Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the matter of	)	
	)	
IP-Enabled Services	)	WC Docket No. 04-36

REPLY COMMENTS OF AVAYA INC.

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July 14, 2004

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Pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. § 1.415, 1.419, and the Commission's Public Notice, DA 04-888, released March 29, 2004, Avaya Inc. ("Avaya") submits these reply comments in the above-captioned proceeding.

INTRODUCTION

Many commenters recognize the importance of maintaining core public interest safeguards, including public safety measures and access for persons with disabilities, in the context of IP-enabled services. Avaya's experience and leadership in these areas demonstrate that these important social goals can be accommodated for IP-enabled services. Indeed, IP-based technology holds the promise that access for persons with disabilities, E911 and other protections upon which our society has come to rely can be provided much *more* effectively than they are today in traditional telephony networks. But fulfilling that promise will necessarily require a great deal of effort and collaboration by all segments of the industry as well as regulators and public safety organizations. Accordingly, as IP-enabled services become increasingly prevalent, the Commission should take a leadership role and move proactively to ensure that these vitally important obligations are, in fact, carried over to the IP-enabled environment.

A number of other manufacturers have advocated much more cautious approaches to these issues, especially with respect to access for persons with disabilities. Some argue that the Commission should take a "wait and see" approach; others argue that the Commission has no legal authority to impose any requirements at all. The Commission should reject these contentions. IP-enabled services are poised to become widespread alternatives to POTS, and it is critically important that Commission make it absolutely clear in this proceeding that IP-enabled voice services *will* be subject to appropriate public safety and disability access regulation. Unless the Commission unequivocally confirms its commitment to preserve social measures on which telephone users have come to rely, important public interests will be neglected and segments of society, such as persons with disabilities, will be disadvantaged in the IP-enabled revolution. And the Commission should make clear that these capabilities should, whenever possible, simply be embedded in IP-enabled services and equipment at no extra charge; end-users should not have to invest in special equipment or capacity or incur extraordinary expenses in order to take advantage of these social measures.

Specifically, the Commission should: (i) clarify that manufacturers of IP-enabled equipment are already subject to the Commission's disability access rules; (ii) work proactively with the industry, preferably in the context of a Notice of Inquiry, to develop a full, IP-based solution for E911 that could be mandated at a later date; and (iii) consider steps to ensure the security and reliability of IP-enabled services.

The comments also reflect a general consensus on other issues that will be critically important to the development of IP-enabled services. In particular, most commenters recognize that the Commission should expeditiously rule that nomadic IP-enabled services are subject to *federal* jurisdiction, and that it should pre-empt much state regulation of such services. States

are increasingly asserting jurisdiction over Voice over Internet Protocol ("VoIP"), and the Commission should act quickly to re-assert its own preeminent authority. And, as many commenters agree, the Commission should regulate IP-enabled applications with a "light touch" – but it should ensure that the regulatory environment for IP-enabled services is competitively neutral and that all providers and manufacturers have unimpeded access to end-user customers.

I. PUBLIC SAFETY, ACCESS FOR PERSONS WITH DISABILITIES AND OTHER CORE PUBLIC POLICY CONCERNS MUST NOT BE MARGINALIZED IN THE VOIP CONTEXT.

The comments generally confirm that the Commission should take steps to ensure that IP-enabled service providers and manufacturers implement certain social policy measures, including access for persons with disabilities and E911. Because IP-enabled services are poised to become widespread alternatives to traditional POTS, and because of the exceptional public interest in preserving these traditional social obligations, the Commission should require IP-enabled service providers and manufacturers to implement these social measures in the IP-enabled environment, with appropriate transitions where necessary.

Avaya's leadership in these areas underscores that such concerns can be amply accommodated in the context of IP-enabled services, and the Commission should discount the notable hesitancy on the part of some other device manufacturers to endorse such measures. For example, Lucent says merely that the Commission should "consider" adopting policies to promote social concerns. Lucent at 9. Motorola urges the Commission not to impose social regulations now, because such requirements are "likely to stifle VoIP innovation." Motorola at 14. And Cisco argues that the Commission should "refrain" from requiring compliance with social concerns because "in the competitive market for IP voice service, the marketplace may be more responsive to social needs than regulation." Cisco at 11; *see also id.* at 17 (Commission

should seek further comment to "build a record on whether particular social policy regulation is truly 'necessary' in a competitive market").

