VERIFICATION

I, Louis Mamakos, am a resident of the State of New Jersey, over the age of 18 and competent to make this verification in support of Vonage America, Inc.'s ("Vonage") Petition for Extension of Time and Limited Waiver ("Petition"). I have personal knowledge of the matters set forth in the Petition or have come into possession of the information from individuals who report to me during the course of my duties, supervisory activities and course of employment with Vonage.

I am employed by Vonage Holdings Corp. (Vonage America's parent corporation) as Chief Technology Officer. My responsibilities include overseeing all technology functions at Vonage which includes product and services development, supervision of all research projects and integration of all technology-based activities, including Vonage's 911 and enhanced 911 ("E911") service and deployment efforts, into the corporate strategy of Vonage.

I hereby certify under penalty of perjury that I have read the foregoing Petition, and that the statements contained therein are true, complete, and correct.

Executed on November 28, 2005

Louis Mamakos (signature)

EXHIBIT 1

National Emergency Number Association
The Voice of 9-1-1

November 4, 2005

Honorable Kevin J. Martin
Chairman
Federal Communications Commission
445 12th Street, S.W.
Room TW B-204
Washington, D.C. 20554

RE: WC Docket Nos. 04-36, 05-196, ex parte communication
Pursuant to Section 1.1206 of the Rules

Dear Chairman Martin:

As you know, the National Emergency Number Association ("NENA") asked in August[1] for the appointment of a Routing Number Administrator ("RNA") in furtherance of the Commission's VoIP E9-1-1 Order, FCC 05-116, released June 3, 2005. Accordingly, NENA supports the Alliance for Telecommunications Industry Solutions (ATIS) request, on behalf of its Emergency Services Interconnection Forum (ESIF), asking the Federal Communications Commission (Commission) to quickly approve the North American Numbering Council's (NANC) recommendations regarding the establishment of an Interim pseudo-Automatic Number Identification (pANI) Routing Number Administrator and the associated interim guidelines.

In addition to the points made in the ESIF filing, along with past NENA and other entities' filings, there are two additional important points to consider.

First, regardless of a VoIP provider's regulatory status, for non-dialable pANIs to be used, there must be an administrator, be it a state, a coordinating telecommunications company, or other entity. Outside of SBC and Verizon territory where either serves as the 9-1-1 system service provider, along with a few regional/state administrations, there is no such administrator.

In order to provide E9-1-1 service today and prior to the November 28 deadline, VoIP providers are forced to use dialable pANIs. Because these have technical and operational shortcomings, there will need to be a future conversion to non-dialable pANIs.

Second, this future conversion will include additional costs to PSAPs, mainly in the necessary testing required to ensure the conversions all work correctly. Minimizing the use of dialable pANIs by having non-dialable pANIs available through an interim administrator will help reduce these conversion costs to the PSAPs.

[1] Letter of Technical Issues Director Roger Hixson to Thomas Navin, [August 15, 2005], submitted in WCB Docket 05-196.

4350 North Fairfax Drive • Suite 750 • Arlington, VA 22203-1695
800-332-3911 • 703-812-4600 • FAX 703-812-4675 • www.nena.org

Thank you for consideration of this important matter.

Sincerely,

David F. Jones, ENP
President

cc: Thomas Navin, Michelle Carey, Jessica Rosenworcel, Scott Bergman, Russ Hanser

EXHIBIT 2

September 19, 2005

Via Electronic Filing

National Emergency Number Association
4350 North Fairfax Drive
Suite 750
Arlington, VA 22203-1695

Re: i2 Standard: Comments of Vonage America Inc.

Dear Sir/Madam:

Vonage America Inc. ("Vonage") submits these comments to the National Emergency Number Association ("NENA") in response to NENA's proposed i2 Standard and request for comments. While Vonage strongly supports NENA's efforts to develop the i2 Standard, Vonage notes that since the time that construction of the i2 Standard was originally conceived, events have occurred that necessarily affect the deployment of E9-1-1 services. Vonage submits that those changes have had a fundamental impact on the assumptions upon which the i2 Standard was based. As a result, Vonage submits that modifications to the i2 Standard are necessary to bring the Standard into line with recent events and current law.

When NENA, Vonage and others first came together to create and construct the i2 Standard for Voice over Internet Protocol ("VoIP"), issuance of the i2 Standard was expected to be completed by early 2005. Since that time, circumstances have changed significantly. On June 3, 2005, the FCC issued its VoIP E9-1-1 Order[1] ("Order") that imposed significant obligations and requirements on interconnected VoIP service providers. The Order imposed E9-1-1 obligations only on VoIP service providers ("VSPs") and did not impose any obligations on incumbent local exchange carriers ("ILECs"), VoIP Position Centers ("VPCs") or Public Safety Answering Points ("PSAPs"). At the same time, changes have occurred not only in terms of the capabilities and economies of VSPs, but also with respect to ILEC commitments to support VoIP E9-1-1 and the roles of the VPCs.

In the absence of a finalized i2 Standard, and given the release of the Order, which requires the deployment VoIP E9-1-1 under extraordinarily tight timeframes, Vonage has moved swiftly to develop new products, methods and processes in order to construct a new nationwide

[1] *IP-Enabled Services, E911 Requirements for IP-Enabled Service Providers*, First Report and Order and Notice of Proposed Rulemaking, FCC 05-116 (rel. June 3, 2005) (the "Order").

E9-1-1 solution. Vonage submits that its present VoIP E9-1-1 solution meets the spirit (if not the letter) of NENA's proposed i2 Standard.

Nonetheless Vonage maintains, based on its experience in working to deploy its E9-1-1 solution, that changes to the i2 Standard are warranted in several areas. First, the i2 Standard assumes that those deploying the E9-1-1 solution will have ready access to the inputs they require to complete that task on reasonable rates, terms and conditions. In practice, that assumption has not been proven universally accurate. Second, in some instances, the roles set forth under the i2 Standard should be made more flexible to allow for the diverse solutions that VSPs may deploy. Third, some portions of the i2 Standard are potentially incongruent with the existing regulatory environment and the Rules of the Federal Communications Commission ("FCC"). Vonage encourages NENA to work closely with the FCC to prevent inconsistency between the FCC's requirements and the i2 Standard. Finally, Vonage recommends that NENA implement a limited number of technical changes which are discussed in greater detail in the attached Exhibit. Each of these recommendations is discussed in greater detail below.

I. E9-1-1 Resource Availability

The i2 Standard as drafted includes the encompassing and implicit assumption that all E9-1-1 system service providers will work closely together and that all system service providers can and will promptly supply the necessary elements required to deploy an E9-1-1 system upon reasonable rates, terms and conditions. While Vonage strongly supports far greater cooperation in VoIP E9-1-1 than is occurring today, in many instances necessary inputs have proven difficult or impossible to obtain. Vonage therefore submits that there is a significant need for NENA to incorporate open access principles and greater flexibility into the proposed i2 Standard to allow for more rapid deployment of E9-1-1 solutions.

As set forth below, a number of practical and logistical impairments currently inhibit the ability of VSPs to deploy E9-1-1 systems which conform to the i2 Standard. For example, presently VSP are blocked from obtaining and managing ESQK and pANI numbering resources. Other required inputs such as the MSAG, shell records and other elements used in the deployment of wireless E9-1-1 are often unavailable. Moreover, in some instances, essential information, such as lists of the locations of selective routers and PSAPs either does not exist or is not publicly available. Accordingly, Vonage recommends that open network architecture principles be build into the i2 Standard.

A. Access to pANI Numbering Resources

Vonage has been actively involved in developing interim guidelines that would allow VSPs and VPCs to obtain and manage pANI numbering resources. Vonage assisted the North American Numbering Council in drafting and recommending the adoption of the *pANI Interim Assignment Guidelines for ESQK*. Once the FCC appoints an Interim 9-1-1 Routing Number Authority, both VSPs and VPCs will have access to the ESQK needed in order to route E9-1-1 calls for mobile VoIP users in certain areas of the U.S. However, there are two important issues that need to be addressed or redefined in the i2 Standard specific to pANI numbering resources.

First, the i2 Standard contemplates that *only* VPCs will have access to ESQK.[2] The Standard must be modified to allow for VSPs to have such access. Second, the i2 Standard makes reference to the Routing Number Authority as the entity responsible for managing ESQK.[3] Under the *pANI Interim Assignment Guidelines for ESQK*, ILECs and other entities that manage and assign ESQK will continue to do so until such time as a permanent pANI administrator is appointed.[4] The i2 Standard must be revised to include other entities responsible for the assignment and management of pANI numbering resources.

B. Master Street Address Guide "MSAG" Validation

The i2 Standard makes the assumption that civic locations are expected to be MSAG validated.[5] While Vonage does not dispute the value of MSAG validation, VSPs have no direct access to the MSAG. Indeed, no publicly available list of the sources for obtaining MSAG information across the various state and local jurisdictions exists. In many instances, it is unclear what entity holds jurisdictional authority over the MSAG. Furthermore, even when a source for the MSAG can be located, in some instances ready access to the MSAG cannot be obtained due to cost and contractual limitations. As a result, inclusion of MSAG validation in the i2 Standard, while a laudable goal, many not be readily achievable in the near term due to practical considerations.

From a technical perspective, MSAG validation under the i2 Standard requires the use of a Validation Data Base ("VDB") and an Emergency Routing Data Base ("ERDB"). Although Vonage generally agrees that such functionalities would be beneficial, such databases are not currently available. Indeed, under the current methodologies of MSAG validation entities which perform tasks functionally equivalent to the VDB and ERDB do not have full access to the basic data, let alone the automated and real-time response called for under the i2 Standard.

Until these difficulties are resolved, Vonage submits that mandatory MSAG validation is impractical. Such compliance is particularly difficult in the case of nomadic VoIP services where the user may change addresses frequently through multiple jurisdictions which have different validation methodologies. Vonage therefore urges NENA to allow greater flexibility in the i2 Standard to allow address validation at the civic level until MSAG is broadly accessible on reasonable rates, terms, and conditions and the full capabilities of a VDRB and ERDB can be implemented on a nationwide scale.

C. E9-1-1 Trunking v. 10 Digit Dialing

---

2 *See, e.g.*, sections 6.1.11 and 6.1.11.1 of the draft i2 Standard.

3 *See, e.g.*, section 6.1.12 of the draft i2 Standard.

