, Inc.	VeriSign
Verizon Telephone Company	Verizon
Vermont Public Service Board	Vermont
Virgin Mobile USA, LLC	Virgin Mobile
Virginia State Corporation Commission	Virginia Commission
Voice on the Net Coalition	VON Coalition
Vonage Holdings Corp	Vonage
Western Telecommunications Alliance	WTA
WilTel Communications, LLC	WilTel
Wisconsin Electric Power Company Wisconsin Gas	Wisconsin Electric *et al.*
Yellow Pages Integrated Media Association	YPIMA

Z-Tel Communications, Inc.	Z-Tel

Reply Comments in WC Docket No. 04-36

Reply Comments	**Abbreviation**
8X8, Inc.	8X8
Ad Hoc Telecom Manufacturer Coalition	Ad Hoc Telecom Manufacturers Coalition
Ad Hoc Telecommunications Users Committee	Ad Hoc
Adam D. Thierer, Director of Telecommunications Studies, Cato Institute	Thierer
Alcatel North America	Alcatel
Alliance for Public Technology et al.	APT *et al.*
American Cable Association	ACA
American Electric Power Service Corporation Duke Energy Corporation Xcel Energy Inc.	American Electric Power *et al.*
Association for Local Telecommunications Services	ALTS
AT&T Corp.	AT&T
Avaya Inc.	Avaya
BellSouth Corporation	BellSouth
Broadband Service Providers Association	BSPA
Cablevision Systems Corp.	Cablevision
Callipso Corporation	Callipso
Central Station Alarm Association	CSAA
Cingular Wireless LLC	Cingular
Cisco Systems, Inc.	Cisco
City and County of San Francisco	San Francisco
Comcast Corporation	Comcast
CompTel/Ascent	CompTel
Consumer Electronics Association	CEA
Consumer Federation of America Consumers Union	CFA *et al.*
Covad Communications	Covad
CTC Communications Corp.	CTS
CTIA-The Wireless Association	CTIA
Department of Defense	DoD
Donald Clark Jackson	Jackson
EarthLink, Inc.	EarthLink
Educause	Educause
Enterprise Communications Association	ECA
Ericsson Inc.	Ericsson
Florida Public Service Commission	Florida Commission
Francois D. Menard	Menard
General Communication (GCI)	GCI
Global Crossing North America, Inc.	Global Crossing
Independent Telephone & Telecommunications Alliance	ITTA
Information Technology Association of America	Information Technology Association of America
Intergovernmental Advisory Committee	IAC

Intrado Inc.	Intrado
Knology, Inc.	Knology
Level 3 Communications LLC	Level 3
Massachusetts Office of the Attorney General	Massachusetts Attorney General
MCI	MCI
Montana Public Service Commission	Montana Commission
Motorola, Inc.	Motorola
National Association of State Utility Consumer Advocates	NASUCA
National Association of Telecommunications Officers and Advisors National League of Cities National Association of Counties U.S. Conference of Mayors National Association of Towns and Townships Texas Coalition of Cities for Utility Issues Washington Association of Telecommunications Officers and Advisors Greater Metro Telecommunications Consortium Mr. Hood Cable Regulatory Commission Metropolitan Washington Council of Governments Rainier Communications Commission City of Philadelphia City of Tacoma, Washington Montgomery County, Maryland	NATOA *et al.*
National Cable & Telecommunications Association	NCTA
National Emergency Number Association	NENA
National Exchange Carrier Association, Inc.	NECA
Nebraska Public Service Commission	Nebraska Commission
Nebraska Rural Independent Companies	Nebraska Rural Independent Companies
Net2Phone, Inc.	Net2Phone
New Jersey Division of the Ratepayer Advocate	New Jersey Ratepayer Advocate
New York State Department of Public Service	New York Commission
Nextel Communications, Inc.	Nextel
Nuvio Corporation	Nuvio
Office of the People's Counsel for the District of Columbia	D.C. Counsel
Organization for the Promotion and Advancement of Small Telecommunications Companies	OPASTCO
Pac-West Telecomm, Inc.	Pac-West
Pennsylvania Public Utility Commission	Pennsylvania Commission
Public Service Commission of Wisconsin	Wisconsin Commission
Qwest Communications International Inc.	Qwest
Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University	Mercatus Center
Rehabilitation Engineering Research Center on Telecommunications Access	RERCTA
RNKL, Inc. d/b/a RNK Telecom	RNK
Rural Independent Competitive Alliance	RICA
SBC Communications Inc.	SBC
Skype, Inc.	Skype

Southern Communications Services, Inc. d/b/a Southern LINC	Southern LINC
Sprint Corporation	Sprint
Telecommunications Industry Association	TIA
Tellme Networks, Inc	Tellme Networks
Texas Statewide Telephone Cooperative, Inc.	Texas Statewide Telephone Cooperative
Time Warner Telecom, Inc.	Time Warner Telecom
T-Mobile USA, Inc.	T-Mobile
TracFone Wireless, Inc.	TracFone
United States Conference of Catholic Bishops Alliance for Community Media Appalachian Peoples' Action Coalition Center for Digital Democracy Consumer Action Edgemont Neighborhood Coalition Migrant Legal Action Program	USCCB *et al.*
United States Department of Justice	DOJ
United States Telecom Association	USTA
USA Datanet Corporation	USA Datanet
Utah Division of Public Utilities	Utah Commission
VeriSign, Inc.	VeriSign
Verizon Telephone Companies	Verizon
Voice on the Net Coalition	VON Coalition
Wisconsin Department of Public Instruction	Wisconsin Department of Public Instruction

APPENDIX B
FINAL RULES

Part 9 of Title 47 of the Code of Federal Regulations is added to read as follows:

PART 9 —INTERCONNECTED VOICE OVER INTERNET PROTOCOL SERVICES

Sec.
9.1 Purpose.
9.3 Definitions.
9.5 E911 Service

AUTHORITY: 47 U.S.C. 151, 154(i)-(j), 251(e), and 303(r) unless otherwise noted.

§ 9.1 Purpose

The purpose of these rules is to set forth the E911 service requirements and conditions applicable to interconnected Voice over Internet Protocol service providers.

§ 9.3 Definitions.

Appropriate local emergency authority. An emergency answering point that has not been officially designated as a Public Safety Answering Point (PSAP), but has the capability of receiving 911 calls and either dispatching emergency services personnel or, if necessary, relaying the call to another emergency service provider. An appropriate local emergency authority may include, but is not limited to, an existing local law enforcement authority, such as the police, county sheriff, local emergency medical services provider, or fire department.

ANI. Automatic Number Identification, as such term is defined in Section 20.3 of these rules.

Interconnected VoIP service. An interconnected Voice over Internet protocol (VoIP) service is a service that: (1) enables real-time, two-way voice communications; (2) requires a broadband connection from the user's location; (3) requires Internet protocol-compatible customer premises equipment (CPE); and (4) permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network.

Pseudo Automatic Number Identification (Pseudo-ANI). A number, consisting of the same number of digits as ANI, that is not a North American Numbering Plan telephone directory number and may be used in place of an ANI to convey special meaning. The special meaning assigned to the pseudo-ANI is determined by agreements, as necessary, between the system originating the call, intermediate systems handling and routing the call, and the destination system.

PSAP. Public Safety Answering Point, as such term is defined in Section 20.3 of these rules.

Registered Location. The most recent information obtained by an interconnected VoIP service provider that identifies the physical location of an end user.

Statewide default answering point. An emergency answering point designated by the State to receive 911 calls for either the entire State or those portions of the State not otherwise served by a local PSAP.

Wireline E911 Network. A dedicated wireline network that (1) is interconnected with but largely separate from the public switched telephone network, (2) includes a selective router, and (3) is utilized to route emergency calls and related information to PSAPs, designated statewide default answering points, appropriate local emergency authorities or other emergency answering points.

§ 9.5 E911 Service.

(a) Scope of Section. The following requirements are only applicable to providers of interconnected VoIP services. Further, the following requirements apply only to 911 calls placed by users whose Registered Location is in a geographic area served by a Wireline E911 Network (which, as defined in Section 9.3, includes a selective router).

(b) E911 Service. As of [120 days after the effective date of the Order]:

(1) Interconnected VoIP service providers must, as a condition of providing service to a consumer, provide that consumer with E911 service as described in this section;

(2) Interconnected VoIP service providers must transmit all 911 calls, as well as ANI and the caller's Registered Location for each call, to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's Registered Location and that has been designated for telecommunications carriers pursuant to section 64.3001 of this chapter, provided that "all 911 calls" is defined as "any voice communication initiated by an interconnected VoIP user dialing 911";

(3) All 911 calls must be routed through the use of ANI and, if necessary, pseudo-ANI, via the dedicated Wireline E911 Network; and

(4) The Registered Location must be available to the appropriate PSAP, designated statewide default answering point, or appropriate local emergency authority from or through the appropriate automatic location information (ALI) database.

(c) Service Level Obligation. Notwithstanding the provisions in paragraph (b) of this section, if a PSAP, designated statewide default answering point, or appropriate local emergency authority is not capable of receiving and processing either ANI or location information, an interconnected VoIP service provider need not provide such ANI or location information; however, nothing in this paragraph affects the obligation under paragraph (b) of an interconnected VoIP service provider to transmit via the Wireline E911 Network all 911 calls to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's Registered Location and that has been designated for telecommunications carriers pursuant to section 64.3001 of this chapter.

(d) Registered Location Requirement. As of [120 days after the effective date of the Order], interconnected VoIP service providers must:

(1) Obtain from each customer, prior to the initiation of service, the physical location at which the service will first be utilized; and

(2) Provide their end users one or more methods of updating their Registered Location, including at least one option that requires use only of the CPE necessary to access the interconnected VoIP service. Any method utilized must allow an end user to update the Registered Location at will and in a timely manner.

(e) Customer Notification. Each interconnected VoIP service provider shall:

(1) Specifically advise every subscriber, both new and existing, prominently and in plain language, of the circumstances under which E911 service may not be available through the interconnected VoIP service or may be in some way limited by comparison to traditional E911 service. Such circumstances include, but are not limited to, relocation of the end user's IP-compatible CPE, use by the end user of a non-native telephone number, broadband connection failure, loss of electrical power, and delays that may occur in making a Registered Location available in or through the ALI database;

(2) Obtain and keep a record of affirmative acknowledgement by every subscriber, both new and existing, of having received and understood the advisory described in subparagraph (1); and

(3) Distribute to its existing subscribers warning stickers or other appropriate labels warning subscribers if E911 service may be limited or not available and instructing the subscriber to place them on or near the equipment used in conjunction with the interconnected VoIP service. Each interconnected VoIP provider shall distribute such warning stickers or other appropriate labels to each new subscriber prior to the initiation of that subscriber's service.

(f) Compliance Letter. All interconnected VoIP providers must submit a letter to the Commission detailing their compliance with this section no later than [120 days after the effective date of this Order].

APPENDIX C
REGULATORY FLEXIBILITY ANALYSES

I. FINAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice* in WC Docket 04-36.[2] The Commission sought written public comment on the proposals in the *Notice*, including comment on the IRFA.[3] We received comments specifically directed toward the IRFA from three commenters. These comments are discussed below. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[4]

A. Need for, and Objectives of, the Rules

2. Today's Order establishes rules requiring providers of interconnected VoIP – meaning VoIP service that allows a user generally to receive calls originating from and to terminate calls to the public switched telephone network (PSTN) – to provide enhanced 911 (E911) capabilities to their customers as a standard feature of service. The Order requires providers of interconnected VoIP service to provide E911 service no matter where the customer is using the service, whether at home or away.

3. The Order is in many ways a necessary and logical follow-up to the *Vonage Order* issued late last year. In that order, the Commission determined that Vonage's DigitalVoice service – an interconnected VoIP service – cannot be separated into interstate and intrastate communications and that this Commission has the responsibility and obligation to decide whether certain regulations apply to DigitalVoice and other IP-enabled services having similar capabilities. The *Vonage Order* also made clear that questions regarding what regulatory obligations apply to providers of such services would be addressed in the pending *IP-Enabled Services* proceeding. In accord with that statement, today's Order takes critical steps to advance the goal of public safety by imposing E911 obligations on certain VoIP providers.

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

4. In this section, we respond to comments filed in response to the IRFA.[5] To the extent we received comments raising general small business concerns during this proceeding, those comments are discussed throughout the Order.

5. We disagree with SBA and Menard that the Commission should postpone acting in this proceeding – thereby postponing imposing E911 obligations on interconnected VoIP service providers – and instead should reevaluate the economic impact and the compliance burdens on small entities and issue a further notice of proposed rulemaking in conjunction with a supplemental IRFA identifying and

[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[2] *See Notice*, 19 FCC Rcd at 4917, 4919-50, para. 91 & Appendix A.

[3] *Id*.

[4] *See* 5 U.S.C. § 604.