In Avaya's experience, however, the Commission cannot rely on the marketplace alone to implement such capabilities in the absence of a government mandate. *See, e.g.,* NENA at 3 (public safety and disability access are both "activities that are traditionally neglected in development of new services and products"). This is especially true of access for persons with disabilities, as Avaya noted previously (at 16).[1] The Commission should not only ensure such access, but – given that some manufacturers offer such access only at additional cost – it should also reiterate that such access generally should be embedded in the equipment and offered, whenever possible, at no extra cost. If VoIP products do not afford access for persons with disabilities, employers will have a disincentive to hire people with disabilities as VoIP becomes more pervasive. Accordingly, although many constructive voluntary industry efforts are ongoing, if these matters are left entirely to the marketplace, persons with disabilities may not benefit from the extraordinary capabilities of VoIP in a timely fashion.

Moreover, the competing and conflicting approaches that would likely develop in the absence of Commission leadership – especially in the area of E911 – could substantially decrease the efficiency of IP-enabled services, and could also harm competition, by making it difficult or

[1] *See also* Voice over Internet Protocol (VoIP) Services Forum, Expanded Opening Comments of Gregg C Vanderheiden Ph.D. (Monday, December 1, 2003) ("Unfortunately, disability access is not one of the areas that will be addressed by natural market forces [surrounding VoIP]. There are many new opportunities for VoIP technologies to be of benefit to people with disabilities. And there are people with some particular types or degrees of disability who will find aspects of VoIP naturally easier to use without regulation. But there are no market forces to ensure that general access will be provided or that the needs of people with most types and degrees of disabilities will be addressed when their needs differ from mass market needs").

impossible for enterprise customers to purchase VoIP and other IP-enabled devices from multiple vendors.[2]

A few commenters go even further, and argue that the Commission has no (or almost no) authority to impose *any* requirements on IP-enabled services – including social obligations like E911 and access for persons with disabilities – because VoIP and other IP-enabled services are appropriately classified as "information services." *See, e.g.,* ITAA at 17-19; Cisco at 11-17. Assuming that IP-enabled services are information services (an issue on which Avaya takes no position), these arguments reflect a fundamental misunderstanding of the scope of the Commission's ancillary jurisdiction. As the courts have repeatedly held, it has been "settled beyond peradventure that the Commission may assert jurisdiction under section 152(a) of the Act over activities that are not within the reach of Title II." *Computer and Communications Indus. Ass'n* v. *FCC*, 693 F.2d 198, 213 (D.C. Cir. 1982); *see id.* ("[i]n designing the Communications Act, Congress sought 'to endow the Commission with sufficiently elastic powers such that it could readily accommodate dynamic new developments in the field of communications'" (citation omitted)). Under this authority, the Commission has in the past asserted ancillary jurisdiction to regulate end-user products that are closely tied to the use of the telecommunications network, and has fashioned regulatory regimes governing both information services and customer premises equipment. The Commission has previously and expressly used its ancillary jurisdiction to require access to certain information services for persons with

[2] The notion that adherence to social obligations will impede VoIP competition can be easily overstated; wireless services have flourished notwithstanding the Commission's mandate to implement E911. Claims that such requirements will drive VoIP providers overseas are also easily overstated, as most other countries can be expected to regulate VoIP to address public safety and other public interest concerns. *See* Alcatel at 7-8 (Japan, Korea, EU, Canada have begun proceedings).

disabilities. *Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996*, WT Docket No. 96-198, Report and Order and Further Notice of Inquiry, 16 FCC Rcd. 6417, ¶¶ 94-106 (1999) ("*Disability Access Order*"). Indeed, the Commission has already found even pulver.com's Free World Dialup software product to fall within the Commission's ancillary jurisdiction, and the Commission expressly pre-empted state regulation of pulver.com's service on that basis.[3] The extreme arguments against ancillary jurisdiction would thus be ultimately self-defeating: If the Commission has no authority or jurisdiction over such applications, then neither would it have any basis for pre-empting inappropriate state regulation of those applications.

