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

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| In the Matter of | ) | |
| | ) | |
| IP-Enabled Services | ) | WC Docket No. 04-36 |
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# COMMENTS OF VERISIGN, INC.


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## EXECUTIVE SUMMARY

VeriSign applauds the Commission's attempts to develop a minimal regulatory framework for IP-enabled services that encourages substantially unfettered entrepreneurial provisioning, rejects common carrier regulation, preempts State action, and creates a set of requirements for public safety, law enforcement, disability assistance, critical infrastructure, national security, number resource management, consumer assistance, universal service, and competition, as necessary.

Consideration must be given, however, to characteristics of IP-enabled services such as dynamic distributed architectures and network elements, autonomous self-organization of public and private services and service capabilities - which will often necessitate diverse and evolving solutions for implementing any imposed requirements. In many cases, these solutions can only be described in general terms, and may be significantly different from those employed for legacy telecommunication services. Especially relevant solutions may lie in the use of highly efficient, specialized service bureau solutions to support and certify both operational and regulatory requirements of IP-enabled service providers.

IP-enabled services such as non-peer-to-peer VoIP have ancillary signalling and directory services associated with them – functionally equivalent to those of traditional telephony services. Where the services interwork with the PSTN, signalling and directory service bridges are necessarily also needed. The most prominent examples of these IP-enabled signalling services include the instantiation of Uniform Resource Identifiers (URIs) such as E.164 telephone numbers (ENUM), and Session Initiation Protocol (SIP) systems. In many cases these systems may have associated directory services such as the Internet Registry Information Service (IRIS) and its ENUM Internet Registry Service (EREG) to meet operational needs or regulatory requirements.

The Commission's envisioned regulatory framework should treat IP-enabled signalling and directory services on a non-discriminatory basis and consider applying proven Computer III-like approaches that rely on industry implementations of open network architectures and protected customer data sharing without common-carrier like regulation to these already competitive services. Under the Commission's framework, private IP-enabled signalling and directory services to closed user groups need not be subject to any form of regulation or oversight by any government agency.

## INTRODUCTION

For more than a decade, VeriSign has provided an array of large-scale, ultra-high availability, trusted infrastructures that enable signalling, security, identity management, directory, financial transaction, and fraud management capabilities for just about any kind of network based business and consumer services – whether it be Internet, Web, Internet access, traditional voice telephony, wireless, VoIP, multimedia, next generation networks, or sales transactions. VeriSign operates through multiple divisions that have offices and staff in the United States and worldwide.

These capabilities are largely provided through service bureau offerings that support operational needs and regulatory requirements that Internet, telecom, and Next Generation Network service providers find it easier and more cost-effective to outsource. As part of these commercial infrastructure support services, for example, VeriSign operates the largest independent SS7 Intelligent Network based infrastructure in the U.S. for a large number of wireline, wireless, cable, and VoIP providers. VeriSign also provides the most robust and highest performance IP-enabled signalling, directory, security, and transaction services infrastructures in the world. VeriSign also participates in or leads many of the related technology, industry, and standards activities both in Internet and traditional telecommunication sectors.

## I

## THE REGULATORY FRAMEWORK FOR IP-ENABLED SERVICES SHOULD BE APPROPRIATE TO THE MEDIUM AND NOT INCLUDE COMMON-CARRIER LIKE REGULATION

VeriSign commends the Commission for the position it has taken to date in refraining from applying traditional telecommunications regulation to Internet and IP-enabled services and welcomes the Commission's Notice of Proposed Rulemaking for IP-enabled services. The time is ripe to address the policy approach that will best facilitate continued competitive and innovative growth of IP-enabled services and, at the same time, protect important public interest goals.

To date, the Commission's "hands off" approach to IP-enabled services has facilitated the broad deployment of IP networks which, in turn, has prompted the migration of traffic from the PSTN to IP networks. The Commission's policy has also encouraged the unfettered development of IP services and applications that hold the promise of delivering rich multimedia services to consumers and businesses over a variety of competing platforms.

The Commission has noted that the nature of IP networks differs fundamentally from the nature of the PSTN and, as a result, consumers are able to choose customized services they desire from a number of service providers. Most importantly, consumers are increasingly able to access such services regardless of their geographic location. Indeed, it is this "nomadic" aspect of communications services consumption that will continue to challenge existing constructs for regulators and industry alike.