[5] *See* SBA Comments; Menard Comments; Menard Reply Comments; Letter from Glenn S. Richards, Counsel for VON Coalition, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-36, Attach. at 7 (filed May 12, 2005) (VON Coalition May 12, 2005 *Ex Parte* Letter).

analyzing the economic impacts on small entities and less burdensome alternatives.[6] We believe the additional steps suggested by SBA and Menard are unnecessary because, as described below, small entities already have received sufficient notice of the issues addressed in today's Order and because the Commission, as requested by the VON Coalition, has considered the economic impact on small entities and what ways are feasible to minimize the burdens imposed on those entities, and, to the extent feasible, has implemented those less burdensome alternatives.[7]

6. The *Notice* specifically sought comment on what 911/E911 obligations should apply in the context of IP-enabled services, and discussed the criteria the Commission previously has used to determine the scope of its existing 911/E911 rules.[8] The *Notice* asked whether it would be appropriate for the Commission to "impose a requirement that some or all IP-enabled voice services provide 911 functionality to consumers and [sought] comment on this proposal," and also sought comment on whether the Commission should impose E911 obligations on IP-enabled services which would involve immediate costs versus imposing E911 obligations at a later time which would involve "costly and inefficient 'retrofitting' of embedded IP infrastructure."[9] The *Notice* also asked whether less burdensome alternatives would be preferable to imposing E911 obligations as direct regulation, including whether the promulgation of best practices or technical guidelines would adequately promote the provision of effective IP-based E911 services, and whether voluntary agreements among public safety trade associations, commercial IP-stakeholders, consumers, and state and local E911 coordinators and administrators would be preferable to direct regulation.[10] The Commission also sought comment on ways it could provide for technological flexibility so that our rules allow for the development of new and innovative technologies.[11] While the *Notice* did not specify particular rules the Commission might adopt – and the IRFA therefore did not catalogue the effects that such particular rules might have on small businesses – the Commission provided notice to parties regarding the range of policy outcomes that might result from today's Order. A summary of the *Notice* was published in the Federal Register, and we believe that such publication constitutes appropriate notice to small businesses subject to this Commission's regulation.[12] We note that a number of small entities submitted comments in this proceeding.[13] The comments of all entities that specifically addressed issues affecting small businesses, including different types of VoIP service providers, enabled the Commission to consider the concerns of small businesses throughout this Order. Moreover, in Part C, below, we attempt to estimate the number of small businesses that will be affected by the rules we adopt herein.[14] Therefore, we believe that small

[6] *See* SBA Comments at 2, 4, 6; Menard Comments; Menard Reply Comments at 4.

[7] *See* VON Coalition May 12, 2005 *Ex Parte* Letter at 7.

[8] *See Notice*, 19 FCC Rcd at 4898-01, paras. 53-57. We reject as inaccurate Menard's contention that nowhere in the *Notice* does the Commission seek comment on the appropriate grounds on which to differentiate among providers of IP-enabled services. Menard Comments at 4 (claiming that the Commission only seeks comment on how to distinguish IP-enabled services). The *Notice* specifically asks whether the Commission should "distinguish between classes of IP-enabled service providers based on the method by which they provide [911/E911] capabilities." *See Notice*, 19 FCC Rcd at 4900, para. 54.

[9] *See Notice*, 19 FCC Rcd at 4901, para. 57.

[10] *See id.* at 4900-01, para. 56.

[11] *See id.* at 4901, para. 56.

[12] *See* 5 U.S.C. § 603(a); *see also Regulatory Requirements for IP-Enabled Services*, WC Docket No. 04-36, Notice of Proposed Rulemaking, 69 Fed. Reg. 16193-01 (Mar. 29, 2004).

[13] *See supra* Appendix A.

[14] The VON Coalition's May 12, 2005 *ex parte* filing contends that, before the Commission may adopt rules in the *IP-Enabled Services* proceeding, it "is obligated to contact SBA's Office of Size Standards to determine the appropriate size standard for VoIP providers." VON Coalition May 12, 2005 *Ex Parte* Letter, Attach. at 7. This

entities were not prejudiced by any lack of specificity regarding what rules the Commission might adopt in this proceeding.

7. Moreover, we note that we have attempted to balance the economic interests of small businesses with the public's great interest in access to E911 services when using interconnected VoIP services. The Order discusses how E911 service is critical to our nation's ability to respond to a host of crises and that the public has come to rely on the life-saving benefits of such services in emergency situations.[15] While the Commission sought comment on, and considered, ways that public safety could be protected through access to E911 services that are less burdensome to small businesses than the imposition of E911 obligations, the Commission concluded that it was important for *all* interconnected VoIP service providers to participate in protecting public safety. As SBA notes, many VoIP providers are likely to be small businesses.[16] SBA claims that "[t]hese small providers are developing a nascent technology and are especially vulnerable to disproportionate regulatory costs."[17] Nevertheless, as discussed in the Order, we believe it is reasonable to expect any business electing to interconnect with the PSTN to the extent required to provide interconnected VoIP service also to provide E911 service in order to protect the public interest.[18] Small businesses may still offer VoIP service without being subject to the rules adopted in today's Order by electing not to provide an *interconnected* VoIP service.[19] We therefore have provided alternatives for small entities.[20]

8. We disagree with Menard's contention that the Commission did not meet its obligations under the RFA because it failed to list as a significant alternative to the proposed rulemaking imposing economic regulation on the underlying facilities of cable carriers.[21] The rules we adopt today do apply to cable operators that provide interconnected VoIP service. Moreover, we reject the above contention as insufficient to achieve our goal of ensuring that users of interconnected VoIP service have access to E911, as well as rejecting it for the reasons already provided generally. As discussed in the Order, there currently is no way for portable VoIP providers reliably and automatically to provide location information to PSAPs without the customer's active cooperation.[22] Not only is the provider of an interconnected VoIP service the entity actively involved in routing the calls of users of interconnected VoIP service, but it is the entity that has the relationship with the customer who currently plays an essential role in providing accurate location information; hence, it is reasonable to impose E911 rules on that interconnected VoIP service provider. In addition, although the Commission determined that it was necessary to impose E911 obligations on all providers of interconnected VoIP service in order to ensure the ubiquitous availability of E911 service for users of interconnected VoIP service, the Commission

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contention is incorrect. The Commission used the appropriate size standards for VoIP providers. In addition, the Commission did not adopt any special exemptions from the rules adopted today based on small business size standards, and therefore we are not obligated to obtain prior SBA approval as suggested by the VON Coalition.

[15] *See, e.g.*, Order, *supra*, at paras. 4-5.

[16] *See* SBA Comments at 4.

[17] *See id.*

[18] *See* Order, *supra*, at para. 23.

[19] *See id*. at Section III.A.

[20] *See* 5 U.S.C. § 604(a)(5).

[21] Menard Comments at 3. To the extent it is possible to interpret Menard's comments as suggesting that, in order to comply with section 603(c), the Commission must anticipate and discuss every theoretically possible alternative to the proposed rules that might accomplish the stated objectives and minimize any significant economic impact on small entities, we find that suggestion to be an unreasonable interpretation of the statute. 5 U.S.C. § 603(c).

[22] *See, e.g.*, Order, *supra*, at para. 46.

minimized the burdens of this regulation by, for example, by requiring straightforward reporting requirements and by setting reasonable timetables for implementation of the rules adopted today.[23] The Commission minimized the burdens of this regulation by not mandating any particular technical solution; interconnected VoIP providers may connect directly to the Wireline E911 Network, connect indirectly through a third party, such as a competitive local exchange carrier, or through any other solution that allows a provider to offer E911 service.[24]

9. We also disagree with Menard's contention that the Commission inappropriately failed to "weigh the impact on non-affiliated regional Internet Service Providers of the consequence for the removal of all forms of economic regulation for broadband services provided by incumbent carriers."[25] Today's Order does not remove "all forms of economic regulation for broadband services provided by incumbent carriers," and would be an inappropriate forum for reconsideration of any such decision the Commission has made in other proceedings.[26] The Commission reached its decision today in full awareness and consideration of the Commission's other rules and to that extent satisfied Menard's request and SBA's request to consider how the requirements imposed in today's Order overlap with other requirements imposed on small entities.[27]

10. Finally, we reject claims that the present proceeding is not the appropriate docket in which to address what E911 obligations should be imposed on providers of interconnected VoIP service. The Commission provided proper notice that these issues would be addressed in this proceeding, and in the *Vonage Order* made clear that questions regarding what regulatory obligations apply to providers of a type of interconnected VoIP service would be addressed in this proceeding.[28] Therefore, we do not accede to the preferences of some small businesses that the Commission resolve various other proceedings, including proceedings involving E911 requirements, prior to addressing issues in the *IP-Enabled Services* docket.[29] We reject Menard's claim that the Commission is using the present rulemaking as a way of by-passing its statutory obligations under section 10 of the Telecommunications Act of 1996 (section 10) because that statutory section is not applicable to the present situation.[30] Section 10 sets forth the Commission's obligation to forbear from existing regulation to a telecommunications carrier or a telecommunications service, or class of telecommunications carriers or telecommunications services, if certain criteria are satisfied.[31] Prior to today's Order, the Commission had not imposed E911 obligations on interconnected VoIP service providers. In addition, the Commission to date has not classified interconnected VoIP service as a telecommunications service.

[23] *See* 5 U.S.C. § 603(c); Order, *supra*, at paras. 37, 50.

[24] *See* Order, *supra*, at para. 38.

[25] Menard Comments at 4.

[26] *See id.*

[27] *See* SBA Comments at 5 (noting that the Commission is considering in this and other proceedings such issues as disability access, intercarrier compensation and universal service obligations).

[28] *See Vonage Order*, 19 FCC Rcd at 22405, para. 2; *see also id*. at 22432, para. 44 (noting that the Commission might address 911 issues in the *IP-Enabled Services* proceeding "as soon as possible, perhaps even separately").

[29] SBA Comments at 5.

[30] 47 U.S.C. § 160.

[31] *See* 47 U.S.C. § 160.

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

11. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.[32] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[33] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[34] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[35]

12. *Small Businesses.* Nationwide, there are a total of approximately 22.4 million small businesses, according to SBA data.[36]

13. *Small Organizations*. Nationwide, there are approximately 1.6 million small organizations.[37]

14. *Small Governmental Jurisdictions.* The term "small governmental jurisdiction" is defined as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[38] As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.[39] This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

1. Telecommunications Service Entities

a. Wireline Carriers and Service Providers

15. We have included small incumbent local exchange carriers in this present RFA analysis. As noted above, 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."[40] The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent local exchange carriers are not dominant in their field of operation because any such

[32] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

[33] 5 U.S.C. § 601(6).

[34] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 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, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[35] 15 U.S.C. § 632.

[36] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

[37] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[38] 5 U.S.C. § 601(5).

[39] U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299-300, Tables 490 and 492.

[40] 15 U.S.C. § 632.

dominance is not "national" in scope.[41] We have therefore included small incumbent local exchange carriers in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

16. *Incumbent Local Exchange Carriers (LECs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[42] According to Commission data,[43] 1,310 carriers have reported that they are engaged in the provision of incumbent local exchange services. Of these 1,310 carriers, an estimated 1,025 have 1,500 or fewer employees and 285 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[44]

17. *Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), "Shared-Tenant Service Providers," and "Other Local Service Providers."* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[45] According to Commission data,[46] 563 carriers have reported that they are engaged in the provision of either competitive access provider services or competitive local exchange carrier services. Of these 563 carriers, an estimated 472 have 1,500 or fewer employees and 91 have more than 1,500 employees. In addition, 14 carriers have reported that they are "Shared-Tenant Service Providers," and all 14 are estimated to have 1,500 or fewer employees. In addition, 37 carriers have reported that they are "Other Local Service Providers." Of the 37, an estimated 36 have 1,500 or fewer employees and one has more than 1,500 employees. Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, "Shared-Tenant Service Providers," and "Other Local Service Providers" are small entities that may be affected by our action. In addition, limited preliminary census data for 2002

[41] 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. *See* 13 C.F.R. § 121.102(b).

[42] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[43] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, "Trends in Telephone Service" at Table 5.3, page 5-5 (May 2004) ("Trends in Telephone Service"). This source uses data that are current as of October 22, 2003.

[44] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513310 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 20,815 to 27, 891. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[45] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[46] "Trends in Telephone Service" at Table 5.3.

indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[47]

18. *Local Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[48] According to Commission data,[49] 127 carriers have reported that they are engaged in the provision of local resale services. Of these, an estimated 121 have 1,500 or fewer employees and six have more than 1,500 employees. Consequently, the Commission estimates that the majority of local resellers are small entities that may be affected by our action.

19. *Toll Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[50] According to Commission data,[51] 645 carriers have reported that they are engaged in the provision of toll resale services. Of these, an estimated 619 have 1,500 or fewer employees and 35 have more than 1,500 employees. Consequently, the Commission estimates that the majority of toll resellers are small entities that may be affected by our action.

20. *Payphone Service Providers (PSPs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for payphone services providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[52] According to Commission data,[53] 613 carriers have reported that they are engaged in the provision of payphone services. Of these, an estimated 609 have 1,500 or fewer employees and four have more than 1,500 employees. Consequently, the Commission estimates that the majority of payphone service providers are small entities that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[54]

21. *Interexchange Carriers (IXCs).* Neither the Commission nor the SBA has developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[55] According to Commission data,[56] 281 carriers have reported that they are engaged in the provision of interexchange service. Of these, an estimated 254 have 1,500 or fewer employees and 27 have more than 1,500 employees. Consequently, the Commission estimates that the majority of IXCs are small entities that may be affected by our action. In addition,

[47] *See supra* note 44.

[48] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[49] "Trends in Telephone Service" at Table 5.3.

[50] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[51] "Trends in Telephone Service" at Table 5.3.

[52] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[53] "Trends in Telephone Service" at Table 5.3.

[54] *See supra* note 44.