4 *See pANI Interim Assignment Guidelines for ESQK*, at 2 ("In areas where E9-1-1 System Service Providers (E9-1-1 SSPs) had performed this function prior to the establishment of the Interim 9-1-1 RNA, that role may continue until such time as a permanent 9-1-1 RNA is determined. In developing these guidelines, ESIF and the pANI IMG foresee that these entities should only exist during the transition period until a permanent 9-1-1 RNA is established.").

5 i2 Standard at 5.

Direct trunking to the selective router presents a further example of an instance where the i2 Standard should be modified to allow for greater flexibility. Currently, the proposed i2 Standard provides for the construction of dedicated trunks between the gateway and each selective router.[6] While in many instances, construction of dedicated trunks may be appropriate, delays, costs, and deployment processes make direct trunking unsuitable for rapid turn-up and temporary solutions. Furthermore, direct trunking to some selective routers may be cost prohibitive and unnecessary, especially in environments where the routers are grossly out of date. Accordingly, because the i2 Standard has the potential to represent a nationwide footprint, Vonage recommends that the i2 Standard be revised to allow alternative means of connection for out of footprint service or for other modifications to the i2 Standard architecture design where requested by state authorities.

III. i2 Standard Roles and Responsibilities.

The i2 Standard defines roles and responsibilities on a "logical" basis.[7] While Vonage agrees that defining the roles in terms of functional capabilities provides a useful perspective, NENA should make clear that the i2 Standard should not be used to limit VSP flexibility in deploying E9-1-1 solutions. The i2 Standard recognizes, for example that in some instances, E9-1-1 parties may choose to divide the responsibilities of one "role" between two entities.[8] However, Vonage urges NENA to make clear that the distinctions set forth among the various "roles" should not be construed to limit access to important resources needed for deployment or to prevent the deployment of arrangements where a VSP or another entity acts in a manner that is functionally different from its identified role.

A. VoIP Service Providers ("VSPs")

The proposed i2 Standard contains an implicit assumption that VSPs have far greater control and access to the native 9-1-1 network and supporting elements than VSPs currently have. As noted above, in order to deploy E9-1-1 solutions, VSPs must generally rely heavily on third party providers of connectivity, database construction, and maintenance along with other E9-1-1 functionalities. Thus, for example, while VSPs are obligated under the FCC's rules to provide E9-1-1, no obligations are imposed on VPCs, selective router providers, incumbent carriers or PSAPs -- even though the legal obligation to deploy the functionalities assigned to each of those entities remains with the VSPs. Vonage therefore encourages NENA technical experts and committee members to review the current proposed i2 Standard in the context of the recent Order and recognize technical and operational solutions that allow for far greater access to inputs needed to deploy VoIP E9-1-1.

For example, the i2 Standard assigns the VPC operator the responsibility for ensuring that any MSAG-valid formatted civic location information is included in the response to the ALI database as well as for obtaining numbering resources from the Routing Number Authority

---

6 i2 Standard at 56.
7 i2 Standard at 161.
8 i2 Standard at 161

("RNA").[9] Vonage urges NENA to clarify these responsibilities to make clear that although the assignment of those obligations is placed upon the VPC under the i2 Standard, that functional assignment to the VPC is not intended nor should it preclude VSPs from receiving access to the MSAG or numbering resources.

B. Public Safety Answering Points ("PSAPs")

The proposed i2 Standard includes the express goal of limiting the burden on the PSAPs in making technical changes to current PSAP capabilities.[10] Vonage has been working closely with PSAPs and understands the financial and other constraints under which those entities operate. At the same time, PSAPs play an integral role in the completion of E9-1-1 calls. To be functional, VSP E9-1-1 systems must be well integrated with the PSAP operations. Vonage therefore recommends that the i2 Standard take PSAPs into greater consideration when providing for VoIP methodologies, processes and protocols, particularly with respect to the varying capabilities among different PSAPs. For example, Vonage recommends that NENA develop for the i2 Standard further technical procedures, such as warm transfer capabilities, to minimize the impact of necessary re-routing in the event of an emergency and to ensure that misdirected calls can be quickly and effectively re-routed to the appropriate PSAP.

C. VoIP Position Centers ("VPC")

The proposed i2 Standard makes the general assumption that VPCs are independent entities, distinct from the VSPs. While an analogous assumption was generally true during the deployment of wireless E9-1-1 through the use of Mobile Positioning Centers ("MPCs"), Vonage submits that in the VoIP context, factors such as economies of scale, may ultimately lead VSPs to self-provision VPC functionality. Vonage encourages NENA to expressly allow for and support such cross functionality in the i2 Standard and to update E9-1-1 deployment principles, to ensure economic and technically feasibility for the national migration to i3 capabilities.

III. Conforming the i2 Standard to the Existing Regulatory Environment.

As an initial matter, in numerous instances, the i2 Standard includes requirements or attributes that exceed what was required by the FCC in the Order. For example, FCC rules do not currently expressly require MSAG validation or the use of direct trunking to the selective router. Deployment of the technology and processes necessary to meet those additional requirements may be difficult because VSPs do not have sufficient access to required inputs. As a result, to the extent that i2 Standard compliance is required, Vonage submits that VSPs will typically need a significant amount of time to modify their systems to meet those requirements and any such timeframes should start to run only upon the availability of the necessary elements.

In addition, Vonage notes that the i2 Standard varies in several important ways from the existing regulatory environment as follows:

---

[9] i2 Standard at 166.

[10] i2 Standard at 5.

A. Default Routing

The proposed i2 Standard assumes that default routing conditions will permit a number of methods for response. Vonage supports a national 9-1-1 call center use for contingency routing. Vonage agrees with NENA as to the importance of calls centers for E9-1-1 use, particularly in instances where location information is not readily available and as a fail-safe where communication with the PSAP has failed. Call centers are able to provide rich data and content to distress calls that might otherwise have limited information or routing capabilities, or require non-traditional methods to reach a proper responder. Where technical challenges exist, the call center is able to circumvent bottlenecks through strong operational procedures and standards.

Call centers use is particularly important to support the provision of location information. Automatic location identification technology suitable for use in the VoIP environment is currently not available and has not yet been deployed for VoIP services. Since VSPs must therefore rely on customer provided registered location information, call centers provide an important backup to ensure proper call routing during the VoIP address validation process. Vonage therefore supports the use of call centers be used for highly nomadic solutions, as the technology to determine the exact location of caller has yet to be developed or implemented.

As part of its existing 9-1-1 solution, Vonage has deployed a safety net call center that is manned by APCO-33 trained call takers 24x7x365. When a customer's 9-1-1 call defaults to the safety net call center, the call taker receives the caller's call-back number, address, and other relevant emergency information, verifies the information, and then stays on the line while connecting the caller to the nearest PSAP or first responder available. As Vonage completes its database of registered location information, this information will be automatically available to the call taker.

Despite the importance of call centers in the i2 Standard and the outstanding need for the continuing use of call centers as part of a robust E9-1-1 system, Vonage notes that current FCC regulations do not incorporate operational elements such as implementation of a call center for default routing. Under current FCC rules and regulations, the default routing scenario instead requires VSPs to send calls to PSAPs that are unable to receive complete ANI and ALI information. Because such a network architecture leads to a lower level of responsiveness, Vonage strongly supports NENA's incorporation of a role for call centers in the i2 Standard and encourages NENA to work with the FCC to ensure that call center arrangements can be deployed by VSPs.

B. Contingency Routing Number ("CRN")

Vonage submits that the proposed i2 Standard must be clarified to ensure that the provisions for contingency routing numbers ("CRNs") comply with the standards set forth in the Order. Vonage agrees with the need for robust contingency routing procedures. The FCC's

current rules however require termination of E9-1-1 calls through the selective router.[11] By contrast, Vonage believes that the i2 Standard as currently drafted does not mandate that the proposed CRN be answered as an "emergency line." Use of a non-emergency line is highly suspect given the general and current lack of acceptance of the use of 10-digit number for the Wireless Phase "0" or the i1 solution set forth in the NENA/Von agreement of 2003. Accordingly, Vonage recommends that the i2 Standard be modified to provide greater clarity with respect to CRNs in order to ensure that the i2 Standards comports with the FCC's rules.

C. Valid Emergency Services Authority ("VESA")

The proposed i2 Standard references the creation of VESA, which will be used to provide certification for various entities involved in the E9-1-1 system. Specifically, under the i2 Standard, VESA would issue technical certifications which would be required before any entity can perform any of the following functional activities: VPC (VoIP Positioning Centers), ESGW (Emergency Service Gateways), LIS (Location Information Servers), SR (Selective Routers), ERDB (ESZ Routing Database), and VDB (Validation Data Base). However, the nature of the certification process and the standards for that process are not set forth in the i2 Standard.

Vonage supports technical proficiency and improved efficiencies in charting a course for the future of 9-1-1 are important goals. As states and localities have struggled to implement policies and procedures to better manage the deployment of i2 capabilities for VoIP providers, expanded regulation of these functionalities has been proposed. At the same time, the Order now requires VoIP providers to provide E9-1-1 service. As a result, loss or suspension of VESA certification could, depending on the manner in which it is implemented, significantly impair the ability of a VSP to continue to provide service.

Given the potentially highly disruptive nature of loss of VESA certification, Vonage believes that the i2 Standard should contain clear guideline and principles for issuance of such certification and ensure non-discriminatory access to certifications within a reasonable timeframes. Furthermore, the certification process should provide latitude and timing for changes to certification sufficient to allow for advanced notice to affected VSPs, cure of deficiencies and a transparent appeal system. Furthermore, as VSPs will not have control over the certification process, VESA should retain responsibility for liabilities associated with the certification process.

In short, VSP's are dependent on specific and fundamental methods of E9-1-1 access, in a time sensitive format. Therefore, although Vonage supports a VESA as general principle, care must be taken to ensure that the delayed or loss of will not have an adverse impact on the VoIP industry.

IV. Specific Technical Changes

---

[11] 47 C.F.R. Section 9.5

Finally, in reviewing the i2 Standard, Vonage has identified a number of specific technical issues where Vonage believes that changes to the i2 Standard are appropriate. Because those issues are technical in nature, they have been organized into a table format and provided in the attached exhibit. Vonage urges NENA to revise the i2 Standard to address those technical modifications.

oOo

Vonage applauds NENA's efforts to develop the i2 Standard and looks forward to working with NENA and other industry participants to complete the development of the i2 Standard. Questions regarding these comments may addressed to the undersigned.