The Commission struck the correct posture at the outset by asking whether it can best meet its role of safeguarding the public interest by continuing its established policy of minimal regulation of the Internet and the services provided over it. VeriSign would answer that question in the affirmative. A minimal regulatory approach is consistent with the Commission's recognition that IP-enabled services have developed in a competitive context and that traditional economic regulation is not appropriate given the nature of these services.

A minimal regulatory approach is also prudent since many IP-enabled services such as VoIP are still not widespread across the consumer market. Although the Commission and industry experts have pointed to the arrival of certain VoIP services in the market, those services are still at a very early stage of consumer acceptance. As such, a minimal regulatory approach will have the effect of encouraging the broader deployment of VoIP and IP-enabled services. Unwarranted regulatory burdens on these new services could have the undesired effect of slowing the advance of IP-enabled services and the attendant expected benefits for consumers.

VeriSign agrees that traditional common carrier regulation is not appropriate for VoIP or any IP-enabled services at this time. The Commission has identified specific public interest goals that should be addressed in the context of "light regulation" of IP-

enabled services. VeriSign concurs that these public interest goals should be addressed and offers comments below.

## II

## FEDERAL JURISDICTION OVER IP-ENABLED SERVICES, INCLUDING VOIP, IS APPROPRIATE

The Commission should affirmatively establish federal jurisdiction over IP-enabled service, including VoIP. The Commission notes that the end-to-end jurisdictional analysis that it has relied upon to date to identify the origination and termination points of a "call" has little relevance to IP-enabled services. The Commission also notes that certain states have asserted or are attempting to assert jurisdiction over VoIP service.[1]

Given the sweeping nature of the changes provoked by the deployment of IP networks and the proliferation of IP-enabled services, the imposition by states of differing regulatory approaches to IP-enabled services – services that by their nature challenge these traditional boundaries – would be unworkable at best. The Commission's finding in the Pulver Declaratory Ruling that with Internet communications the points of origination and termination are not always known, combined with the nomadic nature of consumer access, argue for the assertion of one federal regime for IP-enabled services.[2]

In establishing federal jurisdiction, the Commission can ensure that common-carrier style regulation is not applied to any IP-enabled service, and that minimal regulatory intrusion into the entrepreneurial marketplace for these services is the norm.

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[1] *See, e.g., Vonage Holdings Corp.* v. *Minnesota Pub. Utils. Commi'n*, 290 F. Supp. 2d (D. Minn. 2003), *appeal pending*.

[2] 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 Opinion and Order*, FCC 04-27 (rel. Feb. 19, 2004) (*Pulver Declaratory Ruling*).

## III

## IP-ENABLED SERVICES SHOULD BE SUBJECT TO REASONABLE CATEGORIZATIONS AND NON-DISCRIMINATORY TREATMENT

Drawing lines around IP-enabled services is decidedly difficult – especially the large number of services subject to experimentation and constantly evolving. For some purposes in the Commission's IP-enabled services framework, it may be useful to categorize services. However these lines are drawn, similar services should generally be subject to comparable non-discriminatory treatment. In other words, if services are functionally similar in the marketplace, they should be subject to comparable requirements unless there is a compelling reason to do otherwise. In no case should any IP-enabled service or offering be singled out to be subject to regulatory treatment tantamount to that of a common-carrier.

## IV

## VoIP-RELATED INTERNET SIGNALLING AND DIRECTORY SERVICES SHOULD BE TREATED ON A NON-DISCRIMINATORY BASIS AS A CLASS OF "INFORMATION SERVICES" AND SUBJECT ONLY TO TRADITIONAL COMPUTER III REQUIREMENTS

VeriSign believes that the Commission should engage in categorizing IP-enabled services – for purposes of determining what level of regulation should apply to said services – with a healthy degree of caution at this time. The Commission has suggested five factors that could be taken into consideration when attempting to categorize IP-enabled services: 1) functional equivalence to traditional telephony; 2) substitutability; 3) interconnection with the PSTN and Use of the North American Numbering Plan; 4) peer-to-peer vs. network services; and facility Layer vs. Protocol Layer vs. Applications Layer.