[55] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[56] "Trends in Telephone Service" at Table 5.3.

limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[57]

22. *Operator Service Providers (OSPs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[58] According to Commission data,[59] 21 carriers have reported that they are engaged in the provision of operator services. Of these, an estimated 20 have 1,500 or fewer employees and one has more than 1,500 employees. Consequently, the Commission estimates that the majority of OSPs are small entities that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of wired communications carriers increased approximately 34 percent from 1997 to 2002.[60]

23. *Prepaid Calling Card Providers*. Neither the Commission nor the SBA has developed a small business size standard specifically for prepaid calling card providers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[61] According to Commission data,[62] 40 carriers have reported that they are engaged in the provision of prepaid calling cards. Of these, all are estimated to have 1,500 or fewer employees. Consequently, the Commission estimates that all or the majority of prepaid calling card providers are small entities that may be affected by our action.

24. *800 and 800-Like Service Subscribers.*[63] Neither the Commission nor the SBA has developed a small business size standard specifically for 800 and 800-like service ("toll free") subscribers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.[64] The most reliable source of information regarding the number of these service subscribers appears to be data the Commission collects on the 800, 888, and 877 numbers in use.[65] According to our data, at the end of January, 1999, the number of 800 numbers assigned was 7,692,955; the number of 888 numbers assigned was 7,706,393; and the number of 877 numbers assigned was 1,946,538. We do not have data specifying the number of these subscribers 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 toll free subscribers that would qualify as small businesses under the SBA size standard. Consequently, we estimate that there are 7,692,955 or fewer small entity 800 subscribers; 7,706,393 or fewer small entity 888 subscribers; and 1,946,538 or fewer small entity 877 subscribers.

[57] *See supra* note 44.

[58] 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

[59] "Trends in Telephone Service" at Table 5.3.

[60] *See supra* note 44.

[61] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[62] "Trends in Telephone Service" at Table 5.3.

[63] We include all toll-free number subscribers in this category, including those for 888 numbers.

[64] 13 C.F.R. § 121.201, NAICS code 517310 (changed from 513330 in Oct. 2002).

[65] *See* FCC, Common Carrier Bureau, Industry Analysis Division, *Study on Telephone Trends*, Tables 21.2, 21.3, and 21.4 (Feb. 1999).

b. International Service Providers

25. The Commission has not developed a small business size standard specifically for providers of international service. The appropriate size standards under SBA rules are for the two broad categories of Satellite Telecommunications and Other Telecommunications. Under both categories, such a business is small if it has $12.5 million or less in average annual receipts.[66] For the first category of Satellite Telecommunications, Census Bureau data for 1997 show that there were a total of 324 firms that operated for the entire year.[67] Of this total, 273 firms had annual receipts of under $10 million, and an additional 24 firms had receipts of $10 million to $24,999,999. Thus, the majority of Satellite Telecommunications firms can be considered small.

26. The second category – Other Telecommunications – includes "establishments primarily engaged in … providing satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems."[68] According to Census Bureau data for 1997, there were 439 firms in this category that operated for the entire year.[69] Of this total, 424 firms had annual receipts of $5 million to $9,999,999 and an additional six firms had annual receipts of $10 million to $24,999,990. Thus, under this second size standard, the majority of firms can be considered small.

c. Wireless Telecommunications Service Providers

27. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

28. *Wireless Service Providers.* The SBA has developed a small business size standard for wireless firms within the two broad economic census categories of "Paging"[70] and "Cellular and Other Wireless Telecommunications."[71] Under both SBA categories, a wireless business is small if it has 1,500 or fewer employees. For the census category of Paging, Census Bureau data for 1997 show that there were 1,320 firms in this category, total, that operated for the entire year.[72] Of this total, 1,303 firms had employment of 999 or fewer employees, and an additional 17 firms had employment of 1,000 employees or more.[73] Thus, under this category and associated small business size standard, the majority of firms can be considered small. For the census category Cellular and Other Wireless Telecommunications, Census

[66] 13 C.F.R. § 121.201, NAICS codes 517410 and 517910 (changed from 513340 and 513390 in Oct. 2002).

[67] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513340 (issued Oct. 2000).

[68] Office of Management and Budget, North American Industry Classification System 513 (1997) (NAICS code 513390, changed to 517910 in Oct. 2002).

[69] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513390 (issued Oct. 2000).

[70] 13 C.F.R. § 121.201, NAICS code 513321 (changed to 517211 in October 2002).

[71] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[72] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513321 (issued October 2000).

[73] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[74] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[75] Thus, under this second category and size standard, the majority of firms can, again, be considered small. In addition, limited preliminary census data for 2002 indicate that the total number of paging providers decreased approximately 51 percent from 1997 to 2002.[76] In addition, limited preliminary census data for 2002 indicate that the total number of cellular and other wireless telecommunications carriers increased approximately 321 percent from 1997 to 2002.[77]

29. *Cellular Licensees.* The SBA has developed a small business size standard for wireless firms within the broad economic census category "Cellular and Other Wireless Telecommunications."[78] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. For the census category Cellular and Other Wireless Telecommunications firms, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[79] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[80] Thus, under this category and size standard, the great majority of firms can be considered small. Also, according to Commission data, 45 carriers reported that they were engaged in the provision of cellular service, Personal Communications Service (PCS), or Specialized Mobile Radio (SMR) Telephony services, which are placed together in the data.[81] We have estimated that 245 of these are small, under the SBA small business size standard.[82]

30. *Common Carrier Paging.* The SBA has developed a small business size standard for wireless firms within the broad economic census category, "Cellular and Other Wireless Telecommunications."[83] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. For the census

[74] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[75] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[76] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513321 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" decreased from 3,427 to 1,664. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[77] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513322 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 2,959 to 9,511. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[78] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[79] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[80] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[81] "Trends in Telephone Service" at Table 5.3.

[82] *Id.*

[83] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

category of Paging, Census Bureau data for 1997 show that there were 1,320 firms in this category, total, that operated for the entire year.[84] Of this total, 1,303 firms had employment of 999 or fewer employees, and an additional 17 firms had employment of 1,000 employees or more.[85] Thus, under this category and associated small business size standard, the majority of firms can be considered small. In the Paging *Third Report and Order*, we developed a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[86] A "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years.[87] The SBA has approved these small business size standards.[88] An auction of Metropolitan Economic Area licenses commenced on February 24, 2000, and closed on March 2, 2000.[89] Of the 985 licenses auctioned, 440 were sold. Fifty-seven companies claiming small business status won. Also, according to Commission data, 346 carriers reported that they were engaged in the provision of paging and messaging services.[90] Of those, we estimate that 341 are small, under the SBA-approved small business size standard.[91]

31. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission established small business size standards for the wireless communications services (WCS) auction. A "small business" is an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" is an entity with average gross revenues of $15 million for each of the three preceding years. The SBA has approved these small business size standards.[92] 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.

32. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services (PCS), and specialized mobile radio (SMR) telephony carriers. As noted earlier, the SBA has developed a small business size standard for "Cellular and Other Wireless Telecommunications" services.[93] Under

[84] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513321 (issued October 2000).

[85] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[86] *Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service*, PR Docket No. 89-552, Third Report and Order and Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 10943, 11068-70, paras. 291-295, 62 FR 16004 (Apr. 3, 1997).

[87] *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from A. Alvarez, Administrator, SBA (Dec. 2, 1998) (SBA Dec. 2, 1998 letter).

[88] *Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems*, Memorandum Opinion and Order on Reconsideration and Third Report and Order, 14 FCC Rcd 10030, paras. 98-107 (1999).

[89] *Id.* at 10085, para. 98.

[90] "Trends in Telephone Service" at Table 5.3.

[91] *Id.*

[92] SBA Dec. 2, 1998 letter.

[93] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[94] According to Commission data, 445 carriers reported that they were engaged in the provision of wireless telephony.[95] We have estimated that 245 of these are small under the SBA small business size standard.

33. *Broadband Personal Communications Service*. The broadband Personal Communications Service (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission defined "small entity" for Blocks C and F as an entity that has average gross revenues of $40 million or less in the three previous calendar years.[96] For Block F, an additional classification for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years."[97] These standards defining "small entity" in the context of broadband PCS auctions have been approved by the SBA.[98] No small businesses, within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the Block C auctions. A total of 93 small and very small business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F.[99] On March 23, 1999, the Commission re-auctioned 347 C, D, E, and F Block licenses. There were 48 small business winning bidders. On January 26, 2001, the Commission completed the auction of 422 C and F Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in this auction, 29 qualified as "small" or "very small" businesses. Subsequent events, concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant.

34. *Narrowband Personal Communications Services.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of the two auctions that have already been held, "small businesses" were entities with average gross revenues for the prior three calendar years of $40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order*.[100] A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $40 million. A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $15 million. The SBA has approved these small business size standards.[101] In the future, the Commission will auction 459

[94] *Id.*

[95] "Trends in Telephone Service" at Table 5.3.

[96] *See Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap*, WT Docket No. 96-59, Report and Order, 11 FCC Rcd 7824, 61 FR 33859 (July 1, 1996) (*PCS Order*); *see also* 47 C.F.R. § 24.720(b).

[97] *See PCS Order*, 11 FCC Rcd 7824.

[98] *See, e.g., Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fifth Report and Order, 9 FCC Rcd 5332, 59 FR 37566 (July 22, 1994).

[99] FCC News, Broadband PCS, D, E and F Block Auction Closes, No. 71744 (rel. Jan. 14, 1997); *see also Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licenses*, WT Docket No. 97-82, Second Report and Order, 12 FCC Rcd 16436, 62 FR 55348 (Oct. 24, 1997).

[100] *Amendment of the Commission's Rules to Establish New Personal Communications Services, Narrowband PCS*, Docket No. ET 92-100, Docket No. PP 93-253, Second Report and Order and Second Further Notice of Proposed Rulemaking, 15 FCC Rcd 10456, 65 FR 35875 (June 6, 2000).

[101] *See* SBA Dec. 2, 1998 letter.

licenses to serve Metropolitan Trading Areas (MTAs) and 408 response channel licenses. There is also one megahertz of narrowband PCS spectrum that has been held in reserve and that the Commission has not yet decided to release for licensing. The Commission cannot predict accurately the number of licenses that will be awarded to small entities in future auctions. However, four of the 16 winning bidders in the two previous narrowband PCS auctions were small businesses, as that term was defined. The Commission assumes, for purposes of this analysis, that a large portion of the remaining narrowband PCS licenses will be awarded to small entities. The Commission also assumes that at least some small businesses will acquire narrowband PCS licenses by means of the Commission's partitioning and disaggregation rules.

35. *220 MHz Radio Service – Phase I Licensees.* The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. The Commission has not developed a small business size standard for small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to "Cellular and Other Wireless Telecommunications" companies. This category provides that a small business is a wireless company employing no more than 1,500 persons.[102] For the census category Cellular and Other Wireless Telecommunications, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[103] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[104] Thus, under this second category and size standard, the majority of firms can, again, be considered small. Assuming this general ratio continues in the context of Phase I 220 MHz licensees, the Commission estimates that nearly all such licensees are small businesses under the SBA's small business size standard. In addition, limited preliminary census data for 2002 indicate that the total number of cellular and other wireless telecommunications carriers increased approximately 321 percent from 1997 to 2002.[105]

36. *220 MHz Radio Service – Phase II Licensees.* The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is a new service, and is subject to spectrum auctions. In the *220 MHz Third Report and Order*, we adopted a small business size standard for "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[106] This small business size standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[107] A "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed $3 million for

[102] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[103] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[104] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[105] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 513322 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 2,959 to 9,511. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[106] *220 MHz Third Report and Order*, 12 FCC Rcd 10943, 11068-70, paras. 291-295 (1997).

[107] *Id.* at 11068, para. 291.

the preceding three years. The SBA has approved these small business size standards.[108] Auctions of Phase II licenses commenced on September 15, 1998, and closed on October 22, 1998.[109] In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold.[110] Thirty-nine small businesses won licenses in the first 220 MHz auction. The second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.[111]

37. *800 MHz and 900 MHz Specialized Mobile Radio Licenses.* The Commission awards "small entity" and "very small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years, or that had revenues of no more than $3 million in each of the previous calendar years, respectively.[112] These bidding credits apply to SMR providers in the 800 MHz and 900 MHz bands that either hold geographic area licenses or have obtained extended implementation authorizations. The Commission does not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. The Commission assumes, for purposes here, that all of the remaining existing extended implementation authorizations are held by small entities, as that term is defined by the SBA. The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz SMR bands. There were 60 winning bidders that qualified as small or very small entities in the 900 MHz SMR auctions. Of the 1,020 licenses won in the 900 MHz auction, bidders qualifying as small or very small entities won 263 licenses. In the 800 MHz auction, 38 of the 524 licenses won were won by small and very small entities.

38. *700 MHz Guard Band Licensees.* In the *700 MHz Guard Band Order*, we adopted a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[113] A "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years. An auction of 52 Major Economic Area (MEA) licenses commenced on September 6, 2000, and closed on September 21, 2000.[114] Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13,

[108] *See* Letter to D. Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from A. Alvarez, Administrator, Small Business Administration (Jan. 6, 1998).

[109] *See generally* Public Notice, "220 MHz Service Auction Closes," 14 FCC Rcd 605 (1998).

[110] *See, e.g.,* Public Notice, "FCC Announces It is Prepared to Grant 654 Phase II 220 MHz Licenses After Final Payment is Made," 14 FCC Rcd 1085 (1999).

[111] Public Notice, "Phase II 220 MHz Service Spectrum Auction Closes," 14 FCC Rcd 11218 (1999).

[112] 47 C.F.R. § 90.814(b)(1).

[113] *See Service Rules for the 746-764 MHz Bands, and Revisions to part 27 of the Commission's Rules*, WT Docket No. 99-168, Second Report and Order, 65 FR 17599 (Apr. 4, 2000).