Many commenters have suggested that social obligations should be imposed only on IP-enabled services that substitute for POTS; a number of commenters suggest imposing such obligations only where the service is connected to the PSTN and uses NANP numbers. *See, e.g.*, SBC at 58-61; Cisco at 1. Although such bright lines might provide reasonable and workable boundaries for the short run, they would be preordained to become obsolete and unworkable as IP-enabled networks and services develop. Thus, although commenters are undoubtedly correct that E911 obligations need not be imposed on video games or email, *see, e.g.*, Microsoft at 18; SBC at 59, the Commission should nonetheless monitor developments and should consider extending such obligations to any IP-enabled service where such obligations are technically feasible and in the public interest. This may be particularly true of access for persons with disabilities. *See also* NENA at 5 (suggesting that "if a device or service could be used for communication of emergencies, it should be required to support 9-1-1").

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[3] *See Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications Nor a Telecommunications Service*, WC Docket No. 03-45, Memorandum

The Commission should, for the most part, focus on national objectives, standards and protocols, and should not dictate specific technical solutions. As many commenters note, mandating specific technical requirements – especially now, when the industry is still working to solve many basic technological challenges – would hinder, rather than promote, the ability to reach the optimal solutions to these issues. Federally mandated interfaces and protocols, on the other hand, will be necessary in many instances to facilitate the seamless, efficient provision of IP-enabled services.

Disability Access. The Commission should extend its rules implementing § 255 to IP-enabled equipment and services. Indeed, § 255 almost certainly applies to manufacturers of IP-enabled equipment already, because it requires "manufacturers of telecommunications equipment and CPE" to make their products accessible to persons with disabilities. 47 U.S.C. § 255(a), (b). Even if IP-enabled services are information services, all information services are, by definition, provided "via telecommunications" (47 U.S.C. § 153(20)), and thus rely on "telecommunications equipment and CPE" within the meaning of § 255(b). To the extent that such equipment or services are not covered by § 255, the Commission can rely on its ancillary jurisdiction to ensure that these important public interest benefits are maintained in IP-enabled networks. *See, e.g.,* Time Warner at 14; AT&T at 35-36; SBC at 107-09.

The existing § 255 standard requires manufacturers and service providers to implement only those accessibility measures that are "readily achievable." *See* 47 U.S.C. § 255(b), (c). A major component of the Commission's "readily achievable" test is whether the mechanism can

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Opinion and Order, ¶¶ 16-18 (Feb. 19, 2004) (relying on ancillary jurisdiction precedents).

be deployed with little additional expense.[4] The Commission should reiterate that accessibility measures for IP-enabled services should, whenever possible, be embedded in the products at no additional charge, and should not require extraordinary expense or investment on the part of the end-user. As Avaya noted in its opening comments (at 15), many accessibility measures can be fashioned using capabilities that are already inherent in a manufacturer's systems. In this respect, IP-enabled services are as much evolutionary as revolutionary. Many of Avaya's solutions for persons with disabilities take advantage of such capabilities, which allows Avaya to offer them at no additional charge.

E911. The commenters generally recognize that the Commission must work with the industry to develop a means of implementing full enhanced 911 capabilities for VoIP services. As a number of commenters note, an extensive voluntary effort is underway in which the industry is working with NENA and other standard-setting bodies to develop E911 solutions. Even NENA agrees that the appropriate approach, for the time being, is for the Commission to remain actively engaged in this voluntary process, in anticipation of adopting regulatory requirements at some future date. NENA at 2 (agreements already reached "reflect[] NENA's current view that industry and public safety cooperative consensus is the best initial means of determining how E911 requirements should be identified").