Respectfully submitted,

John Cummings
732 226 0686 (Tel)
John.Cummings@Vonage.com (E-Mail)

Martin Hakim Din
(240) 899-6711 (Tel)
Martin.Hakimdin@vonage.com (E-Mail)

Exhibit: Matrix of Technical Issues

Issue	Provisions in NENA's i2 Standard Concerning the Issue	Vonage's Concern(s) with the Issue in the Proposed i2 Standard	Issues and Comments
1. Use of the "V0" Interface	Section 2.5.1 and 5.1 of the i2 standard note that the "V0" interface is used for a VoIP endpoint to receive information corresponding to a pre-determined location. The information provided may be in the form of a LK including Client-ID and LIS-ID, or it can be a PIDF-LO containing the actual location. However, the detailed specification of this interface is out of scope for the i2 solution. *See* Section 2.5.1, p. 15 and Section 5.1, p. 78.	Vonage does not use the "V0" interface between the end-user device and the LIS. As stated by the current proposed NENA specification, the definition of this interface is outside the scope of the standard. As a result, the location information on the "V1" interface will not be present. *See generally* Section 5.2, pp. 78-79. In order to correct this Vonage and other carriers would need wholesale upgrades to their customer's devices to support the V0 interface.	NENA should allow an out-of-band provisioning interface to the VPC
2. Carrying Location Information in the SIP Message.	The i2 Standard provides that location information may be contained in the SIP message. *See, e.g.,* Section 5.5.6.	Carrying location information in the SIP message can create issues with UDP transport, as the message sizes can exceed path MTU limits.	The V0 interface should be required with an i3-style solution, where calls can be delivered to the PSAP over IP without the need for a VPC provider in the real-time call path.
3. Usage of PIDF-LO or LK Location Information in SIP Message	The i2 Standard proves that that information provided in a query over the V2 interface should include Callback information, when available (to be provided to the PSAP so that a call-taker can call back an emergency caller), and a PIDF-LO or Location Key. The i2 Standard further provides that the VPC may also receive other information about the call, such as Voice Server Provider (VSP) identification	Vonage does not use the PIDF-LO or LK for providing location information in SIP messages.	Location information should be allowed over the ALI data links until SIP messaging standards incorporate a full i3-style solution.

Issue	Provisions in NENA's i2 Standard Concerning the Issue	Vonage's Concern(s) with the Issue in the Proposed i2 Standard	Issues and Comments
	information. *See* Section 2.3.11 p. 11. V0 and V1 interfaces also require transport of PIDF-LO or LK location information. *See* Section 2.5.1 p. 15; Section 2.5.2 p. 15.		
4. Use of a Proxy/Redirect Server	Figure 2-3 of the i2 Standard illustrates the use of an emergency call setup using SIP signaling to perform a proxy redirect server. The Call Server uses a Redirect Server to obtain routing information, and then routes the call to the ESGW. The SIP Redirect Server performs a routing query to the VPC. *See* Section 2.7.2, p. 25.	The Vonage E9-1-1 solution uses a "Proxy Redirect Server" solution. TeleCommunications Systems, Inc. implements the Proxy and the Redirect server.	
5. SIP Messaging and E.164 Addresses	In the i2 Standard, the callback number is an E.164 number, but may be represented in VoIP signaling (for example) by a uniform resource indentifier (URI). *See* Section 2.4, p. 14.	The SIP message details in Section 5.5.5.3 may not conform to E.164. The reference in the specification is not E.164 compliant. Further, the "P-Asserted-Identity" line in this Section should have a "1" between the "+" and the "ESQK" (similar to the ESRN in the Request-URI). *See* Section 5.5.5.3, p. 116.	The SIP message details in Section 5.5.5.3 should be updated to ensure usability for valid E.164 addresses. All E.164 addresses should always start with a country code followed by country-specific digits. A "+" can be prepended to identify it as an E.164 address A "1" should be inserted in the "P-Asserted-Identity" line between the "+" and the "ESQK" (similar to the ESRN in the Request-URI). in Section 5.5.5.3.
6. SIP URI Format	In Section 5.5.5.3.2 of the proposed i2 standard, NENA notes that all supported SIP messages for the V4 interface, the URI included in: From, Via, and Contact headers shall have one of the following formats:	Vonage submits that using these formats may not be the most efficient way to provide the requisite parameters. At this point in time the match should be done on the phone number, and not	In Section 5.5.5.3.2 of the proposed standard, NENA should simply match the "user" portion of the "From" header if there is a "user=phone" parameter in the

Issue	Provisions in NENA's i2 Standard Concerning the Issue	Vonage's Concern(s) with the Issue in the Proposed i2 Standard	Issues and Comments
	number@domainname:port, *number@ipaddress:port*, or *ipaddress:port*. *See* Section 5.5.5.3.2, pp. 116-17.	the complete URI.	header, as the "host" part can be the IP address of an outbound proxy which should not be used to identify the subscriber. Using the entire "From" header makes sense with an i3 solution. However, as most of the i2 solution is inter-networked with existing PSTN, it would sensible to simply compare the phone number. Section 5.5.6 should be similarly updated to provide for this modification.
7. Identifying a Call Instance	In Section 5.5.5.4, for instance, the i2 Standard indicates that the SIP BYE and CANCEL must have the following information elements, which are required to be the same as the first SIP INVITE from the VoIP initiation endpoint for that call instance. - Request-URI; - To *tag;* - From *tag;* - Call-ID; - CSeq *(including method);* - Via *(Top) header* *See* Section 5.5.5.4, p. 117.	In Section 5.5.5.4 of the proposed standard, the "Request-URI" of the BYE should match the "Contact" and not the "Request-URI" of the INVITE.	It may be more effective to simply reference RFC3261 for all basic SIP details. As the "BYE" can travel in either direction, the "From" and "To" tags can be flipped as the direction of the request has changed. The Cseq of the BYE should be greater than the INVITE, if flowing in the same direction as the INVITE. In general, Vonage submits that it would be better to separate out the CANCEL and BYE and address them separately for purposes of clarity. Section 5.5.6 should similarly be updated to address this issue.
8. ACK Construction	The i2 Standard states that a SIP 200 OK message from the 9-1-1 Call Server is sent to the VEP, and a SIP ACK is	The ACK is constructed differently in a success scenario (*i.e.*, 200 OK) as opposed to a failure	As the ACK may be constructed differently in different scenarios, it may be more

Issue	Provisions in NENA's i2 Standard Concerning the Issue	Vonage's Concern(s) with the Issue in the Proposed i2 Standard	Issues and Comments
	returned from the VEP to the 9-1-1 Call Server to acknowledge receipt of the 200 OK message. *See* Figure 5-7, p. 111-12; Furthermore, the i2 Standard indicates that for each call instance, the SIP ACK shall have the following information elements, consistent with the initial SIP INVITE received to the 9-1-1 Call Server for that call instance: - Request-URI; - From *tag;* - Call-ID - CSeq *(not including method);* - Via *(Top) header* Any retransmitted SIP INVITE shall be identical to the first SIP INVITE. *See* Section 5.5.5.4, p. 117.	scenario (*i.e.*, 4xx, 5xx, 6xx response).	effective to simply reference RFC3261 for all basic SIP details.
9. SIP Messaging Assumptions	Item number 4 under Section 5.5.7 of the i2 Standard states: "ESRN number length will be specified as 10 digit numbers. By standardizing on a length of 10 digits, this helps to avoid potential gateway processing errors that may exist with ISUP messaging processing logic." *See* Section 5.5.7, p. 119.	The ESRN is not part of the ISUP message.	Vonage submits that item number 4 under Section 5.5.7 should be reworded, as the ESRN is not part of the ISUP message. It may be more effective to simply reference RFC3261 for all basic SIP details.

EXHIBIT 3

VONAGE
THE BROADBAND PHONE COMPANY

22 November 2005

David F. Jones, ENP
National Emergency Number Association
4350 North Fairfax Drive
Suite 750
Arlington, VA 22203-1695

Re: i2 Technical Standard: Vonage America Comments

Dear David,

Vonage America, Inc. ("Vonage") has received informal comments back from the i2 Technical Committee regarding the notations Vonage made in the letter dated September 19, 2005. Vonage thanks the committee for the review, and appreciates that the committee considered the specific comments, provided clarifications, and made adjustments in the draft standard.

Vonage is very concerned, however, that the technical standard does not take into account necessary additional steps that the FCC and other third-parties must undertake in order to make the standard fully functional. As an example, the proposal details the activities needed to support an ERDB and/or VDB from the current MSAG processing. Nevertheless, no entity in the industry, to our knowledge, has stepped forward to provide the required functionality on behalf of the PSAPs. Because some PSAPs have refused emergency call delivery until the equivalent services are in place, the standard effectively becomes impossible to implement. Likewise functions like ESQK and ESRN assignments are not yet clearly defined. This ambiguity could lead to mixed and inconsistent number assignment implementations which will ultimately need to be reconciled at a later time. For these reasons, it is imperative that NENA stress that although the I2 solution is an important step in the process of E-9-1-1 deployment – additional work is necessary. In this respect, NENA should provide supporting operational and policy recommendations necessary to implement the I2 solution. Without such recommendations, Vonage remains concerned that the rules could lead to further confusion and inconsistent implementations.

As much as Vonage supports and applauds NENA's efforts to move the 9-1-1 industry forward, Vonage also asks that NENA provide a complete solution and clear direction for transition to the new standard. In this respect, Vonage looks to NENA to provide a comprehensive recommendation and accompany the release of the technical standard with the necessary operational procedures and policy recommendations. Vonage would strongly support any effort to develop a transition standard or produce a set of documentation that would clarify the current situation and provide direction for all parties involved.