[114] *See generally* Public Notice, "220 MHz Service Auction Closes," Report No. WT 98-36 (Oct. 23, 1998).

2001 and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.[115]

39. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.[116] A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS).[117] The Commission uses the SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.[118] There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

40. *Air-Ground Radiotelephone Service.* The Commission has not adopted a small business size standard specific to the Air-Ground Radiotelephone Service.[119] We will use SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.[120] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and we estimate that almost all of them qualify as small under the SBA small business size standard.

41. *Aviation and Marine Radio Services.* Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category "Cellular and Other Telecommunications," which is 1,500 or fewer employees.[121] Most applicants for recreational licenses are individuals. Approximately 581,000 ship station licensees and 131,000 aircraft station licensees operate domestically and are not subject to the radio carriage requirements of any statute or treaty. For purposes of our evaluations in this analysis, we estimate that there are up to approximately 712,000 licensees that are small businesses (or individuals) under the SBA standard. In addition, between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a "small" business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed $15 million dollars. In addition, a "very small" business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed $3 million dollars.[122] There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as "small" businesses under the above special small business size standards.

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[115] Public Notice, "700 MHz Guard Band Auction Closes," DA 01-478 (rel. Feb. 22, 2001).

[116] The service is defined in section 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

[117] BETRS is defined in sections 22.757 and 22.759 of the Commission's Rules, 47 C.F.R. §§ 22.757 and 22.759.

[118] 13 C.F.R. § 121.201, NAICS code 517212.

[119] The service is defined in section 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

[120] 13 C.F.R. § 121.201, NAICS codes 517212.

[121] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[122] *Amendment of the Commission's Rules Concerning Maritime Communications*, PR Docket No. 92-257, Third Report and Order and Memorandum Opinion and Order, 13 FCC Rcd 19853 (1998).

42. *Fixed Microwave Services.* Fixed microwave services include common carrier,[123] private operational-fixed,[124] and broadcast auxiliary radio services.[125] At present, there are approximately 22,015 common carrier fixed licensees and 61,670 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. The Commission has not created a size standard for a small business specifically with respect to fixed microwave services. For purposes of this analysis, the Commission uses the SBA small business size standard for the category "Cellular and Other Telecommunications," which is 1,500 or fewer employees.[126] The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are up to 22,015 common carrier fixed licensees and up to 61,670 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies adopted herein. We noted, however, that the common carrier microwave fixed licensee category includes some large entities.

43. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the Gulf of Mexico.[127] There are presently approximately 55 licensees in this service. We are unable to estimate at this time the number of licensees that would qualify as small under the SBA's small business size standard for "Cellular and Other Wireless Telecommunications" services.[128] Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.[129]

44. *39 GHz Service.* The Commission created a special small business size standard for 39 GHz licenses – an entity that has average gross revenues of $40 million or less in the three previous calendar years.[130] An additional size standard for "very small business" is: an entity that, together with affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[131] The SBA has approved these small business size standards.[132] The auction of the 2,173 39 GHz licenses

[123] *See* 47 C.F.R. §§ 101 *et seq*. (formerly, Part 21 of the Commission's Rules) for common carrier fixed microwave services (except Multipoint Distribution Service).

[124] Persons eligible under parts 80 and 90 of the Commission's Rules can use Private Operational-Fixed Microwave services. *See* 47 C.F.R. Parts 80 and 90. Stations in this service are called operational-fixed to distinguish them from common carrier and public fixed stations. Only the licensee may use the operational-fixed station, and only for communications related to the licensee's commercial, industrial, or safety operations.

[125] Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's rules. *See* 47 C.F.R. Part 74. This service is available to licensees of broadcast stations and to broadcast and cable network entities. Broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile television pickups, which relay signals from a remote location back to the studio.

[126] 13 C.F.R. § 121.201, NAICS code 517212.

[127] This service is governed by Subpart I of Part 22 of the Commission's rules. *See* 47 C.F.R. §§ 22.1001-22.1037.

[128] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[129] *Id*.

[130] *See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, ET Docket No. 95-183, Report and Order, 63 Fed. Reg. 6079 (Feb. 6, 1998).

[131] *Id.*

[132] *See* Letter to Kathleen O'Brien Ham, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from Aida Alvarez, Administrator, SBA (Feb. 4, 1998).

began on April 12, 2000 and closed on May 8, 2000. The 18 bidders who claimed small business status won 849 licenses. Consequently, the Commission estimates that 18 or fewer 39 GHz licensees are small entities that may be affected by the rules and polices adopted herein.

45. *Multipoint Distribution Service, Multichannel Multipoint Distribution Service, and ITFS.* Multichannel Multipoint Distribution Service (MMDS) systems, often referred to as "wireless cable," transmit video programming to subscribers using the microwave frequencies of the Multipoint Distribution Service (MDS) and Instructional Television Fixed Service (ITFS).[133] In connection with the 1996 MDS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of less than $40 million in the previous three calendar years.[134] The MDS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. MDS also includes licensees of stations authorized prior to the auction. In addition, the SBA has developed a small business size standard for Cable and Other Program Distribution, which includes all such companies generating $12.5 million or less in annual receipts.[135] According to Census Bureau data for 1997, there were a total of 1,311 firms in this category, total, that had operated for the entire year.[136] Of this total, 1,180 firms had annual receipts of under $10 million and an additional 52 firms had receipts of $10 million or more but less than $25 million. Consequently, we estimate that the majority of providers in this service category are small businesses that may be affected by the rules and policies adopted herein. This SBA small business size standard also appears applicable to ITFS. There are presently 2,032 ITFS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities.[137] Thus, we tentatively conclude that at least 1,932 licensees are small businesses.

46. *Local Multipoint Distribution Service.* Local Multipoint Distribution Service (LMDS) is a fixed broadband point-to-multipoint microwave service that provides for two-way video telecommunications.[138] The auction of the 1,030 Local Multipoint Distribution Service (LMDS) licenses began on February 18, 1998 and closed on March 25, 1998. The Commission established a small business size standard for LMDS licenses as an entity that has average gross revenues of less than $40 million in the three previous calendar years.[139] An additional small business size standard for "very small business" was added as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[140] The SBA has approved these small business size standards in the

[133] *Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, MM Docket No. 94-131 and PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589, 9593, para. 7 (1995).

[134] 47 C.F.R. § 21.961(b)(1).

[135] 13 C.F.R. § 121.201, NAICS code 513220 (changed to 517510 in October 2002).

[136] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)", Table 4, NAICS code 513220 (issued October 2000).

[137] In addition, the term "small entity" within SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6). We do not collect annual revenue data on ITFS licensees.

[138] *See Local Multipoint Distribution Service*, Second Report and Order, 12 FCC Rcd 12545 (1997).

[139] *Id.*

[140] *See id*.

context of LMDS auctions.[141] There were 93 winning bidders that qualified as small entities in the LMDS auctions. A total of 93 small and very small business bidders won approximately 277 A Block licenses and 387 B Block licenses. On March 27, 1999, the Commission re-auctioned 161 licenses; there were 40 winning bidders. Based on this information, we conclude that the number of small LMDS licenses consists of the 93 winning bidders in the first auction and the 40 winning bidders in the re-auction, for a total of 133 small entity LMDS providers.

47. *218-219 MHz Service.* The first auction of 218-219 MHz spectrum resulted in 170 entities winning licenses for 594 Metropolitan Statistical Area (MSA) licenses. Of the 594 licenses, 557 were won by entities qualifying as a small business. For that auction, the small business size standard was an entity that, together with its affiliates, has no more than a $6 million net worth and, after federal income taxes (excluding any carry over losses), has no more than $2 million in annual profits each year for the previous two years.[142] In the *218-219 MHz Report and Order and Memorandum Opinion and Order*, we established a small business size standard for a "small business" as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and their affiliates, has average annual gross revenues not to exceed $15 million for the preceding three years.[143] A "very small business" is defined as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and its affiliates, has average annual gross revenues not to exceed $3 million for the preceding three years.[144] We cannot estimate, however, the number of licenses that will be won by entities qualifying as small or very small businesses under our rules in future auctions of 218-219 MHz spectrum.

48. *24 GHz – Incumbent Licensees.* This analysis may affect incumbent licensees who were relocated to the 24 GHz band from the 18 GHz band, and applicants who wish to provide services in the 24 GHz band. The applicable SBA small business size standard is that of "Cellular and Other Wireless Telecommunications" companies. This category provides that such a company is small if it employs no more than 1,500 persons.[145] According to Census Bureau data for 1997, there were 977 firms in this category, total, that operated for the entire year.[146] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[147] Thus, under this size standard, the great majority of firms can be considered small. These broader census data notwithstanding, we believe that there are only two licensees in the 24 GHz band that were relocated from

[141] *See* Letter to Dan Phythyon, Chief, Wireless Telecommunications Bureau, FCC, from Aida Alvarez, Administrator, SBA (Jan. 6, 1998).

[142] *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fourth Report and Order, 59 Fed. Reg. 24947 (May 13, 1994).

[143] *Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Report and Order and Memorandum Opinion and Order, 64 Fed. Reg. 59656 (Nov. 3, 1999).

[144] *Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Report and Order and Memorandum Opinion and Order, 64 Fed. Reg. 59656 (Nov. 3, 1999).

[145] 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[146] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Employment Size of Firms Subject to Federal Income Tax: 1997," Table 5, NAICS code 513322 (issued Oct. 2000).

[147] *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

the 18 GHz band, Teligent[148] and TRW, Inc. It is our understanding that Teligent and its related companies have less than 1,500 employees, though this may change in the future. TRW is not a small entity. Thus, only one incumbent licensee in the 24 GHz band is a small business entity.

49. *24 GHz – Future Licensees.* With respect to new applicants in the 24 GHz band, the small business size standard for "small business" is an entity that, together with controlling interests and affiliates, has average annual gross revenues for the three preceding years not in excess of $15 million.[149] "Very small business" in the 24 GHz band is an entity that, together with controlling interests and affiliates, has average gross revenues not exceeding $3 million for the preceding three years.[150] The SBA has approved these small business size standards.[151] These size standards will apply to the future auction, if held.

2. Cable and OVS Operators

50. *Cable and Other Program Distribution*. This category includes cable systems operators, closed circuit television services, direct broadcast satellite services, multipoint distribution systems, satellite master antenna systems, and subscription television services. The SBA has developed small business size standard for this census category, which includes all such companies generating $12.5 million or less in revenue annually.[152] According to Census Bureau data for 1997, there were a total of 1,311 firms in this category, total, that had operated for the entire year.[153] Of this total, 1,180 firms had annual receipts of under $10 million and an additional 52 firms had receipts of $10 million or more but less than $25 million. Consequently, the Commission estimates that the majority of providers in this service category are small businesses that may be affected by the rules and policies adopted herein.

51. *Cable System Operators (Rate Regulation Standard).* The Commission has developed its own small business size standard for cable system operators, for purposes of rate regulation. Under the Commission's rules, a "small cable company" is one serving fewer than 400,000 subscribers nationwide.[154] The most recent estimates indicate that there were 1,439 cable operators who qualified as small cable system operators at the end of 1995.[155] Since then, some of those companies may have grown to serve over 400,000 subscribers, and others may have been involved in transactions that caused them to be combined with other cable operators. Consequently, the Commission estimates that there are now

[148] Teligent acquired the DEMS licenses of FirstMark, the only licensee other than TRW in the 24 GHz band whose license has been modified to require relocation to the 24 GHz band.

[149] *Amendments to Parts 1,2, 87 and 101 of the Commission's Rules to License Fixed Services at 24 GHz*, Report and Order, 15 FCC Rcd 16934, 16967 (2000); *see also* 47 C.F.R. § 101.538(a)(2).

[150] *Amendments to Parts 1,2, 87 and 101 of the Commission's Rules to License Fixed Services at 24 GHz*, Report and Order, 15 FCC Rcd 16934, 16967 (2000); *see also* 47 C.F.R. § 101.538(a)(1).

[151] *See* Letter to Margaret W. Wiener, Deputy Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from Gary M. Jackson, Assistant Administrator, SBA (July 28, 2000).

[152] 13 C.F.R. § 121.201, North American Industry Classification System (NAICS) code 513220 (changed to 517510 in October 2002).

[153] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513220 (issued October 2000).

[154] 47 C.F.R. § 76.901(e). The Commission developed this definition based on its determination that a small cable system operator is one with annual revenues of $100 million or less. *Implementation of Sections of the 1992 Cable Act: Rate Regulation,* Sixth Report and Order and Eleventh Order on Reconsideration, 10 FCC Rcd 7393 (1995), 60 FR 10534 (Feb. 27, 1995).

[155] Paul Kagan Associates, Inc., *Cable TV Investor*, February 29, 1996 (based on figures for December 30, 1995).

fewer than 1,439 small entity cable system operators that may be affected by the rules and policies adopted herein.

52. *Cable System Operators (Telecom Act Standard)*. The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000."[156] The Commission has determined that there are 67,700,000 subscribers in the United States.[157] Therefore, an operator serving fewer than 677,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed $250 million in the aggregate.[158] Based on available data, the Commission estimates that the number of cable operators serving 677,000 subscribers or fewer, totals 1,450.[159] The Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed $250 million,[160] and therefore are unable, at this time, to estimate more accurately the number of cable system operators that would qualify as small cable operators under the size standard contained in the Communications Act of 1934.