As a number of commenters correctly recognize, the Commission's focus at present should be on ensuring the adoption of a common, nationwide interface, and not on dictating particular technology solutions. *See, e.g.,* Microsoft at 19-20 (Commission "must not foreclose

[4] *See Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996*, WT Docket No. 96-198, Report and Order and Further Notice of Inquiry, ¶¶ 43-70 (1999).

the promise of such innovations by imposing specific technology solutions for IP-enabled emergency communications"). For example, Avaya strongly supports adopting "911 as an NXX," which would eliminate the shortcomings of routing 911 calls to a PSAP's published 10 digit number. *See, e.g.,* King County at 10; APCO at 4-6. The Commission should also adopt the ANSI T1.628-2000 ISDN network interface standard as an "accepted industry standard," which would allow both callback and location information to be conveyed as a end-user moved from place to place on an enterprise LAN.

The Commission should, of course, encourage all industry participants to continue to explore innovative approaches to VoIP E911 capabilities, but it should also insist upon thorough vetting and testing of all proposed solutions. For example, Nortel devotes much of its comments and an appendix to a description of a proposed 911 call handling architecture for VoIP public service providers. The mere fact that a high level description is possible, however, does not mean that such functionality is technically and operationally feasible today for all VoIP systems. Indeed, Nortel's appendix concedes that the proposed architecture applies only to "a nationwide carrier with points of presence across many states," and offers many other qualifications.[5] The Nortel appendix also describes how an enterprise business VoIP network might work with the proposed public service provider architecture, but admits that this "solution will not become ubiquitous until VoIP carriers with points of presence in all potential calling areas exist." And Nortel admits that "[t]his still leaves the not inconsiderable Stage 3 definitions to be done, in

[5] *See, e.g.,* Nortel, Appendix 3 at 26; *see id.* at 29 ("[i]t has been a fundamental assumption in the architecture described in this paper, that the VoIP network operator has sufficient points of presence in each of the regions of interest to be able to route the emergency calls onto the local network and into the emergency services network. This may be true of a public carrier network which operates its own TMG platforms that tandem directly into the public wireline network but it is not true of an enterprise operating a VoIP network over its intranet.").

which the details of the signaling protocols themselves are specified including all of the messages, parameters, and error scenarios." Nortel, Appendix 3 at 30-31.

Given the state of technology today, the most prudent course for the Commission may be to break out the E911 issues into a separate further notice of inquiry. *See, e.g.,* APCO at 2. This would provide an ideal forum for the Commission to work proactively with the industry to monitor the voluntary efforts that are ongoing, to keep itself educated on the technical issues as they evolve, and to help develop the industrywide interfaces and protocols that will be necessary to implement true E911 for VoIP. At the conclusion of that process, the Commission should mandate standards and interfaces for E911 and establish a time table for VoIP providers to implement E911 capabilities.

Consumer Protection and Reliability. Many commenters echo Avaya's concern that the Commission must consider ways to ensure that IP-enabled networks can deliver voice applications with the same (or better) reliability and security that end-users have come to expect in traditional telephony networks. As Avaya noted (at 22-23), IP-enabled networks (especially those relying on the public Internet) are susceptible to identity spoofing and other deceptive and malicious IP communications.[6] The Commission should make clear that IP-enabled voice networks should be secure, that identity should be verifiable, and that such features should be embedded in, and an integral part of, VoIP, services, networks and devices.

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[6] *See also* Lucent at 15 ("[e]specially for unmanaged networks, security events including [denial of service] attacks, theft of service, and identity spoofing can have severe impacts on the integrity of critical communications," and "[m]ethods will need to be developed for subscriber authentication, as well as preventative schemes for DoS attacks and spam, which can be prevalent in IP-based data networks"); Nortel at 8 & Appendix 2.