Issue	Provisions in NENA's i2 Standard Concerning the Issue	Vonage's Concern(s) with the Issue in the Proposed i2 Standard	Issues and Comments
	number@domainname:port, *number@ipaddress:port,* or *ipaddress:port.* *See* Section 5.5.5.3.2, pp. 116-17.	the complete URI.	header, as the "host" part can be the IP address of an outbound proxy which should not be used to identify the subscriber. Using the entire "From" header makes sense with an i3 solution. However, as most of the i2 solution is inter-networked with existing PSTN, it would sensible to simply compare the phone number. Section 5.5.6 should be similarly updated to provide for this modification.
7. Identifying a Call Instance	In Section 5.5.5.4, for instance, the i2 Standard indicates that the SIP BYE and CANCEL must have the following information elements, which are required to be the same as the first SIP INVITE from the VoIP initiation endpoint for that call instance. - Request-URI; - To *tag;* - From *tag;* - Call-ID; - CSeq *(including method);* - Via *(Top) header* *See* Section 5.5.5.4, p. 117.	In Section 5.5.5.4 of the proposed standard, the "Request-URI" of the BYE should match the "Contact" and not the "Request-URI" of the INVITE.	It may be more effective to simply reference RFC3261 for all basic SIP details. As the "BYE" can travel in either direction, the "From" and "To" tags can be flipped as the direction of the request has changed. The Cseq of the BYE should be greater than the INVITE, if flowing in the same direction as the INVITE. In general, Vonage submits that it would be better to separate out the CANCEL and BYE and address them separately for purposes of clarity. Section 5.5.6 should similarly be updated to address this issue.
8. ACK Construction	The i2 Standard states that a SIP 200 OK message from the 9-1-1 Call Server is sent to the VEP, and a SIP ACK is	The ACK is constructed differently in a success scenario (*i.e.*, 200 OK) as opposed to a failure	As the ACK may be constructed differently in different scenarios, it may be more

EXHIBIT 4

Convention of the Statewide Stakeholders for VoIP E-911 Deployment

Currently of the 50 states, Washington D.C., and territories only 36 have any forum, office or organization that coordinates the various stakeholders needed to be brought together in order to fully deploy E-911 services in their states. While few question the importance of coordination, the apparatus and provision of public safety remains a highly local— and decentralized — endeavor for IVPs and all new entrants to the communications marketplace. To ensure successful national E-911 deployments, statewide alignment must be present to manage the many interests, incentives and necessary cooperation to achieve full E-911 implementation.

Recognizing the role of states in such efforts, the FCC and the National Association of Regulatory Utility Commissioners ("NARUC") formed a Joint Federal/State VoIP Enhanced 911 Enforcement Task Force to facilitate compliance with and enforcement of current E-911 rules.

As of the drafting of this report, the charter for the Joint VoIP Task Force is still developing. However, pending a fully developed charter, there are historical precedents demonstrating how active state leadership in a variety of forums has enabled timely and compliant paths forward for E-911.

Beginning in February of 2004, the New York Public Service Commission (PSC), was able to convene interested parties to resolve a number of operational issues impeding a full deployment of E-911 in New York City. The New York PSC was able to achieve this result without opening a new, New York specific proceeding regarding VoIP E-911 deployment, but by simply bringing the necessary parties together for a system-wide approach in deploying E-911 in New York City by early July 2004. By convening the necessary stakeholders, the NY PSC was able to serve as an honest broker and project manager for the rapid implementation of E-911. Replicated from previous state and regional forums used in the wireless environment, the results speak for themselves, and where possible should be implemented for VoIP.

Specifically, we propose that the Commission seek the convention or a roundtable of stakeholders through existing state regulatory boards. In regions where compliance can not be achieved through industry agreements, public safety best practices, or federal rules, Vonage seeks the assistance of state leaders to initiate such a roundtable of the required stakeholders to ensure a timely, non-discriminatory deployment of vital emergency services.

For a roundtable of stakeholders to convene, Vonage respectively submits the following guidelines for regulatory authorities:

(1) One or more of the statewide stakeholders must question or express concern over the use or access of 9-1-1 elements for E-911 deployment, this might include but would not be limited to: pANI administration, database provisioning, connectivity to the native 9-1-1 network or other binding 9-1-1 elements such as Master Street Address Guides (MSAG) for E-911 advancements and best practices;

(2) A forum to discuss efforts to streamline the E-911 deployment process. Given the tight timeframes and the various roles and interests of the stakeholders, there might be any number of conflicting incentives for deployment. Through a roundtable of stakeholders it would be the goal to align interests for a timely deployment of E-911 services;

(3) In the event reasonable cooperation can not be met. The stakeholders' roundtable could provide additional guidance in any enforcement action taken by the regulatory authority of jurisdiction.

(4) As the VoIP E-911 deployments are moving rapidly there is a necessary function to ensure that VoIP E-911 implementation is consistent with state and local plans for future developments and next generation capabilities.

Vonage strongly encourages coordinated, consistent programs to impress on local leaders and state constituencies the importance of timely VoIP E-911. Vonage anticipates that the creation of stakeholder roundtables will further encourage active engagement by all relevant parties and help to drive implementation. To support such a convention, Vonage would ask for further guidance and leadership of 9-1-1 coordinators, public safety organizations, industry, and other 9-1-1 officials to proactively work at the federal, state, and local levels to educate and share results with the Commission, legislators, and public safety officials.

EXHIBIT 5

E911 MILESTONES: **1**

APRIL 2003 1
DECEMBER 2003 1
NOVEMBER 2004 1
JANUARY 2005
MARCH 2005
MAY 2005
JUNE 2005 .....
JULY 2005 1
AUGUST 2005 3
SEPTEMBER 2005 3
OCTOBER 2005 3
NOVEMBER 2005 4

Vonage E-911 Milestones:

Vonage has been very active in the work of the Public Safety community in the efforts to advance 911 for VoIP customers.

A participant and advocate for full E-911 Vonage was one of the signatories to the NENA/VON Coalition Agreement. The agreement laid out a coordinated plan for delivering 911 dialed calls to PSAPs using available 10-digit access lines. This agreed upon Public Safety and industry path forward followed the 911 deployment of alarm and telematics companies, as well as the procedures that had been provisioned for Phase 0 of wireless.

The impetus of the agreement was to provide a path for emergency call planning and delivery during the development period of the necessary standards.

While the national standards are still under development, Vonage supports an accelerated deployment of E-911 services that are collaborative and coordinated for better 911 design and implementation.

April 2003

Vonage 911 Calling

Vonage initiates the capability of delivery of an emergency call to a 10-digit number designated by the Public Safety Answering Point (PSAP) as an optional service (opt-in capability). Calls are delivered per the customer's provided location to PSAP contact numbers provided through a third party vendor.

December 2003

Vonage signs National Emergency Number Association (NENA)/Voice on the Net (VON) Coalition agreement on VoIP Emergency Call Delivery

Vonage is a signatory on the agreement between the leading VoIP providers and the leading 911 technical group, NENA, to provide basic 911 services to subscribers via 10-digit numbers at each PSAP within 6 months of the agreement. Vonage complies with agreement.

November 2004

Delivering Enhanced 911 (E-911)in the State of Rhode Island

Vonage works with the State of Rhode Island to provide E-911 (call back number and caller location) to all PSAPs in the state. The solution is modeled on the proposed NENA i2 standard and allows for nomadic caller services.

Calls are delivered on 10-digit emergency numbers to the PSAP and queued with all emergency calls.

January 2005

Vonage Next Generation E-911and Deployment in NYC

Vonage joins NENA and other key 911 industry players as a charter member of blue ribbon committee in effort to develop and accelerate the ongoing path and set direction for the future of 911 for all methodologies of requesting emergency service.

Following the leadership of State leaders and the City of New York, Vonage along with Intrado and Verizon, begin discussions on the implementation of Enhanced 911 for residents of the City.

March 2005

Tested E- 911 with King Co., WA

In an effort to further accelerate deployment, Vonage tests E-911 with King Co., Washington. The testing mirrors the success delivery of the call back number and caller's provided emergency service location to the appropriate PSAP. Further discussions follow, as Vonage attempts to adjust E-911 solutions with public safety constituents and needs.

April 2005

Extended 911 Services

Vonage initiates aggressive roll out of complete E-911 solution in North America. Begins efforts to hire staff and reach contract status for outreach to all PSAPs in US and Canada, and required data collection and processing. Vonage also begins efforts with all major Independent Local Exchange Carriers (ILECs) to determine availability of services and costing for VoIP providers.

May 2005

E-911 Architecture and Development

Vonage develops architecture designs for a nomadic VoIP E-911 system. Vonage conducts extensive review of available resources for Selective Routers and present capabilities of various E-911 vendors.

June 2005

Extensive PSAP and 911 Outreach

Vonage develops and engages in a proactive outreach communication program for PSAP readiness and deployment of VoIP E-911. Vonage formally enters into negotiations with the major ILECs for access to the wireline 911 system. Vonage also initiates contract negotiations with potential ESGW and VPC providers and other access carriers for network voice and data paths.

Vonage hires extended staff to begin implementation effort.

July 2005

Safety Net Call Center, E-911 in NYC, and Data Collection

Vonage deploys a SafetyNet Call Center, to ensure all requests for emergency services are answered by a live, trained operator. Calls directed to the call center include calls where the customer location has not been provided, and where the PSAP is not providing live answering for the provided 10-digit inbound lines. The functionality is put in place to assure all requests for emergency service are answered by a live, trained operator.

Vonage begins delivery of E-911 calls for subscribers in New York City. Testing and delivery is completed for all subscribers in the five borough area.

A national effort is launched by Vonage to map appropriate Selective Routers to the nation's 911 system and where possible Vonage customers. Vonage develops a number of full time teams to gather information and updates for Vonage's E-911 deployment.

Vonage engages in a comprehensive review, and one on one gathering of PSAP data. Senior Senior staff and Regional Directors begin education and information campaign across all fifty states and Canada, including presentations and material distribution in all major gatherings of public safety groups.

Vonage further reviews the draft NENA i2 Standard guidelines and awaits publication.

Vonage establishes a PSAP welcome kit established, to be sent to all PSAP's for data gathering and education on what VoIP 911 requires, including PSAP readiness.

Vonage sends a formal correspondence to major ILEC's requesting executive participation and leadership in the accelerated deployment of E-911.

August 2005

FCC Required Customer re-affirmation, 9-3-3 Test Feature, Early Deployments of E-911

In compliance with FCC guidelines, Vonage completes first efforts to positively re-affirm with each subscriber the limitations of the 9-1-1 service, and initiates the collection of 9-1-1 service address from every new subscriber. Upon direction of the FCC, significant changes are made to service initiation process, and repeated contact points are made with each customer to educate on 9-1-1 services.

Vonage adds new customer innovation in the form of a 9-3-3 dialing feature, as it provides customers with a dialing code for validating the status of their 911 service. At present, a Vonage customer can check 911 dialing status at any time without having to place a call to a public safety operators.

In a few instances, where the PSAP owns the native 911 equipment, Vonage reaches agreements with Duval, St. John's, Polk and Leon Counties in Florida and Lexington, Kentucky to provide E-911 service.

Vonage works with nationally recognized PSAPs residing in the Tarrant County 911 District and SBC to complete testing and the delivery of 911 calls over the dedicated 911 voice trunks, as well as functions to test delivery of VoIP calls via the "PAM" data interface to the ALI server. Testing is completed for both normal and "default" call routing.