While these factors provide reasonable analytical guideposts to categorize services, it appears that their relevance has to do primarily with the treatment of VoIP and related multimedia services. Indeed, the Commission has already addressed VoIP in several proceedings and VoIP has been the service most identified with the changing

nature of traditional telecommunication services. Considering that VoIP may serve as a substitute for telephony, it is appropriate that the categorization of VoIP be addressed.

VoIP related signalling and directory services – especially in the context of public Internet ENUM services that emulate Intelligent Network-like signalling capabilities using E.164 telephone numbers – are inextricably entwined with an array of related regulatory considerations for VoIP. The Commission raises some of these issues in dealing with number exhaustion and other matters before the North American Numbering Council.[3] These E.164 numbers are also network elements under the 1996 Act as well as part of the International Public Telecommunications Numbering Plan pursuant to provisions of the International Telecommunication Union.[4]

The Commission's six factor analysis in categorizing IP-enabled services, seems quite useful in distinguishing between what seems to be two distinct types of signalling and directory services – namely public and private.

| FCC Factor | Public IP-Enabled Signalling and Directory Services | Private IP-Enabled Signalling and Directory Services |
|---|---|---|
| *Functional equivalence to traditional services* | • **VoIP**. Equivalence for public ENUM use of E.164 telephone numbers and other SS7 based services<br>• **Other**. No equivalence | No specific equivalence[5] |
| *Substitutability* | • **VoIP**. Direct substitutability<br>• **Other**. No substitutability | No specific substitutability[5] |
| *Interconnection with the existing service networks and use of common identifiers* | • **VoIP**. Interconnection with PSTN and use of the North American Numbering Plan<br>• **Other**. No substitutability | Some possible gateway based interconnection, e.g. messaging[5] |
| *Peer-to-Peer Communications vs. Network Services* | • **VoIP**. Network services<br>• **Other**. Both peer-to-peer and network services | Both peer-to-peer and network services[5] |
| *Facility Layer vs. Protocol Layer vs. Application Layer* | • **VoIP**. Application port and layer<br>• **Other**. Application port and/or layer | Application port and/or layer[5] |
| *Other Grounds for Categorization* | • **VoIP**. International agreements and numbering resource management, plus national security, public safety, law enforcement support, consumer protection, and competition<br>• **Other**. national security, public safety, law enforcement support, consumer protection, and competition | None[5] |

[3] *See NPRM* at paras. 18, 76, n. 236

[4] Sec. 3(45), [Definition of] Network Element, Communications Act of 1996; ITU-T, *The international public telecommunication numbering plan*, Rec. E.164 (05/97).

[5] The factor seems irrelevant here if the private network has no public gateways.

The Commission's proposed factors seem relevant only to public IP-enabled signalling and directory services – that is, those that are used for large-scale public telephony equivalent and new multimedia services. The relevant underlying signalling infrastructures include coherent large-scale public implementations of Session Initiation Protocol (SIP) based signalling and Domain Name System (DNS) based signalling – especially ENUM.[6]

The Commission's proposed approach to eschew common carrier like models, to preempt State regulation, and to create an IP-enabled services framework consisting of only necessary requirements for specific classes of services – seems like exactly the right approach, and one which VeriSign strongly supports.

Using the Commission factors-based approach, it is not apparent that any regulatory framework is needed for private implementations or services. Even for the "public" services, the framework should only encompass what is compelling and necessary, and avoid imposition of common-carrier kinds of regulatory regimes.

**Relevant Mandates for Public IP-Enabled Signalling and Directory Services**. Six types of mandates appear relevant: public safety, consumer protection, numbering resources management, competition, national security and law enforcement support.