II. THE COMMISSION SHOULD MINIMIZE STATE REGULATION, AND RATIONALIZE FEDERAL REGULATION, OF IP-ENABLED SERVICES.

Federal vs. State Regulation. The commenters overwhelmingly agree that, to the maximum extent possible, the Commission should assert federal jurisdiction over IP-enabled services and should pre-empt inconsistent state regulation. As many commenters note, IP-enabled services are inherently interstate in nature, because such services are nomadic and can be delivered over any medium anywhere an end-user can find a broadband connection. Moreover, service providers generally cannot identify the geographic endpoints of a call carried on IP-enabled networks. Accordingly, the Commission should adopt national standards and rules to facilitate the efficient, seamless delivery of such services. As Motorola notes (at 4), "the creation of multiple and potentially conflicting layers of state and federal regulation could well foreclose future investment in VoIP and limit further commercial deployment of the service." *See also* Lucent at 6 ("Lucent feels strongly that there should be a single, national regulatory regime"); Microsoft at 14 ("All IP transport, applications, and services are interstate in nature and subject to regulation only by the FCC, and not by any state regulatory authorities," and "a definitive ruling is necessary to prevent the creation of a patchwork of regulation across 51 jurisdictions"); Nortel at 14 ("Nortel believes that the U.S. needs to adopt a single federal regulatory framework for VoIP"); Cisco at 3 (federal jurisdiction "will free IP-enabled service providers from conflicting and burdensome state regulation that even now threatens to eliminate the efficiencies that IP networks and services bring to the American public").

This is an increasingly urgent concern. As a number of commenters note, more and more states are moving to assert jurisdiction over IP-enabled services, and to impose legacy telephone regulations on such services. For example, both Minnesota and New York have already issued orders attempting to assert jurisdiction over VoIP services, and many other states, including

California and Michigan, have initiated proceedings with the apparent intention of doing the same. *See, e.g.,* Alcatel at 5 n.6 (listing state commission proceedings); Motorola at 5 ("many of the state regulatory bodies are moving to adopt a more regulatory approach to VoIP than the Commission has signaled it is likely to adopt"). Although the Minnesota and New York orders have been temporarily stayed by federal district courts,[7] the legal uncertainty flowing from the Commission's inaction is nonetheless becoming increasingly intolerable. The Commission simply cannot afford to continue to sit back and allow national VoIP policy to be made piecemeal by the federal judiciary. *See, e.g.,* Nortel at 13 ("the current structure is creating jurisdictional conflicts that are slowing down the delivery of rich, new services that consumers will value and that will further reinvigorate the telecom sector"). The Commission should complete this proceeding expeditiously, and should make clear that, for the most part, a single, national policy fashioned by the Commission will govern IP-enabled services.

The Commission has ample authority to pre-empt much state regulation of IP-enabled services. The Commission may preempt state regulation of jurisdictionally mixed services if state regulation would "negate[] the exercise by the FCC" of its lawful powers. *E.g., National Ass'n of Regulatory Util. Comm'rs* v. *FCC*, 880 F.2d 422, 428-29 (D.C. Cir. 1989). Many aspects of IP-enabled services – especially social measures like E911 – will depend on the existence of a single, federally mandated set of rules and interfaces, to facilitate a nationally seamless service. If state commissions are permitted to impose their own, inevitably inconsistent mandates, the cost of complying with such mandates could increase exponentially and would

[7] *Vonage Holdings Corp.* v. *Minnesota Pub. Utils. Commission*, 290 F.Supp.2d 993 (D. Minn. 2003) (appeal pending); "Vonage Wins Preliminary Injunction Against New York PSC," TMCnet.com (July 1, 2004).

thwart the federal policies altogether. The Commission must move quickly to prevent that outcome.[8]

Competitive and Technological Neutrality. The commenters also largely agree that the Commission should take steps to ensure that manufacturers and providers can offer IP-enabled equipment and services in an environment that is both competitively and technologically neutral. As many commenters underscore, the great promise of IP-enabled services is the ability, for the first time, to have a single, integrated and "converged" service that is accessible anywhere, anytime, from any technology platform – wireline, wireless, cable, and perhaps many others.[9]

To realize these benefits, however, the Commission's rules governing IP-enabled services must foster both competitive neutrality and technological variety. First, the Commission should, to the extent possible, apply the same regulatory requirements to all VoIP services. If one set of rules applies to some VoIP services while other rules apply to a different set of VoIP services – especially if those regulatory differences are based on outmoded distinctions like "computers" vs. "phones" – then some VoIP providers are going to have unwarranted competitive advantages in the marketplace. Equally important, the Commission must recognize that failing to act at all –