Vonage launches a website for PSAP education www.vonage.com/psapcenter

September 2005

National Deployments Tested, Initiated and Provisioned

Vonage completes testing in multiple areas using the proposed Emergency Service Gateway (ESGW) provider (Level3) and the Virtual Positioning Centers (TCS, Intrado and HBF) in three ILEC markets.

Vonage hardware and software updates are made to allow for call recording capabilities of all E-911 calls that are routed through the Vonage network.

Vonage testing validates the delivery methodologies and tests normal and "default routing" scenarios to the involved parties satisfaction and in compliance of current guidelines.

Vonage, Level 3 and TCS begin collection of Master Street Address Guide (MSAG) data in order to provide additional functionality not available from any other entity in the 911 industry.

Vonage continues Regional outreach efforts for PSAP readiness and implementation.

October 2005

North America E-911Testing and Go-Live

Vonage completes provisioning of 911 Call Center for Canadian compliance.

Upon completing pseudo Automatic Number Identification (p-ANI) updates, creation of shell records, and statewide testing, Vonage begins delivering live E-911 traffic in Massachusetts.

Vonage requests further leadership from the 911 community and ILEC in the support of greater PSAP and ILEC readiness.

Vonage develops and implements Standard Operating Procedures (SOPs) for all Operational PSAP's, which are sent to PSAP's upon a successful test and LIVE turn-up.

November 2005

Additional Provisioning and Go-Live Efforts

Vonage engages in a massive review of all capabilities to further accelerate the deployment of E-911. With the support of Verizon and state leaders, Vonage is able to rapidly turn up 911 capabilities in the Verizon footprint. Further supporting Go-Live capabilities Vonage successfully tests TTY capabilities in Massachusetts.

Vonage deploys a redundant fully operational 911 network that is 100% E-911 ready on the Vonage network

Upon completion of outreach efforts, all PSAPs that have a Vonage subscriber have been contacted, Vonage PSAP outreach efforts reach over 5,000 PSAPs in three months and over 40 conferences and meetings.

Vonage is able to achieve PSAP readiness for an additional subset subscribers following a solution brought forward by Intrado in the last days of the month.

EXHIBIT 6

NENA and Internet communications providers have agreed upon the following action items:

1 For service to customers using phones that have the functionality and appearance of conventional telephones, provide 9-1-1 emergency services access (at least routing to a PSAP 10-digit number) within a reasonable time (three to six months) and prior to that time inform customers of the lack of such access.

2 When a communications provider begins selling in a particular area, it should discuss with the local PSAPs or their coordinator (as identified on the NENA website) the approach to providing access. (For example, if routing to 10-digit number, confirm the correct number with the PSAP.) This obligation does not apply to any "roaming" by customers.

3 Support for current NENA and industry work towards an interim solution that includes (a) delivery of 9-1-1 call through the existing 9-1-1 network, (b) providing callback number to PSAP, and (c) possibly in some cases, initial location information. The current timeline for the NENA VoIP/Packet Committee to develop its interim recommended solution is May 2004.

4 Support for current NENA and industry work towards long-term solutions that include (a) delivery of 9-1-1 call to the proper PSAP, (b) providing callback number/recontact information to the PSAP, (c) providing location of caller; and (d) PSAPs having direct IP connectivity. The initial standards development work of the NENA VoIP/Packet Committee should be completed by the end of 2004.

5 Support for an administrative approach to maintaining funding of 9-1-1 resources at a level equivalent to those generated by current or evolving funding processes.

6---Consumer education. This could include projects involving various industry participants and NENA public education committee members to create suggested materials explaining any 9-1-1 differences to customers.

EXHIBIT 7

TCS TeleCommunication Systems

Enabling Convergent Technologies®

November 28, 2005

The Honorable Kevin J. Martin, Chairman
c/o Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street SW
Washington DC, 20554

Dear Chairman Martin:

TeleCommunication Systems (TCS), Inc. is the primary vendor of choice contracted by Vonage to provide VoIP Positioning Center (VPC) functionality and PSAP support services in Vonage's E-911 implementation and deployment. As a nationally recognized E-911 integrator, TCS has a long standing history and extensive experience in E-911 deployments, having served the wireless industry during the Commission's 94-102 proceeding.

In our current support role for VoIP providers in connection with the requirements imposed by the Commission in its *E911 Requirements for IP-Enabled Service Providers, 05-196* (Order), TCS provides VPC integration and routing capabilities for VoIP deployments which allow Interconnected VoIP Service Providers (IVPs) to route E911 calls over the native 911 network. TCS is presently engaged and actively involved in a national effort to complete the extensive tasks and functionalities involved in Vonage's E-911 deployment. While working on Vonage's behalf, as well as for other VoIP providers, TCS has become aware of numerous blocking issues and obstacles that have affected, and frequently prevented, the timely deployment of VoIP E-911. For your convenience, we have summarized some of those issues below.

Automatic Location Information (ALI) Database Access:

Under 911 industry best practices for VoIP, as well as the wireless model, the ALI database, in conjunction with the provisioning of pseudo-Automatic Number Identification (ANI), is required for ALI steering, and the passing of ALI/ANI in a dynamic record from TCS, as a VPC, to the proper Public Safety Answering Point to provide full E-911 service. As a vendor supporting wireless carriers' effort to comply with the requirements imposed in FCC's 94-102 proceeding, TCS has numerous existing ALI agreements in place for Wireless E911. TCS supports over 5200 Phase 1 and 3000 Phase 2 deployments for 25 CMRS providers nationwide. To migrate these capabilities to the VoIP context, TCS has had to complete further negotiations and contract executions with 911 System Service Providers (SSPs) and Local Exchange Carriers in order to establish the terms under which existing access to the appropriate (ALI) databases can be used for VoIP E911 traffic.

TCS commenced contractual negotiations shortly after release of the Order in order to be prepared to quickly accommodate and process VoIP ALI data. As of May 2005, however, the vast majority of ALI providers did not have a clear established process, pricing or applicable agreements in place for the necessary elements to support VoIP E911. Creation and negotiation of the necessary agreements resulted in significant delays with final execution dates of the agreements extending in best cases, 08/25 (Verizon), to well into September 2005 (SBC). Deployment dates were further extended due to the need to complete additional interoperability testing with many 911 SSPs as well as SSP's own readiness to accept VoIP traffic. For example, Sprint did not complete internal V-E2 upgrades until 10/28 so TCS was unable to complete integration testing with this ALI provider until 11/07. Similarly, BellSouth interoperability testing was not completed until 11/04, as contract negotiations were not complete until 10/14. Collectively, the lack of readiness and subsequent contract and testing requirements by the ALI database providers resulted in significant delays in TCS' VPC capabilities and the passing of live 911 traffic for VoIP providers.

pseudo-Automatic Number Identification (pANI) Acquisition and Provisioning:

Starting in 1998, and throughout many years since, TCS has performed numerous deployment and provisioning tasks on behalf of wireless providers in support of Phase 1 and Phase 2 of the 94-102 proceeding. As wireless deployment mechanisms – including in particular the acquisition and use of pANI - were highly dependent on PSAP and LEC readiness, the processes and submission requirements within the wireless context were highly customized – on a case by case, PSAP by PSAP basis. Given the Order's time constraints, TCS has found this legacy model entirely unsuitable for use in deploying VoIP E-911; far greater processing uniformity was and is critical to rapid VoIP E911 deployment.

In response to the need for uniformity, the public safety community has developed a near consensus position regarding the need for the creation of a national Routing Number Authority (RNA). Despite the timeframes set forth in the Order and the massive scale required for E911 deployment, standardized methods for the acquisition and provisioning of pANI were not and are not in place; instead, those methods have remained in flux throughout the VoIP E-911 deployment process. And to date, no RNA has been created.

Despite the lack of a more cogent and cohesive process, including a RNA for pANI, TCS and Vonage forged ahead to request and obtain pANI and associated shell record data elements. TCS and Vonage have worked together closely to navigate the individualized pANI assignment processes which have themselves continued to evolve and change markedly over the last 120 days. Despite extraordinary efforts, pANI acquisition results have been varied, depending on LEC region and state policy. In regions where TCS and Vonage have been unable to acquire and provision pANI (and other data components necessary to implement E-911), delays in VoIP E911 deployment have occurred and significant confusion within the 911 community has resulted.

As pANI is a key gating issue to PSAP readiness, TCS and Vonage have been forced to navigate piecemeal legacy processes that required multiple contacts and extensive individual PSAP by PSAP involvement. While TCS and Vonage continue to fully support the inclusion and active participation of PSAPs and 911 Authorities and continue to work closely with those agencies, the lack of a consistent pANI assignment process has resulted in extensive provisioning and processing delays, PSAP confusion and, ultimately, substantial reductions in E911 deployment speed.

Unnecessary PSAP Delays and Lack of Coordination for a Consistent and Uniformed VoIP Deployment Model

TCS, in close coordination with its subcontractor Compass Technology Services, has performed extensive data gathering and outreach activities in support of Vonage and VoIP deployments. Such efforts remain critical in light of the extensive confusion, ambiguity and, in some instances, resistance to VoIP deployment activities. Despite the extensive proceedings leading up to the Commission's Order, TCS has found broad scale PSAP unfamiliarity with VoIP services. TCS has also found that PSAPs therefore relied heavily on guidance from external sources – public safety organizations and word of mouth – much of which was ambiguous and inconsistent.

In absence of strong coordination, a national VoIP deployment model, and training and education, uniform deployment processes did not develop across ILEC territories and the nuances of VoIP deployment continue to vary widely across different ILEC regions. For example, while some ILECs proposed a single Emergency Service Number (ESN) model resulting in data similar to that seen for a wireless E-911 call, others recommended the use of multiple landline ESNs to more closely mimic a landline 911 call display. These various approaches resulted in numerous ALI display differences across PSAPs, even those residing in the same state or region. As VoIP E-911 requirements change to accommodate completely nomadic VoIP subscribers, the impact and on-going provisioning modifications to PSAPs will differ to an even greater extent, requiring further education.

As a long-standing advocate of Public Safety, TCS believes that additional guidance, consistency, and a less stringent deployment schedule would have benefited PSAP coordination, education and VoIP E911 deployment nationwide.

In closing, TCS is an active participant in the deployment of VoIP E-911, having firsthand knowledge on the difficulties and challenges faced by a number of the parties associated with deployment. As such, TCS supports a path of compliance that provides all parties the necessary time to achieve the goals of the Order and the very best possible 911 system.