53. *Open Video Services.* Open Video Service (OVS) systems provide subscription services.[161] The SBA has created a small business size standard for Cable and Other Program Distribution.[162] This standard provides that a small entity is one with $12.5 million or less in annual receipts. The Commission has certified approximately 25 OVS operators to serve 75 areas, and some of these are currently providing service.[163] Affiliates of Residential Communications Network, Inc. (RCN) received approval to operate OVS systems in New York City, Boston, Washington, D.C., and other areas. RCN has sufficient revenues to assure that they do not qualify as a small business entity. Little financial information is available for the other entities that are authorized to provide OVS and are not yet operational. Given that some entities authorized to provide OVS service have not yet begun to generate revenues, the Commission concludes that up to 24 OVS operators (those remaining) might qualify as small businesses that may be affected by the rules and policies adopted herein.

3. Internet Service Providers

54. *Internet Service Providers.* The SBA has developed a small business size standard for Internet Service Providers (ISPs). ISPs "provide clients access to the Internet and generally provide related services such as web hosting, web page designing, and hardware or software consulting related to Internet

[156] 47 U.S.C. § 543(m)(2).

[157] *See FCC Announces New Subscriber Count for the Definition of Small Cable Operator*, Public Notice DA 01-158 (Jan. 24, 2001).

[158] 47 C.F.R. § 76.901(f).

[159] *See FCC Announces New Subscriber Count for the Definition of Small Cable Operators*, Public Notice, DA 01-0158 (rel. Jan. 24, 2001).

[160] The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority's finding that the operator does not qualify as a small cable operator pursuant to § 76.901(f) of the Commission's rules. *See* 47 C.F.R. § 76.909(b).

[161] *See* 47 U.S.C. § 573.

[162] 13 C.F.R. § 121.201, NAICS code 513220 (changed to 517510 in October 2002).

[163] *See* <http://www.fcc.gov/csb/ovs/csovscer.html> (current as of March 2002).

connectivity."[164] Under the SBA size standard, such a business is small if it has average annual receipts of $21 million or less.[165] According to Census Bureau data for 1997, there were 2,751 firms in this category that operated for the entire year.[166] Of these, 2,659 firms had annual receipts of under $10 million, and an additional 67 firms had receipts of between $10 million and $24, 999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action. In addition, limited preliminary census data for 2002 indicate that the total number of Internet service providers increased approximately five percent from 1997 to 2002.[167]

4. Other Internet-Related Entities

55. *Web Search Portals.* Our action pertains to VoIP services, which could be provided by entities that provide other services such as email, online gaming, web browsing, video conferencing, instant messaging, and other, similar IP-enabled services. The Commission has not adopted a size standard for entities that create or provide these types of services or applications. However, the census bureau has identified firms that "operate web sites that use a search engine to generate and maintain extensive databases of Internet addresses and content in an easily searchable format. Web search portals often provide additional Internet services, such as e-mail, connections to other web sites, auctions, news, and other limited content, and serve as a home base for Internet users."[168] The SBA has developed a small business size standard for this category; that size standard is $6 million or less in average annual receipts.[169] According to Census Bureau data for 1997, there were 195 firms in this category that operated for the entire year.[170] Of these, 172 had annual receipts of under $5 million, and an additional nine firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

56. *Data Processing, Hosting, and Related Services*. Entities in this category "primarily … provid[e] infrastructure for hosting or data processing services."[171] The SBA has developed a small business size standard for this category; that size standard is $21 million or less in average annual receipts.[172]

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[164] U.S. Census Bureau, "2002 NAICS Definitions: 518111 Internet Service Providers" (Feb. 2004) <www.census.gov>.

[165] 13 C.F.R. § 121.201, NAICS code 518111 (changed from previous code 514191, "On-Line Information Services," in Oct. 2002).

[166] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514191 (issued Oct. 2000).

[167] *See* U.S. Census Bureau, 2002 Economic Census, Industry Series: "Information," Table 2, Comparative Statistics for the United States (1997 NAICS Basis): 2002 and 1997, NAICS code 514191 (issued Nov. 2004). The preliminary data indicate that the total number of "establishments" increased from 4,165 to 4,394. In this context, the number of establishments is a less helpful indicator of small business prevalence than is the number of "firms," because the latter number takes into account the concept of common ownership or control. The more helpful 2002 census data on firms, including employment and receipts numbers, will be issued in late 2005.

[168] U.S. Census Bureau, "2002 NAICS Definitions: 518112 Web Search Portals" (Feb. 2004) <www.census.gov>.

[169] 13 C.F.R. § 121.201, NAICS code 518112 (changed from 514199 in Oct. 2002).

[170] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514199 (issued Oct. 2000). This category was created for the 2002 Economic Census by taking a portion of the superseded 1997 category, "All Other Information Services," NAICS code 514199. The data cited in the text above are derived from the superseded category.

[171] U.S. Census Bureau, "2002 NAICS Definitions: 518210 Data Processing, Hosting, and Related Services" (Feb. 2004) <www.census.gov>.

[172] 13 C.F.R. § 121.201, NAICS code 518210 (changed from 514210 in Oct. 2002).

According to Census Bureau data for 1997, there were 3,700 firms in this category that operated for the entire year.[173] Of these, 3,477 had annual receipts of under $10 million, and an additional 108 firms had receipts of between $10 million and $24,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

57. *All Other Information Services*. "This industry comprises establishments primarily engaged in providing other information services (except new syndicates and libraries and archives)."[174] Our action pertains to VoIP services, which could be provided by entities that provide other services such as email, online gaming, web browsing, video conferencing, instant messaging, and other, similar IP-enabled services. The SBA has developed a small business size standard for this category; that size standard is $6 million or less in average annual receipts.[175] According to Census Bureau data for 1997, there were 195 firms in this category that operated for the entire year.[176] Of these, 172 had annual receipts of under $5 million, and an additional nine firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of these firms are small entities that may be affected by our action.

58. *Internet Publishing and Broadcasting.* "This industry comprises establishments engaged in publishing and/or broadcasting content on the Internet exclusively. These establishments do not provide traditional (non-Internet) versions of the content that they publish or broadcast."[177] The SBA has developed a small business size standard for this new (2002) census category; that size standard is 500 or fewer employees.[178] To assess the prevalence of small entities in this category, we will use 1997 Census Bureau data for a relevant, now-superseded census category, "All Other Information Services." The SBA small business size standard for that prior category was $6 million or less in average annual receipts. According to Census Bureau data for 1997, there were 195 firms in the prior category that operated for the entire year.[179] Of these, 172 had annual receipts of under $5 million, and an additional nine firms had receipts of between $5 million and $9,999,999. Consequently, we estimate that the majority of the firms in this current category are small entities that may be affected by our action.

59. *Software Publishers.* These companies may design, develop or publish software and may provide other support services to software purchasers, such as providing documentation or assisting in installation. The companies may also design software to meet the needs of specific users. The SBA has developed a small business size standard of $21 million or less in average annual receipts for all of the following pertinent categories: Software Publishers, Custom Computer Programming Services, and Other

[173] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514210 (issued Oct. 2000).

[174] U.S. Census Bureau, "2002 NAICS Definitions: 519190 All Other Information Services" (Feb. 2004) <www.census.gov>.

[175] 13 C.F.R. § 121.201, NAICS code 519190 (changed from 514199 in Oct. 2002).

[176] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514199 (issued Oct. 2000). This category was created for the 2002 Economic Census by taking a portion of the superseded 1997 category, "All Other Information Services," NAICS code 514199. The data cited in the text above are derived from the superseded category.

[177] U.S. Census Bureau, "2002 NAICS Definitions: 516110 Internet Publishing and Broadcasting" (Feb. 2004) <www.census.gov>.

[178] 13 C.F.R. § 121.201, NAICS code 516110 (derived from 514199 and other 1997 codes).

[179] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 514199 (issued Oct. 2000). This category was created for the 2002 Economic Census by taking portions of numerous 1997 categories.

Computer Related Services.[180] For Software Publishers, Census Bureau data for 1997 indicate that there were 8,188 firms in the category that operated for the entire year.[181] Of these, 7,633 had annual receipts under $10 million, and an additional 289 firms had receipts of between $10 million and $24, 999,999. For providers of Custom Computer Programming Services, the Census Bureau data indicate that there were 19,334 firms that operated for the entire year.[182] Of these, 18,786 had annual receipts of under $10 million, and an additional 352 firms had receipts of between $10 million and $24,999,999. For providers of Other Computer Related Services, the Census Bureau data indicate that there were 5,524 firms that operated for the entire year.[183] Of these, 5,484 had annual receipts of under $10 million, and an additional 28 firms had receipts of between $10 million and $24,999,999. Consequently, we estimate that the majority of the firms in each of these three categories are small entities that may be affected by our action.

5. Equipment Manufacturers

60. The equipment manufacturers described in this section are merely indirectly affected by our current action, and therefore are not formally a part of this RFA analysis. We have included them, however, to broaden the record in this proceeding and to alert them to our decisions.

61. *Wireless Communications Equipment Manufacturers*. The SBA has established a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. Examples of products in this category include "transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment"[184] and may include other devices that transmit and receive IP-enabled services, such as personal digital assistants (PDAs). Under the SBA size standard, firms are considered small if they have 750 or fewer employees.[185] According to Census Bureau data for 1997, there were 1,215 establishments[186] in this category that operated for the entire year.[187] Of those, there were 1,150 that had employment of under 500, and an additional 37 that had employment of 500 to 999. The percentage of wireless equipment manufacturers in this category was

[180] 13 C.F.R. § 121.201, NAICS codes 511210, 541511, and 541519.

[181] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 511210 (issued Oct. 2000).

[182] U.S. Census Bureau, 1997 Economic Census, Subject Series: Professional, Scientific, and Technical Services, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4a, NAICS code 541511 (issued Oct. 2000).

[183] U.S. Census Bureau, 1997 Economic Census, Subject Series: Professional, Scientific, and Technical Services, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4a, NAICS code 541519 (issued Oct. 2000).

[184] Office of Management and Budget, North American Industry Classification System 308-09 (1997) (NAICS code 334220).

[185] 13 C.F.R. § 121.201, NAICS code 334220.

[186] The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 1997, which were 1,089.

[187] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Industry Statistics by Employment Size," Table 4, NAICS code 334220 (issued Aug. 1999).

approximately 61.35%,[188] so we estimate that the number of wireless equipment manufacturers with employment of under 500 was actually closer to 706, with an additional 23 establishments having employment of between 500 and 999. Consequently, we estimate that the majority of wireless communications equipment manufacturers are small entities that may be affected by our action.

62. *Telephone Apparatus Manufacturing.* This category "comprises establishments primarily engaged primarily in manufacturing wire telephone and data communications equipment."[189] Examples of pertinent products are "central office switching equipment, cordless telephones (except cellular), PBX equipment, telephones, telephone answering machines, and data communications equipment, such as bridges, routers, and gateways."[190] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[191] According to Census Bureau data for 1997, there were 598 establishments in this category that operated for the entire year.[192] Of these, 574 had employment of under 1,000, and an additional 17 establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

63. *Electronic Computer Manufacturing.* This category "comprises establishments primarily engaged in manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers."[193] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[194] According to Census Bureau data for 1997, there were 563 establishments in this category that operated for the entire year.[195] Of these, 544 had employment of under 1,000, and an additional 11 establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

64. *Computer Terminal Manufacturing*. "Computer terminals are input/output devices that connect with a central computer for processing."[196] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[197] According to Census Bureau data for 1997, there were 142 establishments in this category that operated for the entire year, and

[188] *Id*. at Table 5.

[189] Office of Management and Budget, North American Industry Classification System 308 (1997) (NAICS code 334210).

[190] *Id*.

[191] 13 C.F.R. § 121.201, NAICS code 334210.

[192] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Telephone Apparatus Manufacturing," Table 4, NAICS code 334210 (issued Sept. 1999).

[193] Office of Management and Budget, North American Industry Classification System 306 (1997) (NAICS code 334111).

[194] 13 C.F.R. § 121.201, NAICS code 334111.

[195] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Computer Manufacturing," Table 4, NAICS code 334111 (issued Aug. 1999).

[196] Office of Management and Budget, North American Industry Classification System 307 (1997) (NAICS code 334113).

[197] 13 C.F.R. § 121.201, NAICS code 334113.

all of the establishments had employment of under 1,000.[198] Consequently, we estimate that the majority or all of these establishments are small entities that may be affected by our action.

65. *Other Computer Peripheral Equipment Manufacturing.* Examples of peripheral equipment in this category include keyboards, mouse devices, monitors, and scanners.[199] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[200] According to Census Bureau data for 1997, there were 1061 establishments in this category that operated for the entire year.[201] Of these, 1,046 had employment of under 1,000, and an additional six establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

66. *Fiber Optic Cable Manufacturing.* These establishments manufacture "insulated fiber-optic cable from purchased fiber-optic strand."[202] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[203] According to Census Bureau data for 1997, there were 38 establishments in this category that operated for the entire year.[204] Of these, 37 had employment of under 1,000, and one establishment had employment of 1,000 to 2,499. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

67. *Other Communication and Energy Wire Manufacturing.* These establishments manufacture "insulated wire and cable of nonferrous metals from purchased wire."[205] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[206] According to Census Bureau data for 1997, there were 275 establishments in this category that operated for the entire year.[207] Of these, 271 had employment of under 1,000, and four establishments had employment of 1,000 to 2,499. Consequently, we estimate that the majority or all of these establishments are small entities that may be affected by our action.