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[8] It is important to recognize that state legislators also do not have as accessible a comment process on pending bills as the Commission's rulemaking process, and also do not have the same degree of technical and regulatory expertise as do regulators. For example, some states have enacted laws requiring that an enterprise send both ANI (callback) and ALI (location) during the 911 call itself. Experts recognize, however, that the central office switches and tandem switches can accept only one piece of caller information from an enterprise during the 911 call (typically the calling party's number); the other piece of information, typically location, must already be in a database at the PSAP, available for lookup.

[9] *See, e.g.*, Microsoft at 6 ("end-user applications and services are frequently, and increasingly, distinct from the infrastructure used to transport them," which "allows applications to move *across* networks" (emphasis added)); Nortel at 5 ("we are now poised at the beginning of a new era of communications – one which is marked by the *integration* of communications," and "this integration will enable us to be reached anywhere we want, anyway we want, and anytime we want – all with one address"); Alcatel at 4 ("Alcatel views IP-enabled services as 'multimedia over IP,' in which a set of voice, video, and data services will be offered to consumers in a

e.g., by failing to ensure uniform national interfaces and rules – can be the equivalent of picking winners and losers, because in the absence of a set of uniform Commission requirements, the dominant firms will in effect establish the rules and standards in their favor (whether those standards best serve the overall public interest or not).

Similarly, the Commission's rules should facilitate the development of all of the broadband platforms that can potentially accommodate IP-enabled services. As several commenters note, a critical piece of that puzzle is wireless. The Commission's policies should promote the development of robust broadband wireless networks that can accommodate the full capabilities of IP-enabled services. *See, e.g.,* Lucent at 8 (broadband wireless "will provide natural platforms for exciting new 'converged' services that will seamlessly follow a customer across a variety of network platforms without loss of connectivity," and the Commission should make sufficient spectrum available for such services). As Motorola notes (at 3), "[i]f regulatory decisions complicate and burden the transition to packet-based technology unnecessarily, the spread of seamless mobility and its attendant benefits could be impaired substantially." *See also* Nortel at 7 (although marketplace transformations are "inevitable," "regulations (or limitations thereon) can affect the pace at which these improvements are deployed").

Economic Regulation. Most commenters agree that the Commission should regulate IP-enabled services with a "light touch." Many commenters also recognize, however, that there is a critical distinction between IP-enabled applications and services, on the one hand, and the IP-enabled network facilities over which those applications and services are provided. The full potential of IP-enabled services will never be realized unless all service providers and manufacturers have the freedom to design and offer products to all consumers. *See, e.g.,*

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converged setting").

Microsoft at 22-23 (endorsing Chairman Powell's "four freedoms," and noting that control over facilities should not "interfere with the IP-enabled services and applications that ride across them"). The Commission should therefore remain alert to the threat of market power and should adopt whatever safeguards are necessary to secure full and fair competition for IP-enabled services.

CONCLUSION

The Commission should adopt rules to govern IP-enabled services that:

(1) ensure competitive neutrality and consistent regulatory treatment for all VoIP calls across all technologies, whether "telephone" or "computer" or other;

(2) establish a federal regulatory regime that avoids a 50-state patchwork of inconsistent regulations;

(3) given that certain populations have a limited market presence, require access for individuals with disabilities, with appropriate transitions and recognition of the "readily achievable" standard;

(4) require 911 and E911 functionalities, based on national standards and protocols, with a reasonable transition, and

(5) consider appropriate consumer protections for security and privacy.

Respectfully submitted,

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July 14, 2004

CERTIFICATE OF SERVICE

I hereby certify that on this 14th day of July, 2004, I caused true and correct copies of the forgoing Reply Comments of Avaya to be served on all parties by mailing, postage prepaid to their addresses listed on the attached service list.

Dated: July 14, 2004
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/s/ Peter M. Andros

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