Sincerely,

Richard A. Young

Richard A. Young

EXHIBIT 8

COMPASS
TECHNOLOGY SERVICES

COMPASS Technology Services, Inc • 5449 Bells Ferry Road • Acworth, GA 30102
Phone: 770-701-2500 • Fax: 770-701-2501

November 28, 2005

The Honorable Kevin J. Martin, Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Dear Chairman Martin:

Compass Technology Services was subcontracted through TeleCommunication Systems, Inc to perform Public Safety Answering Point (PSAP) data collection activities for the purpose of FCC compliant E-911 deployment of Vonage America. As manager of this project, and supervisor of those resources assigned to make direct contact with each PSAP, I am able to provide specific examples of PSAP interaction and the prevalent issues and challenges encountered when attempting to secure full participation and cooperation from PSAPs in the Vonage deployment process.

As directed by Vonage, Compass was responsible for the distribution of Vonage's *PSAP Deployment Kit* and the required deployment interviews collected via telephone. The telephone interviews consisted primarily of data gathering for the collection of deployment-specific data, including but not limited to the following items:

(1) Confirmation of PSAP address and contact information;

(2) Appropriate Automatic Location Identification (ALI) database information and provisioning requirements;

(3) Confirmation and review of 9-1-1 System Service Provider and Local Exchange Carrier service;

(4) Collection of VoIP specific deployment elements including Emergency Service Numbers (ESN's), Master Street Address Guide (MSAG) ledger entry information required to create shell records;

(5) Additional items of concern to PSAP in regards to Vonage's E-911 deployment.

The Compass collected information was received following extensive outreach telephone calls and interviews to the PSAP/911 Authority with appropriate email and facsimile follow up correspondence.

In the Vonage outreach, Compass made 5606 telephone calls, and sent over 1699 kits to PSAP contacts representing over 3000 Public Safety Answering Points in all 50 States, the District of Columbia, and Puerto Rico between 08/23/2005 and the present. Compass has completed 2720 data collection interviews and continues to conduct interviews to collect outstanding data.

COMPASS
TECHNOLOGY SERVICES

COMPASS Technology Services, Inc • 5449 Bells Ferry Road • Acworth, GA 30102
Phone: 770-701-2500 • Fax: 770-701-2501

A recognized vendor in the 9-1-1 community, Compass has preformed similar outreach and provisioning efforts for wireless providers including Cingular Wireless and T-Mobile in support of the FCC's 94-102 proceeding. Despite our expertise, extensive history and relationships with the PSAPs in performing similar efforts we encountered immediate resistance from the public safety community. In multiple instances, PSAPs were non-responsive, unwilling or unable to provide the information necessary for Vonage to complete E-911 deployments. Through an established feedback mechanism, Compass was able to communicate these "escalations" to a Vonage team dedicated to working with PSAPs to resolve blocking issues for deployment. Over the course of the data collection activities and outreach Compass had to escalate 188 different blocking issues to Vonage, a number representing 1120 PSAPs and 35% of Vonage subscribers.

The following pages contain additional detail regarding specific issues of resistance, as well as examples of PSAP feedback and concerns collected during the process.

As a 911 vendor – well versed in the state and local 911 planning and data collection – we are close monitors of the Public Safety community. The attached documentation identifies a number of concerns from the PSAP perspective, affecting the implementation of Vonage's services.

Sincerely,

Candice C. Miller
911 Group Manager

COMPASS
TECHNOLOGY SERVICES

COMPASS Technology Services, Inc • 5449 Bells Ferry Road • Acworth, GA 30102
Phone: 770-701-2500 • Fax: 770-701-2501

The following information is a small sampling of the feedback and resistance to the deployment of FCC compliant E9-1-1 VoIP across Vonage America. This information was gathered during verbal deployment interviews conducted via telephone.

The primary categories of concern include, but are not limited to the following:

(1) Confusion caused by lack of a standardized VoIP deployment model and conflicting instruction from Local Exchange Carriers.

i. ILEC representative told PSAP that ILEC must be contacted for shell and ESN information. Was told by ILEC that this information was proprietary in nature and could not be released to VoIP providers.

ii. PSAP states that everything relating to 911 must go through ILEC.

iii. PSAP states ESN is proprietary information and she was unable to release per ILEC representative.

iv. PSAP states Vonage must contact ILEC for the ESN, MSAG and selective router information.

v. PSAP states they must check with their ILEC representative before answering our questions.

vi. PSAP states they have talked to their ILEC and Intrado. They told him they weren't ready and PSAP would not provide any information. His ILEC told him to hold off for now.

vii. ILEC told PSAP that Vonage didn't need ESN. Wants list of all Vonage phone numbers to load VoIP ESN.

viii. Will use multiple landline ESNs per PSAP, says we musg get ESN boundaries / shape files from SBC,

ix. PSAP told not to give info per ILEC representative.

x. PSAP told by ILEC and Intrado to wait to provide info until contract is signed in November.

COMPASS Technology Services, Inc • 5449 Bells Ferry Road • Acworth, GA 30102
Phone: 770-701-2500 • Fax: 770-701-2501

(2) Resistance to participating in VoIP deployment without cost recovery/surcharge mechanisms in place.

i. PSAP refused to provide shell or ESN. Wants calls routing to 10-digit conditional routing number until he gets cost recovery. Believes VOIP calls will "clog" 911 system and needs all the money he can get to run his center.

ii. PSAP contact refused to provide CRN, stating he was seeking legal advice. Is waiting to find out about receiving surcharges from Vonage.

iii. PSAP refused VoIP or to provide any information because of Surcharge issue. PSAP stated he was advising ILEC to do the same until resolved.

iv. PSAP upset because of no decision on funding.

v. PSAP refused to give out any ESN or shell record data before surcharge issues have been worked out.

vi. PSAP stated his view is that he doesn't want the VOIP customers who are not paying any fees to use trunks that are being paid for by landline and wireless customers. He said that if for a reason, a VOIP 9-1-1 call comes in and he is out of capacity and another call for landline or wireless comes in, they will be dropped and he feels it is not fair service to the customers that are paying.

vii. PSAP previously provided ESN, but has now changed mind. Stated cannot let VoIP calls come in on landline or wireless trunks due to their funding. PSAP is not opposed to Vonage paying for separate trunks or lines.

viii. PSAP stated that County refuses to take calls until Vonage pays surcharge.

ix. PSAP stated he would not deploy VoIP until the surcharge issues were resolved. He did say that he was willing to bring it up with his board at the next meeting to discuss the possibility of deploying while resolving surcharge, but for now they had decided "no". "

x. PSAP stated they have the data, but can not release any information until surcharge issue is resolved.

xi. PSAP stated that her PSAP is refusing to take our 9-1-1 calls until Vonage pays a surcharge.

Proprietary & Confidential

COMPASS Technology Services, Inc • 5449 Bells Ferry Road • Acworth, GA 30102
Phone: 770-701-2500 • Fax: 770-701-2501

(3) Resistance to VoIP technology or the *Order*.

i. PSAP contact stated that due to the lack of liability immunity in their state for VoIP 911, their County will not be taking VoIP calls.

ii. PSAP contact refused to provide any information. Stated that Vonage doesn't dictate what they will do as a PSAP. When told of the FCC mandated deadline, PSAP contact stated that wasn't her problem.

iii. City stated that unless their center can receive the same level of 911 service for VoIP as they currently do with wireline and wireless E911, i.e. MSAG valid ALI, they will decline to receive VoIP calls.

iv. PSAP refused VoIP Service. They received the Vonage Welcome Kit, but decided VoIP E911 is not something they want in their area.

v. PSAP stated they met with Vonage and ILEC and elected to "opt out of VoIP".

vi. PSAP contact unable to provide information. Stated county considers VoIP a low priority.

vii. PSAP stated on 11/16 that they will probably accept VoIP calls, but no firm decision made yet.

(4) *Non-responsiveness to data-collection efforts*

i. It has been necessary in some cases to make repeated calls to PSAPs to gather data required for deployment. 54 PSAPs for which data remains outstanding required 5 or more calls per PSAP. Of these 54, 17 required at least 10 calls, and 3 requiring over 20 attempts to make contact.

EXHIBIT 9

VoIP PSAP Outreach Checklist

PSAP Information

PSAP Name:	
PSAP FCC ID:	

General Outreach Information:

Date Information Provided	
TCS/Vonage Interviewer	
Name and phone number of PSAP Contact	
Title of PSAP Contact:	

Welcome Kit:

Received Welcome Kit:	YES / NO
*** Follow-up requested regarding (if applicable):**	

PSAP E911 Information:

PSAP's LEC:	
PSAP's SR Name:	
PSAP's ALI:	
PSAP ESN: (Vonage requests single ESN for VoIP- can be existing wireless, wireline- but recommends requesting new VoIP ESN	
PSAP 10-digit conditional routing number (CRN):	

PSAP MSAG/Shell Record: (If not provided by the LEC)

Date PSAP Provided VoIP MSAG/Shell Record Information:	
Date PSAP confirms MSAG ledger has been requested from LEC and confirmed created	

MSAG Information:

Shell House Number:	
Shell Street Name:	
Shell Community:	
Shell State:	
Shell County:	

PSAP Shape File Information:

PSAP VoIP Boundary same as Wireless boundary:	**YES / NO -**
If NO, date PSAP Provides new Shape File information:	
PSAP GIS Contact and Phone Number:	

Notes:

EXHIBIT 10

September 15, 2005

Contact name
Title
PSAP/Jurisdiction Name
Address 1
Address 2

Subject: Vonage E9-1-1 PSAP Deployment Kit

Dear (Contact Name):

On behalf of our customers and partners, Vonage is pleased to share some exciting new developments with regard to our 9-1-1 service. In the upcoming weeks and months, Vonage will be upgrading our current 9-1-1 capabilities by rolling out Enhanced 9-1-1 (E9-1-1) across our footprint. To meet this enormous and formidable undertaking, we are reaching out to the public safety community to inform you of our plans, include you in our progress and solidify our alliance with your community.

Vonage's E9-1-1 implementation design complies with the letter and spirit of the recent Federal Communications Commission (FCC) E9-1-1 Report and Order (Number 05-116). As such, the Order requires that providers of two-way interconnect Voice over Internet Protocol (VoIP) services deliver E9-1-1 information– Automatic Number Identification (ANI) and Automatic Location Information (ALI) –by routing calls to a Public Safety Answering Point (PSAP) through a native 9-1-1 network.