68. *Audio and Video Equipment Manufacturing.* These establishments manufacture "electronic audio and video equipment for home entertainment, motor vehicle, public address and musical instrument

[198] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Computer Terminal Manufacturing," Table 4, NAICS code 334113 (issued Aug. 1999).

[199] Office of Management and Budget, North American Industry Classification System 307-08 (1997) (NAICS code 334119).

[200] 13 C.F.R. § 121.201, NAICS code 334119.

[201] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Other Computer Peripheral Equipment Manufacturing," Table 4, NAICS code 334119 (issued Aug. 1999).

[202] Office of Management and Budget, North American Industry Classification System 330 (1997) (NAICS code 335921).

[203] 13 C.F.R. § 121.201, NAICS code 335921.

[204] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Fiber Optic Cable Manufacturing," Table 4, NAICS code 335921 (issued Nov. 1999).

[205] Office of Management and Budget, North American Industry Classification System 331 (1997) (NAICS code 335929).

[206] 13 C.F.R. § 121.201, NAICS code 335929.

[207] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Other Communication and Energy Wire Manufacturing," Table 4, NAICS code 335929 (issued Nov. 1999).

amplifications."[208] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 750 or fewer employees.[209] According to Census Bureau data for 1997, there were 554 establishments in this category that operated for the entire year.[210] Of these, 542 had employment of under 500, and nine establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

69. *Electron Tube Manufacturing.* These establishments are "primarily engaged in manufacturing electron tubes and parts (except glass blanks)."[211] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 750 or fewer employees.[212] According to Census Bureau data for 1997, there were 158 establishments in this category that operated for the entire year.[213] Of these, 148 had employment of under 500, and three establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

70. *Bare Printed Circuit Board Manufacturing.* These establishments are "primarily engaged in manufacturing bare (i.e., rigid or flexible) printed circuit boards without mounted electronic components."[214] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[215] According to Census Bureau data for 1997, there were 1,389 establishments in this category that operated for the entire year.[216] Of these, 1,369 had employment of under 500, and 16 establishments had employment of 500 to 999. Consequently, we estimate that the majority of these establishments are small entities that may be affected by our action.

71. *Semiconductor and Related Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[217] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[218] According to Census Bureau

[208] U.S. Census Bureau, "2002 NAICS Definitions: 334310 Audio and Video Equipment Manufacturing" (Feb. 2004) <www.census.gov>.

[209] 13 C.F.R. § 121.201, NAICS code 334310.

[210] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Audio and Video Equipment Manufacturing," Table 4, NAICS code 334310 (issued Aug. 1999).

[211] U.S. Census Bureau, "2002 NAICS Definitions: 334411 Electron Tube Manufacturing" (Feb. 2004) <www.census.gov>.

[212] 13 C.F.R. § 121.201, NAICS code 334411.

[213] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electron Tube Manufacturing," Table 4, NAICS code 334411 (issued July 1999).

[214] U.S. Census Bureau, "2002 NAICS Definitions: 334412 Bare Printed Circuit Board Manufacturing" (Feb. 2004) <www.census.gov>.

[215] 13 C.F.R. § 121.201, NAICS code 334412.

[216] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Bare Printed Circuit Board Manufacturing," Table 4, NAICS code 334412 (issued Aug. 1999).

[217] U.S. Census Bureau, "2002 NAICS Definitions: 334413 Semiconductor and Related Device Manufacturing" (Feb. 2004) <www.census.gov>.

[218] 13 C.F.R. § 121.201, NAICS code 334413.

data for 1997, there were 1,082 establishments in this category that operated for the entire year.[219] Of these, 987 had employment of under 500, and 52 establishments had employment of 500 to 999.

72. *Electronic Capacitor Manufacturing.* These establishments manufacture "electronic fixed and variable capacitors and condensers."[220] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[221] According to Census Bureau data for 1997, there were 128 establishments in this category that operated for the entire year.[222] Of these, 121 had employment of under 500, and four establishments had employment of 500 to 999.

73. *Electronic Resistor Manufacturing.* These establishments manufacture "electronic resistors, such as fixed and variable resistors, resistor networks, thermistors, and varistors."[223] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[224] According to Census Bureau data for 1997, there were 118 establishments in this category that operated for the entire year.[225] Of these, 113 had employment of under 500, and 5 establishments had employment of 500 to 999.

74. *Electronic Coil, Transformer, and Other Inductor Manufacturing.* These establishments manufacture "electronic inductors, such as coils and transformers."[226] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[227] According to Census Bureau data for 1997, there were 448 establishments in this category that operated for the entire year.[228] Of these, 446 had employment of under 500, and two establishments had employment of 500 to 999.

75. *Electronic Connector Manufacturing.* These establishments manufacture "electronic connectors, such as coaxial, cylindrical, rack and panel, pin and sleeve, printed circuit and fiber optic."[229] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[230] According to Census Bureau data for 1997, there were 347 establishments in this

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[219] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Semiconductor and Related Device Manufacturing ," Table 4, NAICS code 334413 (issued July 1999).

[220] U.S. Census Bureau, "2002 NAICS Definitions: 334414 Electronic Capacitor Manufacturing" (Feb. 2004) <www.census.gov>.

[221] 13 C.F.R. § 121.201, NAICS code 334414.

[222] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Capacitor Manufacturing," Table 4, NAICS code 334414 (issued July 1999).

[223] U.S. Census Bureau, "2002 NAICS Definitions: 334415 Electronic Resistor Manufacturing" (Feb. 2004) <www.census.gov>.

[224] 13 C.F.R. § 121.201, NAICS code 334415.

[225] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Resistor Manufacturing," Table 4, NAICS code 334415 (issued Aug. 1999).

[226] U.S. Census Bureau, "2002 NAICS Definitions: 334416 Electronic Coil, Transformer, and Other Inductor Manufacturing" (Feb. 2004) <www.census.gov>.

[227] 13 C.F.R. § 121.201, NAICS code 334416.

[228] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Coil, Transformer, and Other Inductor Manufacturing," Table 4, NAICS code 334416 (issued Aug. 1999).

[229] U.S. Census Bureau, "2002 NAICS Definitions: 334417 Electronic Connector Manufacturing" (Feb. 2004) <www.census.gov>.

[230] 13 C.F.R. § 121.201, NAICS code 334417.

category that operated for the entire year.[231] Of these, 332 had employment of under 500, and 12 establishments had employment of 500 to 999.

76. *Printed Circuit Assembly (Electronic Assembly) Manufacturing.* These are establishments "primarily engaged in loading components onto printed circuit boards or who manufacture and ship loaded printed circuit boards."[232] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[233] According to Census Bureau data for 1997, there were 714 establishments in this category that operated for the entire year.[234] Of these, 673 had employment of under 500, and 24 establishments had employment of 500 to 999.

77. *Other Electronic Component Manufacturing.* These are establishments "primarily engaged in loading components onto printed circuit boards or who manufacture and ship loaded printed circuit boards."[235] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 500 or fewer employees.[236] According to Census Bureau data for 1997, there were 1,835 establishments in this category that operated for the entire year.[237] Of these, 1,814 had employment of under 500, and 18 establishments had employment of 500 to 999.

78. *Computer Storage Device Manufacturing.* These establishments manufacture "computer storage devices that allow the storage and retrieval of data from a phase change, magnetic, optical, or magnetic/optical media."[238] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[239] According to Census Bureau data for 1997, there were 209 establishments in this category that operated for the entire year.[240] Of these, 197 had employment of under 500, and eight establishments had employment of 500 to 999

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements

79. We are requiring interconnected VoIP service providers to collect certain information and take other actions to comply with our rules requiring interconnected VoIP service providers to supply E911 capabilities to their customers. The Order requires collection of information in four instances. First,

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[231] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Electronic Connector Manufacturing," Table 4, NAICS code 334417 (issued July 1999).

[232] U.S. Census Bureau, "2002 NAICS Definitions: 334418 Printed Circuit Assembly (Electronic Assembly) Manufacturing" (Feb. 2004) <www.census.gov>.

[233] 13 C.F.R. § 121.201, NAICS code 334418.

[234] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Printed Circuit Assembly (Electronic Assembly) Manufacturing," Table 4, NAICS code 334418 (issued Sept. 1999).

[235] U.S. Census Bureau, "2002 NAICS Definitions: 334419 Other Electronic Component Manufacturing" (Feb. 2004) <www.census.gov>.

[236] 13 C.F.R. § 121.201, NAICS code 334419.

[237] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Other Electronic Component Manufacturing," Table 4, NAICS code 334419 (issued Aug. 1999).

[238] U.S. Census Bureau, "2002 NAICS Definitions: 334112 Computer Storage Device Manufacturing" (Feb. 2004) <www.census.gov>.

[239] 13 C.F.R. § 121.201, NAICS code 334112.

[240] U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, "Computer Storage Device Manufacturing," Table 4, NAICS code 334112 (issued July 1999).

interconnected VoIP providers must obtain from each customer, prior to the initiation of service, the physical location at which the service will first be utilized, and must provide customers a way to update this information (*i.e.*, the "Registered Location").[241] Second, interconnected VoIP providers must place the Registered Location information for their customers into, or make that information available through, ALI Databases maintained by local exchange carriers (and, in at least one case, a state government) across the country. Third, the Order requires all providers of interconnected VoIP service specifically to advise new and existing subscribers of the circumstances under which E911 service may not be available through the interconnected VoIP service or may be in some way limited by comparison to traditional E911 service, and to obtain and keep a record of affirmative acknowledgement by every subscriber of having received and understood this advisory.[242] Fourth, the Order requires all interconnected VoIP providers to submit a letter to the Commission detailing their compliance with the rules set forth in the Order no later than 120 days after the effective date of the Order.[243]

80. We also impose other requirements on providers of interconnected VoIP service. Specifically, the Order requires that, within 120 days of the effective date of the Order, an interconnected VoIP provider must transmit all 911 calls, as well as a call back number and the caller's Registered Location for each call, to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's Registered Location and that has been designated for telecommunications carriers under section 64.3001 of the Commission's rules.[244] These calls must be routed through the use of ANI[245] via the dedicated Wireline E911 Network,[246] and the Registered Location must be available from or through the ALI Database. As explained in the Order at paragraph 42, *supra*, however, an interconnected VoIP provider need only provide such call back and location information as a PSAP, designated statewide default answering point, or appropriate local emergency authority is capable of receiving and utilizing. The obligation to determine what type of information, such as ALI or ANI, each PSAP is capable of receiving and utilizing rests with the provider of interconnected VoIP services.[247]

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

81. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (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 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.[248]

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[241] The term "Registered Location" is defined in the Order, *supra*, at para. 46.

[242] *See* Order, *supra*, at para. 48.

[243] *See id.* at para. 50.

[244] 47 C.F.R. § 64.3001; *see also N11 Codes Fifth Report and Order*, 16 FCC Rcd 22269-77, paras. 10-31.

[245] Providers must also use Pseudo-ANI if necessary. The terms "ANI" and "Pseudo-ANI" as used herein have the same meanings as those set forth in section 20.3 of the Commission's rules. 47 C.F.R. § 20.3.

[246] The term Wireline E911 Network is defined in the Order, *supra*, at para. 14.

[247] *See* Order, *supra*, at para. 43.

[248] 5 U.S.C. § 603(c).

82. The *Notice* invited comment on a number of alternatives to the imposition of 911/E911 obligations on providers of interconnected VoIP service. For instance, the *Notice* specifically sought comment on the effectiveness of alternatives to direct regulation to achieve the Commission's public policy goals of ensuring the availability of 911 and E911 capability.[249] The Commission also sought comment on whether voluntary agreements among public safety trade associations, commercial IP-stakeholders, consumers, and state and local E911 coordinators and administrators could lead to VoIP subscribers receiving enhanced 911 functionality, and what the Commission could do to facilitate such agreements.[250] The Commission also asked whether "promulgation of best practices or technical guidelines [would] promote the provision of effective IP-based E911 services."[251] The Commission also asked how it could provide for technological flexibility so that our rules allow for the development of new and innovative technologies in the event it concluded that mandatory requirements would be necessary.[252]

83. In addition, the Commission sought comment on more general issues surrounding the possible imposition of a 911/E911 requirement for IP-enabled services, which could have prompted commenters to suggest other alternatives to the rules adopted today. For instance, the Commission sought comment on what ways IP-enabled service providers currently seek to provide a emergency services to their customers.[253] The Commission also noted that the development and deployment of IP-enabled services is in its early stages, that these services are fast-changing and likely to evolve in ways that it cannot anticipate, and that imposition of regulatory mandates should be undertaken with caution.[254] In this regard, the Commission sought comment on how to weigh the potential public benefits of requiring emergency calling and other public safety capabilities against the risk that regulation could slow technical and market development.[255]

84. The Commission has considered each of the alternatives described above, and in today's Order, imposes minimal regulation on small entities to the extent consistent with our goal of ensuring that users of interconnected VoIP service have access to appropriate emergency services when they dial 911. As an initial matter, the Commission limited the scope of today's Order to interconnected VoIP service providers. As a result, certain VoIP service providers are not subject to the E911 obligations imposed in today's Order. Specifically, today's Order does not apply to those entities not fully interconnected with the PSTN. Because interconnecting with the PSTN can impose substantial costs, we anticipate that many of the entities that elect not to interconnect with the PSTN, and which therefore are not subject to the rules adopted in today's Order, are small entities. Small entities that provide VoIP services therefore also have some control over whether they will be subject to the E911 obligations adopted today. Small businesses may still offer VoIP service without being subject to the rules adopted in today's Order by electing not to provide an *interconnected* VoIP service.[256]

85. However, as stated above, we must assess the interests of small businesses in light of the overriding public interest in access to E911 services when using interconnected VoIP services. The Order

[249] *See Notice*, 19 FCC Rcd at 4900, para. 56.