**Public Safety**. The need to provide detailed subscriber identification, contact, and location information to public safety officials in the course of an emergency communication is well established. 911 services exist for this purpose. Additionally, the information associated with an IP address, and available to public safety officials through the directory services associated with that IP address (i.e., AREG), or a domain name (i.e., DREG) may be critically important either as an adjunct to available information, or when no other information is available.[7] In a public VoIP environment, the information associated with the telephone number (i.e., EREG) is vital for many important

[6] *See SIP: Session Initiation Protocol*, RFC 3261, June 2002; *The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM)*, RFC 3761, April 2004.
[7] *See Cross Registry Internet Service Protocol (CRISP) Requirements*, RFC 3707, Feb 2004; *IRIS - The Internet Registry Information Service (IRIS) Core Protocol*, draft-ietf-crisp-iris-core-06, April 2004; *A Domain Registry (dreg) Type for the Internet Registry Information Service*, draft-ietf-crisp-iris-dreg-06, Apr 2004; *An Address Registry (areg) Type for the Internet Registry Information Service*, draft-ietf-crisp-iris-areg-05, Feb 2004.

governmental and business verification purposes – equivalent to the Line Identification DataBase Service (LIDB) in the existing telephony environment.[8] The Commission may want to consider implementation of a requirement for protected, authenticated information through a secure common interface such as the Internet Registry Information Service (IRIS) – the equivalent of what is available today via LIDB and the SS7 network.

**Consumer Protection**. Problems relating to fraud protection and unsolicited messaging have escalated to significant scale in the IP-enabled services environment, prompting regulatory action worldwide, including the CANSPAM Act and ongoing proceedings of the FTC and the Commission.[9] Here also, essentially the same IP-enabled signalling and directory services mandates that would be required for public safety and law enforcement purposes apply to meeting consumer protection needs. Indeed, VeriSign as a provider of SPAM prevention and fraud management services in the marketplace, makes extensive use of standardized interfaces to subscriber information to the extent that information is available.

**Numbering Resources Management**. Numbering resources for IP-Related Services have not in the past been the subject of Commission oversight, and exercise of regulatory authority. The current outstanding exception is the use of traditional telephone numbers for public VoIP and other IP-enabled signalling and directory services. As the Commission noted in the NPRM for this proceeding, the management of E.164 telephony numbering resources which has been an intrinsic part of the Commission's role and dealt with through various rulemaking proceedings raises significant issues in the realm of IP-enabled services.[10] Indeed, these same considerations are before the North American Numbering Council (NANC), the International Telecommunication Union and its

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[8] *See An ENUM Registry (ereg) Type for the Internet Registry Information Service*, draft-newton-iris-ereg-01, Oct 2003 ; *Common Channel Signaling (CCS) Network Interface Specification (CCSNIS) Supporting Line Information Database (LIDB) Service*, Telcordia Technologies Generic Requirements GR-954-CORE, Issue 3, Dec 2000

[9] *See, Notice Of Proposed Rulemaking and Further Notice Of Proposed Rulemaking In the Matter of Rules and Regulations Implementing the Controlling the Assault of Non-Solicited Pornography and Marketing Act of 2003, CG Docket No. 04-53 and Rules and Regulations Implementing the Telephone Consumer Protection Act of 1991, CG Docket No. 02-278*, FCC 04-52, (19 Mar 2004); Request for Information: Federal Trade Commission's Plan for Establishing a National Do Not E-mail Registry, (23 Feb 2004), <www.ftc.gov/opa/2004/02/dnem.htm>

[10] *See, NPRM* at paras. 37, 38, n. 148, para. 76, n. 226.

Standardization Sector, and essentially every other telecommunications regulatory body in the world.[11]

The use of E.164 numbers for public ENUM – which explicitly manifests the numbers of the global International Telecommunications Numbering Plan for an extensible range of IP-enabled signalling and directory services – potentially invokes related telecommunication legal and regulatory requirements applicable to the use of these numbers.

**Competition**. The Commission's *Computer III* proceeding established the regulatory framework fundamentals for competition policy relating to Signalling and Directory Services that were incorporated in substantial measure into provisions of the Communications Act of 1996.[12] Those fundamentals consisted of a combination of open interfaces to basic service elements and protections against anticompetitive behavior through required secure mutual access mechanisms to customer databases. Beyond these essentials, the industry has been left to itself to collaborate among the providers of signalling and directory services, while allowing individual providers to innovate and pursue entrepreneurial opportunities. The success of that framework has been self-evident over nearly two decades. In some ways, the Computer III framework presaged and emulated the same technical and operational network foundation upon which the Internet has emerged.

For this reason, these same competitive policies seem appropriate for IP-enabled signalling and directory services environment today. A robust marketplace of hundreds of providers exists today, and under a Computer III model, the Commission would only be called upon to intervene if complaints were filed by any provider alleging anticompetitive behavior by one or more other providers.