To help guide you through the FCC mandated 120-day implementation process, provided herein is the *Vonage E9-1-1 PSAP Deployment Kit* for your reference and review. The kit contains useful information about Vonage, how VoIP E9-1-1 works and other relevant information.

Enclosed, please find:

- Information about Vonage and E9-1-1
- VoIP FAQ's
- Vonage VoIP E9-1-1 Deployment Checklist
- VoIP Glossary
- VoIP Facts and Contacts specific to your state

To assist Vonage's E9-1-1 deployment we have selected a team of seasoned E9-1-1 professionals to support our outreach. Within three weeks of receipt of this letter, you will be contacted to collect relevant data and answer any questions you might have.

Your participation is vitally important to this deployment effort and we look forward to building a partnership with you to complete this awesome task.

Vonage shares your goals to provide the best possible VoIP E9-1-1 service and will work hard along side you to make this goal a reality.

Thank you for your time and 9-1-1 leadership.

Sincerely,

Vonage E9-1-1 Implementation Team
www.vonage.com/PSAPcenter

If you only read one thing in this Kit- **READ THIS!!!**

This brief overview will give you a high-level understanding of the basics of Vonage's VoIP E9-1-1 deployment plan.

Vonage is in the process of a nationwide rollout of E9-1-1 service. We're busy working with state and local public safety officials and entities that manage, maintain and provide various 911 elements such as ALI database and MSAG to ensure full connection and the integration of VoIP elements into the Selective Router (SR) along with the routing of Automatic Location Information (ALI) and Automatic Number Identification (ANI) through industry leading VoIP Position Centers (VPCs) that will route E9-1-1 calls to the appropriate PSAP.

Vonage has committed to deploying E9-1-1 within the 120-day timeframe mandated by the FCC order. To do so, we need your help! Completing and recording the tasks on this checklist will help Vonage complete the deployment of VoIP E9-1-1 across our footprint. We will follow up to discuss your deployment and gather this information from you within the next 3 weeks.

Please find a PSAP deployment checklist for your review and use as we know your schedule is full.

VoIP E9-1-1 Deployment Checklist

Provide PSAP information:

To ensure all of our data about your PSAP is correct, we will ask you to verify and provide the following information:

- Your PSAP's Name:
- PSAP FCC ID: (Please refer to the FCC's PSAP Registry for information regarding the assignment of FCC ID):
- Name of PSAP Point of Contact for VoIP E9-1-1:
- Email Address:
- Phone Number:
- Serving 9-1-1 Local Exchange Carrier and S/R:
- Serving ALI database (provider, location, name, etc):

Request a MSAG ledger update:

Submit this request to the entity that manages, maintains and provides the MSAG for your PSAP (most often your Local Exchange Carrier). Vonage requires the use of a VoIP MSAG entry, which will allow us to build VoIP Shell Records with associated ESQKs for your PSAP in the ALI database. These shell records will be used to deliver VoIP caller location information to your PSAP much the same way as wireless call processing.

Below is an example of the format for this VoIP MSAG:

Street Name: VOIP 9-1-1 Caller
Community: *(your PSAP name)*
ESN: _____

By initiating this request now you will help ensure that there will be no delay in the VoIP E9-1-1 deployment in your area. We recommend that you request a MSAG shell record within **5 business days** of receiving this kit so that it will be available in electronic format when we contact you.

Bellow is an example of the request form you'll use to request a VoIP MSAG. Check with your provider for the appropriate forms and process for your area.

BELLSOUTH **E911 MSAG Ledger** RF-2990 (5-98)

Date | County/City/Parish | Serial Number

Telephone Company Name | Authorized By

Purpose Of Ledger ► ☐ Insert _____ ☐ Change _____ ☐ Delete _____

Comments

Existing MSAG Entry

Directional | Street Name | State

Low Range	High Range	O/E/B	Community	ESN	*Exchange

Desired MSAG Entry

Directional | Street Name | State

Low Range	High Range	O/E/B	Community	ESN	*Exchange

For BOC Use ► (Indicate Dates) | Received | Input To MSAG | Input To PRCMIS | Returned To NBEC (If Appropriate) | Returned To County/City/Parish | Clerk's Initials

For NBEC Use ► (Indicate Dates) | Received | Returned To BOC | Clerk's Initials

*Input Not Required By County/City/Parish

Verify single Emergency Service Number (ESN) for VoIP:

Vonage will be using ESN for routing purposes and in the initial stages of Vonage's E9-1-1 deployment, only a single ESN per PSAP is needed. This ESN can be the same that is currently used for Wireless E9-1-1. If you plan on making any changes to or providing other types of ESNs, please be prepared to discuss this with a Vonage deployment professional when contacted.

VoIP Nomadic PSAP Boundary Verification:

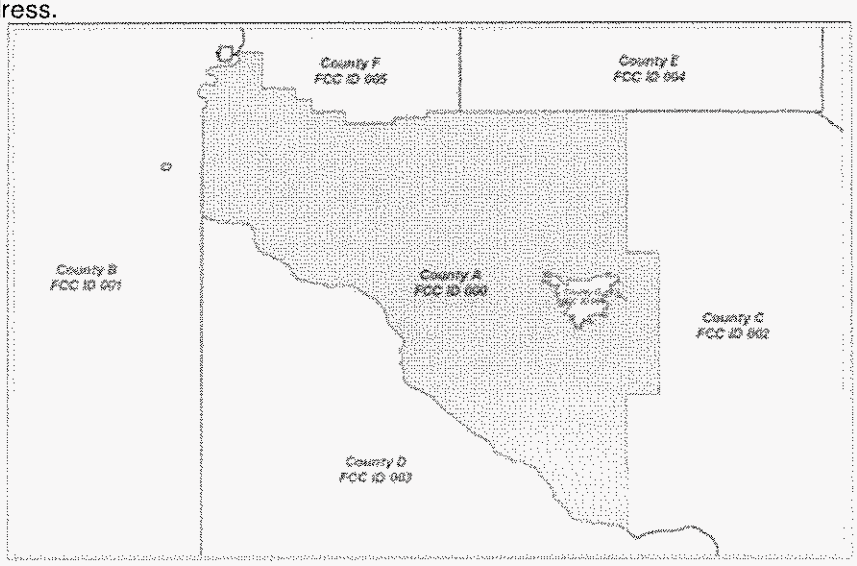
During the initial stages of the Vonage's E9-1-1 deployment, wireless call routing PSAP boundaries will be used unless full E9-1-1 routing elements and access are provided for the implementation. Vonage encourages all Public Safety Answering Points to work with Vonage deployment professionals to develop long term methods to mitigate potential misroutes during the i2 implementation.

A simple description of the present boundary (most fall into county, city, or minor civil district boundary) should be sufficient to verify that the boundary we have on file is current.

If you are going to be making any changes to your PSAP boundary for VoIP we will need the following information from you in order to build a new PSAP boundary in our database.

- A shape file (consisting of at least a .dbf file, a .shp file and a .sbn file).
- Projection – The projection of the data (Stateplane, UTM, etc)
- Datum – (NAD83, NAD27, etc)
- A written description of the contents of the shape file.

Below is an example of the PSAP boundary that will be created from the information you provide. PSAP Boundaries allow us to accurately route calls to the appropriate PSAPs based on caller's address.



Provide your PSAP's 10-digit Conditional Routing Number (CRN):

Please provide us with a 10-digit CRN for alternative call delivery to your PSAP to be used in the event the system is unable to deliver the call according to the route established by the native 9-1-1 network. This number will be used for this purpose only, and NOT for the general delivery of E9-1-1 calls.

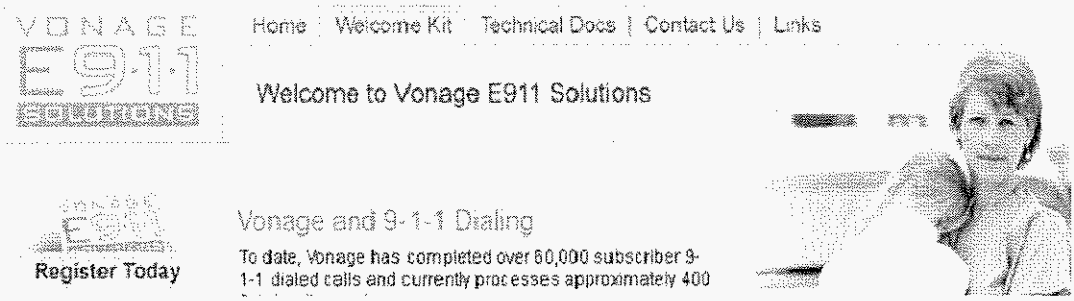
Review the rest of this kit and check out our Website!

To ensure we are able to provide our PSAP partners with the most up-to-date information about Vonage and E9-1-1, we've created a website for PSAPs.

You'll find our website and the following information at this address:

www.vonage.com/PSAPcenter

- Learn more about Vonage and our E9-1-1 plans;
- Contact information;
- FAQs (Frequently Asked Questions);
- Useful VoIP links;
- Electronic copy of our VoIP PSAP Kit;
- White papers, resources and helpful tips;
- ...and more.



VONAGE

E9·1·1

SOLUTIONS

For more information visit www.vonage.com/PSAPcenter

Table of Contents

About Vonage and E9-1-1 3

- E9-1-1 Nationwide Rollout
- 9-1-1 Dialing (Present Interim Solution)
- Customer Enforcement and Notification
- "Safety Net" 9-1-1 Call Center
- Successful E9-1-1 Deployments

Frequently Asked Questions about VoIP Deployment 5

- VoIP
- FCC Order
- Surcharge
- VoIP E9-1-1 Call Flow Diagram
- Caller Location Information
- MSAG, ESNs, Trunks
- PSAP Preparation
- E9-1-1 Network and NOC
- Resources

Vonage Public Safety Statements 12

VoIP Deployment Glossary 13

- Terms and Definitions

Appendix A. State Addendum 15

About Vonage

Vonage is the leading provider of broadband phone service. Vonage subscribers have access to an affordable alternative to traditional telephone service for everyday consumers and small business calling. With its nomadic features and capabilities, the Vonage footprint encompasses more than 125 North American Markets and its subscribers make more than 5 million calls per week. Vonage is headquartered in Edison, New Jersey.

The following is an overview of Vonage's past, present and future 9-1-1 capabilities and deployment activities.