[250] *See id.* at 4900-01, para. 56.

[251] *See id.* at 4901, para. 56.

[252] *See id.* at 4901, para. 56.

[253] *See id.* at 4899, para. 53.

[254] *See id.* at 4898, para. 53.

[255] *See id.* at 4898-99, para. 53.

[256] *See supra*, Order, Section III.A.

discusses that E911 service is critical to our nation's ability to respond to a host of crises and that the public has come to rely on the life-saving benefits of such services in emergency situations.[257] Therefore, the Commission concluded that it was important for *all* interconnected VoIP service providers to participate in protecting public safety, regardless of their size. The Commission therefore rejected solutions that would rely on the voluntary agreement of VoIP service providers. The record indicated that this alternative had not resulted in, and was not likely soon to result in, ubiquitous access to E911 among users of interconnected VoIP service, which is the Commission's goal.

86. While the rules adopted today apply to all providers of interconnected VoIP service, the Commission attempted to minimize the impact of the new rules on all entities, including small entities. For instance, while it is essential that interconnected VoIP service providers interconnect with the Wireline E911 Network, the Commission employed performance rather than design standards to achieve this result. Thus, rather than mandating a particular technical solution, the Order allows interconnected VoIP providers to connect directly to the Wireline E911 Network, or connect indirectly through a third party, such as a competitive local exchange carrier, or through any other solution that allows a provider to offer E911 service, which thereby allows for technological and commercial flexibility, and leaves room under the new rules for the development of new and innovative technologies.[258] The Commission also declined to specify any particular method by which interconnected VoIP service providers must enable their customers to provide and update their Registered Location. The Commission also declined to specify any particular method by which interconnected VoIP service providers must advise new and existing subscribers of the E911 service limitations of their interconnected VoIP service and declined to specify any particular method by which acknowledgments of such limitations must be gathered and stored. The Commission expects these decisions will help small entities comply with the rules adopted today in the most practical means possible. In addition, the Commission today imposes straightforward and limited reporting requirements, and sets reasonable timetables. For example, regarding reporting requirements, the Commission simply requires providers of interconnected VoIP service to file a letter detailing their compliance with our rules no later than 120 days after the effective date of this Order.[259] In addition, while the Commission's review of the record in this proceeding convinces us that ensuring reliable E911 service for users of interconnected VoIP service is essential, and therefore that the location information of such users who dial 911 should automatically be sent to the relevant PSAP, the Commission did not impose the obligation today automatically to locate the interconnected VoIP service user in light of record evidence of the current state of technological development and the costs, including on small entities, of such an obligation today. The Commission fully expects this situation to change in the near future, helped in part by the present Order.

87. We also note that by adopting E911 rules for providers of interconnected VoIP service at the present time, the Commission likely has saved small entities providing these services resources in the long run. For instance, in light of the importance of E911 service to the public, providers of interconnected VoIP service likely eventually would have been required by the Commission or Congress to provide E911 service. This could have involved "costly and inefficient 'retrofitting' of embedded IP infrastructure" for any interconnected VoIP service provider that had already adopted a E911 solution.[260]

88. **Report to Congress:** The Commission will send a copy of the Order, including this FRFA, in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional

[257] *See, e.g.*, *id.* at paras. 4-5.

[258] *See* Order, *supra*, at para. 38; *see also Notice*, 19 FCC Rcd at 4901, para. 56.

[259] *See* Order, *supra*, at para. 50.

[260] *See Notice*, 19 FCC Rcd at 4901, para. 57.

Review Act.[261] In addition, the Commission will send a copy of the Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Order and FRFA (or summaries thereof) will also be published in the Federal Register.[262]

II. Initial Regulatory Flexibility Analysis

89. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[263] the Commission has prepared the present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities that might result from this Notice of Proposed Rulemaking (*NPRM*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *NPRM* provided above. The Commission will send a copy of the *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.[264] In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the Federal Register.[265]

A. Need for, and Objectives of, the Proposed Rules

90. In the *NPRM*, we seek comment on what additional steps the Commission should take to ensure that providers of VoIP services that interconnect with the nation's existing public switched telephone network – "interconnected VoIP service" – provide ubiquitous and reliable E911 service.[266] Due to the existing state of technology, the Order adopted today relies on users to provide the location information that will be delivered to PSAPs in an emergency, and thus is an immediate step toward a more advanced solution in which the user automatically can be located without assistance form the user. The *NPRM* seeks comment on: what the Commission can do to further the development of this new technology; whether the Commission should expand the scope and requirements of this Order; the role states can and should play in the implementation thereof; the need for consumer privacy protections; the need for stronger customer notification practices relating to 911 service; and whether persons with disabilities can use interconnected VoIP service and other VoIP services to directly call a PSAP via a TTY in light of the requirement in Title II of the Americans with Disabilities Act (ADA) that PSAPs be directly accessible by TTYs.[267] The *NPRM* further asks commenters to refresh the record regarding the application of the

[261] *See* 5 U.S.C. § 801(a)(1)(A).

[262] *See* 5 U.S.C. § 604(b).

[263] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, 110 Stat. 857 (1996).

[264] *See* 5 U.S.C. § 603(a).

[265] *See* 5 U.S.C. § 603(a).

[266] In the Order, the Commission concluded that interconnected VoIP service providers must provide E911 capabilities to their customers as a standard feature of service. The Order requires providers of interconnected VoIP service to provide E911 service no matter where the customer is using the service, whether at home or away. *See* Order, *supra*, at para. 37.

[267] *See* 42 U.S.C. §§ 12131-34. Pursuant to the ADA requirements, telephone emergency services, including 911 services, are required to provide direct access to individuals who use TDDs (or as now commonly called, TTYs) and computer modems, without relying on outside relay services or third party services. *See* 28 C.F.R. § 35.162; *see also* 28 C.F.R. § 35.160(a) (providing that a public entity shall "take appropriate steps to ensure that communications with applicants, participants, and members of the public with disabilities are as effective as communications with others"); 28 C.F.R. § 35.161 (stating that "[w]here a public entity communicates by telephone with applicants and beneficiaries, TDD's or equally effective telecommunication systems shall be used to communicate with individuals with impaired hearing or speech").

disability accessibility provisions found in sections 251(a)(2) and 255 of the Act in the context of "IP telephony" and "computer-based equipment that replicates telecommunications functionality."[268]

A. Legal Basis

91. The legal basis for any action that may be taken pursuant to this *NPRM* is contained in sections 1, 4(i), 4(j), 251(e), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 251(e), 303(r), and sections 1.1, 1.48, 1.411, 1.412, 1.415, 1.419, and 1.1200-1.1216, of the Commission's rules, 47 C.F.R. §§ 1.1, 1.48, 1.411, 1.412, 1.415, 1.419, 1.1200-1.1216.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules May Apply

92. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.[269] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[270] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[271] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[272] This present *NPRM* might, in theory, reach a variety of industries; out of an abundance of caution, we have attempted to cast a wide net in describing categories of potentially affected small entities. We would appreciate any comment on the extent to which the various entities might be directly affected by our action.

93. *Small Businesses.* Nationwide, there are a total of approximately 22.4 million small businesses, according to SBA data.[273]

94. *Small Organizations*. Nationwide, there are approximately 1.6 million small organizations.[274]

95. *Small Governmental Jurisdictions.* The term "small governmental jurisdiction" is defined as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[275] As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.[276] This number includes 39,044 county governments, municipalities, and townships,

[268] *Disability Access Order*, 16 FCC Rcd at 6483-84, para. 175; *see generally id*. at 6483-6486, paras. 173-85.

[269] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

[270] 5 U.S.C. § 601(6).

[271] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 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, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[272] 15 U.S.C. § 632.

[273] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

[274] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[275] 5 U.S.C. § 601(5).

[276] U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299-300, Tables 490 and 492.

of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

96. We have described and estimated the number of small entities to which the proposed rules might apply in the FRFA, *supra*, and hereby incorporate by reference those descriptions here.

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements

97. The *NPRM* describes a future requirement the Commission intends to adopt for an advanced E911 solution for interconnected VoIP that must include a method for determining a user's location without assistance from the user and that there will be firm implementation deadlines for that solution. The *NPRM* also seeks comment on what additional steps the Commission should take to ensure that providers of VoIP services provide ubiquitous and reliable E911 service in light of the technological barriers that apply to VoIP E911 services. For instance, the Commission seeks comment on how it can facilitate the development of techniques for automatically identifying the geographic location of users of VoIP services, and notes that a number of possible methods have been proposed to automatically identify the location of a VoIP user, including gathering location information through the use of: an access jack inventory; a wireless access point inventory; access point mapping and triangulation; HDTV signal triangulation; and various GPS-based solutions. The Commission specifically asks whether it should require all terminal adapters or other equipment used in the provision of interconnected VoIP service sold as of June 1, 2006 to be capable of providing location information automatically, whether embedded in other equipment or sold to customers as a separate device.

98. The *NPRM* also seeks comment on whether the Commission should expand the scope of today's Order, which is limited to providers of interconnected VoIP services. The Commission tentatively concludes that a provider of a VoIP service offering that permits users to receive calls that originate on the PSTN and separately makes available a different offering that permits users to terminate calls generally to the PSTN should be subject to the rules we adopt in today's Order if a user can combine those separate offerings or can use them simultaneously or in immediate succession.

99. The Commission also seeks comment on whether it should adopt additional regulations to ensure that interconnected VoIP service customers obtain the required level of E911 services. Among other things, the Commission asks whether it should adopt E911 performance standards, require system redundancy, and require additional reporting requirements. The *NPRM* also seeks comment on whether the Commission should impose additional or more restrictive customer notification requirements relating to E911 on VoIP providers, and on the sufficiency of our customer acknowledgement requirements. It also asks whether the Commission should adopt any customer privacy protections related to provision of E911 service by interconnected VoIP service providers, perhaps similar to the privacy requirements that apply to wireline and wireless telecommunications carriers. In addition, the *NPRM* seeks comment on whether there are any steps the Commission should take to ensure that people with disabilities who desire to use VoIP services obtain access to E911 services, such as by imposing on VoIP technologies the same disability access requirements as traditional telephony facilities.

100. Finally, the Commission also asks what role states can and should play to help implement the E911 rules we adopt today. For instance, the Commission asks whether state and local governments should play a role similar to the roles they play in implementing the Commission's wireless E911 rules. The *NPRM* also requests comment on whether the Commission should take any action to facilitate the states' ability to collect 911 fees from interconnected VoIP providers, either directly or indirectly.

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

Significant Alternatives Considered

101. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (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 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.[277]

102. The *NPRM* specifically seeks comment on whether the Commission should expand the scope and requirements of the Order, recognizing that such an expansion may not be appropriate with regard to all VoIP service providers.[278] With one exception, the *NPRM* does not adopt any tentative conclusions regarding what specific regulations would apply to any entity, including small entities. We seek comment here on the effect the various proposals described in the *NPRM*, and summarized above, will have on small entities, and on what effect alternative rules would have on those entities. How can the Commission achieve its goal of ensuring that all users of VoIP services ultimately covered by the Commission's E911 rules are able to access ubiquitous and reliable E911 service while also imposing minimal burdens on small entities? What specific steps could the Commission take in this regard?

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

103. None.

[277] 5 U.S.C. § 603(c).

[278] *See* NPRM, *supra*, paras. 56, 58.

STATEMENT OF
CHAIRMAN KEVIN J. MARTIN

Re: IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers, First Report and Order and Notice of Proposed Rulemaking (WC Docket Nos. 04-36, 05-196)

Today's action seeks to remedy a very serious problem – one quite literally of life or death for the millions of customers that subscribe to VoIP service as a substitute for traditional phone service. Currently, there are many VoIP providers that either do not provide their customers with any access to 911 emergency services or only provide 911 access in certain areas of the country. There are still other VoIP providers that only provide their customers access to a non-emergency line of public safety personnel – a line that does not connect to trained emergency operators, but instead connects to administrative staff who may or may not answer the calls. Because certain VoIP providers do not routinely connect their customers to 911 emergency operators, public safety officials across the country have been unable to address certain calls for help in a timely fashion, resulting in several tragedies. This situation is simply unacceptable.

Anyone who dials 911 has a reasonable expectation that he or she will be connected to an emergency operator; this expectation exists whether that person is dialing 911 from a traditional wireline phone, a wireless phone, or a VoIP phone. Today, we take this action to ensure this expectation is met as soon as possible.

The Order we adopt reaches the following conclusions:

- Interconnected VoIP providers must deliver all 911 calls to the customer's local emergency operator. This must be a standard, rather than optional, feature of the service.

- Interconnected VoIP providers must provide emergency operators with the call back number and location information of their customers (i.e., E911) where the emergency operator is capable of receiving it. Although the customer must provide the location information, the VoIP provider must provide the customer a means of updating this information, whether he or she is at home or away from home.

- By the effective date, interconnected VoIP providers must inform their customers, both new and existing, of the E911 capabilities and limitations of their service.

- The incumbent LECs are required to continue to provide access to their E911 networks to any requesting telecommunications carrier. They must continue to provide access to trunks, selective routers, and E911 databases to competing carriers. The Commission will closely monitor this obligation.