**National Security**. Signalling and directory services that are used on a significant scale for public telecommunications – whether IP-enabled or not – give rise to

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[11] *See, e.g.*, North American Numbering Council, *Meeting Minutes*, September 25, 2003; *Meeting of Study Group 2 and its working parties - Geneva, 18-28 May 2004*, ITU-T SG02, Operational aspects of service provision, networks and performance, Study Period 2001, TSB Collective-letter 11/2, Geneva, (30 Jan 2004); ITU, *SPU newslog on ENUM*, http://www.itu.int/osg/spu/newslog/categories/enum/; European Telecommunication Standards Institute, *1st ENUM WORKSHOP*, 24 - 25 Feb 2004, http://www.etsi.org/plugtests/history/2004enum.htm.

[12] See *Computer III Phase I Order*, 104 FCC 2d, (1986); *Telecommunications Act of 1996* (1996 Act), Pub. L. 104-104, Title VII, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157nt.

national security considerations.[13] Critical infrastructure concerns are the most obvious. Disruption of these services can cause communications to fail – which can have substantial adverse economic, defense, public safety, and other effects. For this reason, the U.S. government has historically maintained special arrangements that ensure the continuous and highest possible availability of the operational infrastructure for IP-enabled signalling services – especially for the critical parts of the infrastructure.

National security considerations also come into play in conjunction with restoration priorities in times of national emergency. Here also, requirements may be appropriate that not only deal with robustness and availability of Internet infrastructure, but the manner in which parts of that infrastructure are restored – a matter of substantial emphasis by the Executive Office of the President and substantial inter and intra agency coordination under the Commission's Homeland Security Policy Council.[14]

**Law Enforcement Support**. The requirements for law enforcement are similar to those of public safety and consumer protection, above. Law enforcement support is the subject of a separate but related proceeding.[15] What may be appropriate for the instant proceeding are the aspects relating to law enforcement support that derive from the Commission's Title I authority rather than CALEA, that deal with the effective availability through a standard signalling and directory services interface for accurate subscriber information by providers in the IP-enabled services environment.[16]

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[13] *See, e.g.*, Commission's Rules Concerning Disruptions to Communications in Docket No. 04-35, Doc. FCC 04-30, 23 Feb 2004.

[14] *See*, e.g., The National Strategy to Secure Cyberspace, http://www.whitehouse.gov/pcipb/; FCC Homeland Security Policy Council, http://www.fcc.gov/hspc/ ; Procedures for Handling Critical Infrastructure Information; Interim Rule, 6 CFR Part 29, 69 Fed. Reg. 8074, No. 34 (20 Feb 2004).

[15] *See In the Matter of United States Department of Justice, Federal Bureau of Investigation and Drug Enforcement Administration Joint Petition for Rulemaking to Resolve Various Outstanding Issues Concerning the Implementation of the Communications Assistance for Law Enforcement Act*, RM No. 10865, Public Notice DA No. 04-700, (12 Mar 2004) (hereinafter referred to the *CALEA Proceeding*).

[16] *See* n. 7, above.

## SERVICE BUREAU SOLUTIONS ARE AN EFFECTIVE MECHANISM FOR MEETING NEEDED REQUIREMENTS FOR IP-ENABLED SERVICES

As a fundamental underlying infrastructure provider to the traditional telecommunication, wireless, Internet, and Next Generation Network industries, VeriSign shares the widespread concerns regarding the imposition of regulatory requirements for IP-enabled services. To the extent such requirements are found compelling by the Commission in meeting significant national goals, VeriSign also believes that service bureau architectures for supporting these requirements across large numbers of providers, can often diminish the adverse effects – especially for small or otherwise disadvantaged providers serving rural or nascent markets.

Indeed, service bureau architectures are frequently compelling for sound technical, operational and business reasons that have nothing to do with national regulatory requirements. This includes the ability for the providers of such architectures to introduce features and innovations relating to reliability, fraud prevention, and the like for large numbers of providers and their customers - that could not otherwise be justified. To the extent that such service bureaus in an IP-enabled service environment can additionally facilitate meeting regulatory requirements, VeriSign suggests they should be factored into the decision making balances that must be struck.