In short, the rules we adopt today require all VoIP providers that permit their customers to receive and place calls over the public-switched telephone network to provide their customers with 911 access. By not dictating the technical means by which providers must come into compliance, we do not impose undue regulation on these services. Although I would have liked to make these rules effective immediately, I recognize that there are technical issues that must be worked out and coordination that must take place with public safety officials before providers can comply. Accordingly, these rules will be effective 120 days from the effective date of this Order. I believe that this timeframe properly balances the nonnegotiable need of VoIP customers to access public safety with the practical need for adequate industry coordination.

To comply with our rules, VoIP providers may interconnect directly with the incumbent LECs'

911 network or purchase access to this network from competitive carriers and other third-party providers. In this regard, I note that incumbent LECs currently have a statutory obligation to provide requesting telecommunications carriers access to their 911 network. I am extremely encouraged by and commend the efforts of the Bell Operating Companies (BOCs) in permitting VoIP providers access to their 911 network. Significantly, each BOC currently offers 911 capability to VoIP providers, and some BOCs have already entered into 911 arrangements with these providers. I recognize that successful nationwide solutions are dependent on the cooperation of VoIP providers, incumbent LECs, third party vendors, and the public safety community. Such cooperation is already taking place in several major markets, and I have every reason to believe that this cooperation will continue throughout the country.

The requirement to provide access to 911 is about public safety. Because the Commission previously found that the VoIP services at issue were interstate, the Commission assumed the responsibility to ensure that basic public safety requirements are implemented and satisfied. Today, we fulfill that responsibility.

I am extremely supportive of fostering innovation and driving the adoption of new technologies, and I firmly believe that the emergency access requirements that we adopt today are compatible with these goals. Congress has mandated that the Commission promote the "safety of life and property." This obligation transcends new technologies and cannot be compromised.

While the rules we adopt today are a step in the right direction our actions today are not the end of the story. An advanced 911 solution needs to be developed that enables VoIP providers to locate their customers automatically much like wireless providers are able to locate their customers today. Every American deserves ubiquitous and reliable 911 service regardless of the technology that is being used.

The provision of access to 911 should not be optional for any telephone service provider. We need to take whatever actions are necessary to swiftly enforce these requirements to ensure that no lives are lost due to lack of access to 911.

STATEMENT OF
COMMISSIONER KATHLEEN Q. ABERNATHY

Re: IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers, First Report and Order and Notice of Proposed Rulemaking (WC Docket Nos. 04-36, 05-196)

This Order promotes a critical public policy objective by ensuring that voice-over-IP (VOIP) services provide customers with E911 service. While I have long championed a light regulatory touch for IP-enabled services, I have also recognized that governmental mandates may be necessary to ensure fulfillment of core social goals such as public safety. Indeed, in the very first sentence of the Communications Act, Congress made it one of our paramount obligations to "promot[e] safety of life and property through the use of wire and radio communication." 47 U.S.C. § 151. This responsibility is particularly compelling in the context of E911, which consumers have reasonably come to expect as a core component of any telephone service.

Some VOIP providers contend that the industry is working toward solutions and mandates are not necessary to ensure the timely rollout of E911 service. Ordinarily I would be sympathetic to this view, but recent tragic failures of the current approach — which left families unable to connect to emergency services in time to save lives — underscore the need for immediate intervention. Not only must we ensure prompt deployment of E911 capabilities, but I strongly support the decision to require clear and conspicuous disclosures to consumers regarding any limitations on emergency calling capabilities. Such regulations, paired with continued forbearance from economic regulations (such as mandates concerning price and service quality), are fully compatible with the pro-investment, pro-innovation environment the Commission has worked hard to foster.

As the Order recognizes, VOIP providers cannot unilaterally provide customers with fully functioning 911 service. Incumbent LECs and public safety answering points are key parts of the equation. Thus, I am pleased that the Commission will monitor and facilitate ILECs' provision of access to selective routers and other key inputs. I applaud the efforts of those carriers that have voluntarily arranged to provide such access, and I expect others to work with VOIP providers to provide expeditious solutions in the wake of this Order. VOIP providers may choose to access 911 answering systems indirectly through CLECs or other third parties, but direct connection should also be available in light of the mandate we are imposing. Because of the incipient nature of arrangements between VOIP providers and ILECs, implementation will not be problem-free. Nevertheless, a tight compliance deadline is appropriate in light of the critical nature of the public safety interests at stake. To the extent that VOIP providers are unable to comply based on ILEC provisioning delays or other factors beyond their control, the Commission should be prepared to grant limited waivers or take other appropriate action.

While this Order represents an important step in ensuring that consumers can connect to E911 services regardless of the telephone service they choose, we all recognize that the solutions we impose are interim in nature. Relying on manually entered customer location registrations will not provide long-term reliability, particularly as mobile VOIP services become more prevalent. I appreciate the leadership of the National Emergency Numbering Association in the development of next-generation E911 solutions. NENA has worked closely with VOIP providers and other industry participants, and its continued involvement will be invaluable. I am optimistic that, while new IP networks and services pose near-term challenges for emergency calling, the new technology will enable long-term public safety enhancements by creating more efficient and feature-filled emergency response systems.

STATEMENT OF
COMMISSIONER MICHAEL J. COPPS

Re: IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers, First Report and Order and Notice of Proposed Rulemaking (WC Docket Nos. 04-36, 05-196)

Last November the Commission asserted that certain VoIP services were interstate in nature and therefore subject to exclusive FCC jurisdiction. Seen by some as a grand and glorious pronouncement, others of us warned that a simple assertion of Washington control over these services without any indication of what this meant in such critical areas as public safety, homeland security and consumer protection was hardly the stuff of bold leadership. Preemption without policy is power without responsibility.

Today the Commission attempts to put a policy into place regarding the responsibilities of VoIP providers to deliver effective E911 emergency calling services to their customers. For far too many years now, the Commission has engaged in all sorts of term-parsing and linguistic exegesis as if just finding the right descriptor for new technologies would magically create a policy framework for them. Yet here we are today still trying to determine if those who provide new calling technologies need also to provide up-to-date emergency calling and location capabilities to those who use their services. The sad fact is that we have spent so much time splitting hairs about what is a telecommunications service and what is an information service that we have endangered public safety. At some point the semantic debates must end and reality must assert itself—when customers sign up for a telephone they expect it to deliver like a telephone. When an intruder is in the house and the homeowner goes to the phone to call the police, that's a call that just has to go through.

Today we face up to this challenge. I want to commend Chairman Martin for putting this item before us today. In the discussions he and I have had about this subject, I have seen in him a genuine commitment to the idea that the safety of the people is always the first obligation of the public servant. The item we vote on today is ambitious. But being less than ambitious on public safety is simply not an acceptable option. I also want to thank each of my colleagues for their work to make this a better item.

Our work today flows directly from the first sentence of the Communications Act, which commands us to "make available . . . to all the people of the United States . . . a rapid, efficient, Nation-wide . . . communication service . . . for the purpose of promoting safety of life and property." Sixty-five years after these words were signed into law, Congress updated them in the Wireless Communications and Public Safety Act, which designates 911 as the universal emergency telephone number in the United States.

Our decision builds on these mandates. We are putting in place rules that require interconnected VoIP providers to transmit 911 calls to a PSAP over the existing E911 network. We require interconnected VoIP providers to obtain location information from each customer about where the service will be used. We require VoIP providers to offer customers the ability to update this location information. Our goal here must be that this registration process be effectuated as quickly as possible.

Critically, we limit our requirements here to services that are capable of origination and termination on the public-switched network. This means they are directed squarely at substitutes for basic telephony. Our rules govern the kind of services that a parent or child or babysitter or co-worker will justifiably expect to work in a 911 emergency situation. By moving swiftly, we will save lives. The recent incidents in Texas and Connecticut and Florida that we have just heard about make this point with chilling and regrettable clarity.

So I am pleased to support today's decision. We must recognize, of course, that much work needs to be done to shore up the reliability of VoIP 911 services. As the decision notes, interconnected VoIP providers can obtain access to selective routers and other functionalities necessary to provide 911 capabilities through competitive carriers, third-parties, incumbent carrier tariffs, contracts with incumbent carriers, or a combination thereof. All of the Bell companies have now announced service offerings for VoIP providers. This is a positive and truly encouraging development. But access to selective routers has to be achieved and achieved soon, so if the options that we could agree on today prove insufficient, the Commission will need to step in to prevent the public safety of VoIP customers from falling through the cracks. By the same token, port blocking or discrimination could impede even the best VoIP E911 arrangements. I believe the Commission will need to be vigilant about this threat, too. Our goal must be to resolve these issues so we can avoid more horrible outcomes like those we have heard about so painfully today.

We must also do more to coordinate with state and local authorities and PSAP officials. They are the unsung heroes of 911. They have played a vital and historic role in public safety matters involving both wireline and wireless technologies. We will need to do everything within our powers to ensure they have the resources necessary to respond to emergency calls. There's no solution without them.

A 911 call is the single most important call any of us may ever make. Today we take significant steps to provide consumers with the confidence they expect when they dial for public safety. This is our obligation under the law. It is the right thing to do. I fully support it. Now let's all of us, as parties to its implementation, roll up our sleeves and get the job done.

STATEMENT OF
COMMISSIONER JONATHAN S. ADELSTEIN

Re: IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers, First Report and Order and Notice of Proposed Rulemaking (WC Docket Nos. 04-36, 05-196)

There is no higher calling or higher priority for us at the Commission than improving 911 and E911 services. I support this Order because it reaffirms the commitment of both Congress and this Commission to a nationwide public safety system, even as our communications networks migrate to new and innovative technologies like Voice-over-Internet-Protocol (or VoIP).

Since its inception in the 1960s, "911" has become synonymous with help being just a phone call away. Americans make 200 million calls to 911 each year, with a third of those calls coming from wireless phones. The ability to reach public safety officials from both their homes and from mobile devices has had a remarkably beneficial impact on American consumers. One benefit of access to wireless 911 is that Emergency Medical Services (EMS) notification times for fatal crashes have dropped an average of 30%, shaving valuable minutes off that so-called "golden hour" where help is most crucial. These achievements have come through the vital partnership between service providers, the public safety community, State and local officials, the Commission, and Congress.

This Order builds on those past efforts by ensuring the benefits of our E911 networks extend to users of interconnected VoIP services that are increasingly used by American consumers to communicate with the rest of the voice phone network. All indicators suggest that the IP-based services, like VoIP, are rapidly becoming the building block for the future of telecommunications. Somewhere between one and two million Americans currently use some form of VoIP services. These services promise a new era of consumer choice, and we must continue to promote the deployment of new technologies. At the same time, we cannot let our desire to see VoIP proliferate come at the cost of providing the best emergency services available today, nor can we afford to take any steps backward. Given the rapid adoption rate for these new technologies, it is incumbent upon us to see that VoIP providers adapt their system design and operations to offer access to the safety net on which Americans have come to rely.

Through this item, we set tight deadlines for VoIP providers to offer these public safety capabilities to their consumers. This Order responds to calls from leading public safety organizations and others who have asked us to promptly implement E911 and warned about the dangers associated with the current practices of some VoIP providers. The heart-wrenching testimony of our guests at today's open meeting, Andrea and Douglas McClanaghan, Sosomma and Peter John, and Cheryl and Joe Waller, only serves to reinforce the urgency of this matter.

With this Order, we make clear that a VoIP customer must not discover in their time of need that the 911 service for which they carefully registered actually routes them to an administrative line with a recording. Nor can Americans stop trusting the emergency response system, for it will undermine the important work that industry, the public safety community and the Commission has already accomplished in making it a reliable source of help.

To achieve these goals, the Commission adopts a broadly-stated E911 requirement that applies to all interconnected VoIP services, while allowing providers flexibility to choose among technological solutions. The Order permits VoIP providers to meet this requirement by interconnecting indirectly through a third party such as a competitive local phone company, interconnecting directly with the E911 network, or through any other solution that allows a provider to offer 911/E911 service. The Order recognizes that some VoIP services, particularly those nomadic services that allow consumers to take their VoIP service from their home to their office or their beach house, face significant implementation

challenges. Access to the trunks, selective routers, and databases of the E911 network is essential to meet the obligations set out here. Although I am pleased that this Order acknowledges the importance of this access and recognizes the important role of the E911 network providers including incumbent phone companies, it is critical that we monitor developments on this front closely. We must all remain committed to taking the necessary steps to make E911 for these services a success.

It is also important that consumers understand that there may still be limitations associated with the E911 functionality through some services. This Order recognizes that power outages, loss of a consumer's broadband connection, or the time needed to update E911 location databases may affect a consumer's ability to reach public safety through 911. To this end, this item includes a requirement that VoIP providers notify consumers about the actual E911 capabilities of their service and explores these issues further in the attached Further Notice. I am also pleased that we seek comment on what role our State commission partners can play in implementing these rules.

Beyond the important steps that we take here today, IP-based services hold great promise for E911. I appreciate the efforts that NENA and those in the VoIP industry have made to develop innovative solutions for 911/E911 services and encourage these industry participants to continue their efforts. By all accounts, these next generation capabilities have tremendous potential to improve on emergency response and medical monitoring services with video and other capabilities that will help Public Safety Answering Points (PSAPs) and first responders. These are innovations that will truly benefit all Americans, but in the meantime, it is the Commission's duty to direct VoIP providers to do more to ensure that all Americans will have access to 911 when they need it.

I want to thank Chairman Martin for his leadership and willingness to act swiftly on this issue. E911 has been one of my priorities at the Commission and I have spoken often about the need to address public safety access for VoIP customers. I know that the Chairman and my colleagues share this goal, and I look forward to our continued and mutual commitment to make our decision today a success.