Vonage and Enhanced 9-1-1

Vonage is in the process of a nationwide rollout of E9-1-1 service. As an important step to providing E9-1-1, Vonage is working with entities that manage, maintain and provide various 911 elements such as ALI database and MSAG to ensure full connection and the integration of VoIP elements into the Selective Router (SR) along with the routing of Automatic Location Information (ALI) and Automatic Number Identification (ANI) through industry leading VoIP Position Centers (VPCs) that will route E9-1-1 calls to the appropriate PSAP.

As Vonage rolls out full i2 E9-1-1 capabilities, the PSAP community is asked to review the Vonage checklist to avoid potential delays in receiving VoIP calls through the native 9-1-1 system.

Vonage and "911 Dialing"

To date, Vonage has completed over 60,000 subscriber 9-1-1 dialed calls and processes approximately 400 9-1-1 calls per day. With the exception of a few localities these calls have been processed under NENA's i1 description.

In compliance with the Federal Communications Commission (FCC) Report and Order 05-116, Vonage has notified customers that their address and phone number are not automatically provided to the PSAP and that a customer must be prepared to provide this information when calling 9-1-1.

Under previous conditions and to be phased out under FCC Order and Vonage's rollout, Vonage implemented 911 Dialing as a temporary solution compliant with NENA's i1-description to provide some level of 9-1-1 to subscribers as quickly as possible. Under this temporary solution, Vonage subscribers that have activated 911 Dialing provide Vonage with a self- provisioned address to route 9-1-1 calls to a 10-digit emergency access number at the Public Safety Answering Point (PSAP).

Vonage 9-1-1 Subscriber Enforcement and Customer Notification

To encourage Vonage customers to provide complete subscriber information for emergency calling, new Vonage subscribers are unable to sign up for service unless they

provide complete emergency location information as well as acknowledge current Vonage 9-1-1 Dialing capabilities.

To further ensure that all Vonage subscribers understand their 9-1-1 service capabilities, Vonage launched an aggressive effort to contact each and every customer through multiple communication channels, requiring them to visit the Vonage website, read and acknowledge 9-1-1 disclosures. While a large majority of subscribers have done so, as a last resort Vonage has made provisions to temporarily disable calling services until a 9-1-1 disclosure is read and acknowledged. In the event service is temporarily limited in full calling capabilities or is flagged for operational or technical concerns, and the user dials 9-1-1, Vonage's "Safety-Net" 9-1-1 Call Center will process the call

Vonage is committed to 9-1-1 and believes customer education and outreach is a vital aspect of our 9-1-1 rollout. As Vonage makes future advancements in 9-1-1 capabilities, and service, customer education and outreach will continue to be a top priority.

Vonage "Safety-Net" 9-1-1 Call Center

In the event a customer cannot connect directly to the PSAP through Vonage's 9-1-1 Dialing or 10-digit emergency routing, or has an address that is not valid or not provisioned, calls are sent to a national 24x7x365 Vonage Safety-Net Call Center for re-routing to a proper emergency authority.

Using call center methods adopted by telematics providers and alarm companies, a Vonage Safety Net 9-1-1 call is received by APCO-certified agents who collect the caller's call back number, address and other relevant emergency information and transfer the call to the appropriate PSAP or first responder available.

Successful E9-1-1 Deployments

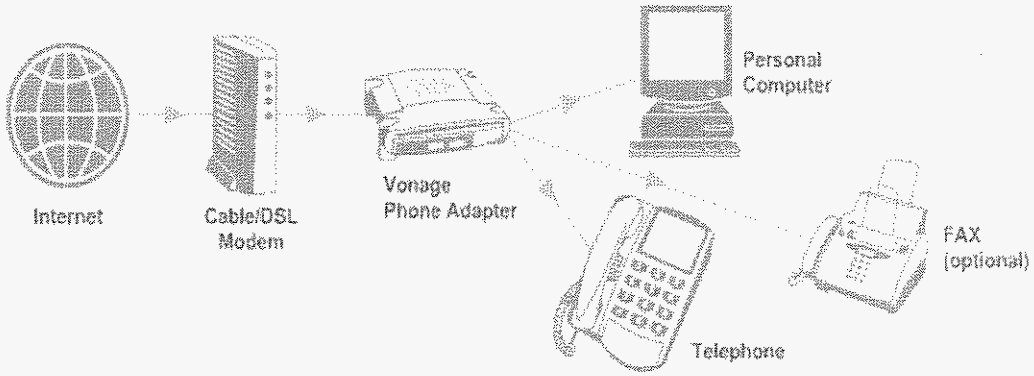
Vonage presently offers E9-1-1 in New York City and Rhode Island and plans to complete deployment of the Vonage i2 solution to all PSAPs in the Vonage footprint.

VoIP E9-1-1 Frequently Asked Questions for PSAPs

The following are frequently asked questions about VoIP and E9-1-1 deployments. Additional questions and answers can be found at: www.vonage.com/PSAPcenter.

What is VoIP?

Voice over Internet Protocol (VoIP) is a technology that allows people to place local and long-distance calls over an IP network like the Internet. VoIP providers convert voice calls into packets of data that zip through a high-speed Internet connection just like email. When received, the data is re-packeted for an end-user application like a traditional phone call.



VoIP service is expected to grow rapidly in the coming years as it allows a consumer the option to move his or her phone from one location to another as long as broadband connectivity is available.

The technology is also attractive to customers because they can typically receive local and long-distance phone service and other telephony features such as voice mail, caller identification and call waiting for far less than they pay for traditional wired phone service. Utilizing information technology capabilities and convergence, VoIP also allows for a number of additional features not available on traditional wired phone service.

What has the Federal Communications Commission (FCC) said about VoIP E9-1-1 Services?

Given the far reaching capabilities, opportunity for greater consumer choice, and the numerous applications being developed for VoIP, the FCC has been generally supportive of the technology and its potential in the communications marketplace. Supporting future developments in VoIP, the FCC has issued several Reports and Orders that recognize federal authority over VoIP, including emergency communications response capabilities.

On May 19, 2005, the FCC released Report and Order 05-116, which established rules for implementing VoIP E9-1-1 service and established VoIP provider obligations in deploying emergency services. The Order requires two-way interconnected VoIP providers to deploy E9-1-1 service using the native 9-1-1 network to all Enhanced Public

Safety Answering Points (PSAPs) by November 29, 2005 (120 days after the effective date of the Order).

The entire Order, including Commission statements, can be viewed at the FCC's website at: www.fcc.gov/voip

Do I have to submit a request to a VoIP provider to receive E9-1-1 calls in my PSAP?

As stated in the FCC Order, PSAPs are not required to request E9-1-1 service from VoIP providers; rather it is the obligation of the provider to interconnect to the native 9-1-1 network. Vonage is proactively working with PSAPs and other 9-1-1 entities to complete the deployment of E9-1-1 service where Vonage service is available.

A Vonage deployment professional will follow up to begin deployment activities within 3 weeks of receipt of this kit. Please refer to the attached deployment checklist for further information on how your PSAP can assist Vonage in the deployment of E9-1-1.

Will Vonage pay E9-1-1 surcharges?

Vonage is an active 9-1-1 supporter and is committed to contributing to the greater safety and security of our subscribers and the thousands of communities we serve. In achieving emergency calling capabilities Vonage further recognizes the 9-1-1 partnership of States, public safety agencies and E9-1-1 systems.

Because the Vonage solution is nomadic (unlike current Cable, DSL or existing ILEC wireline capabilities that pay local surcharges) and the nature of the connectivity to the native 9-1-1 system is often associated with wireless methods for E9-1-1 deployment including Selective Routing (SR), E9-1-1 steering of Automatic Location Information (ALI) and Automatic Number Identification (ANI) information including pseudo- ANI (p-ANI access), the service most closely resembles a wireless E9-1-1 deployment and phone call.

These unique characteristics as well as Vonage's commitment and the FCC's Order for ubiquitous E9-1-1 service require a uniform E9-1-1 surcharge for our customers. Vonage is seeking to establish E9-1-1 surcharge equivalents for E9-1-1 calling for Vonage subscribers and VoIP connectivity.

To learn more about Vonage surcharge conditions and thresholds visit: www.vonage.com/PSAPcenter

How will VoIP E9-1-1 calls reach my PSAP?

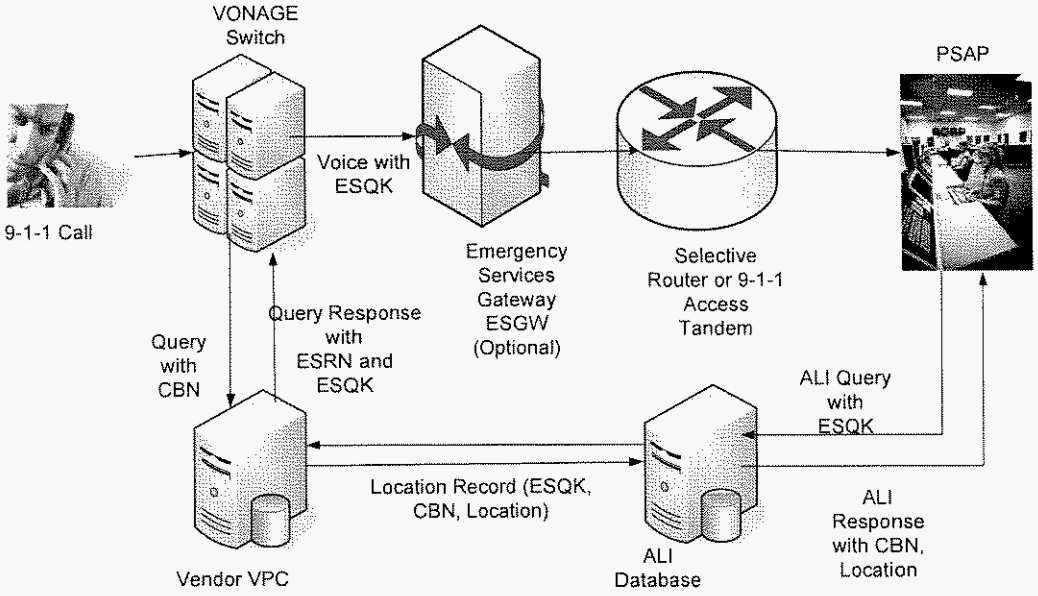
An E9-1-1 call placed using VoIP service will be routed to the PSAP serving the subscriber's self-identified address using a pseudo Automatic Number identification (pANI) referred to for VoIP as an ESQK (Emergency Service Query Key).

The ESQK is used to:

- Route the call to the appropriate PSAP
- Relay the Automatic Location Information (ALI) query to the appropriate third-party ALI database

The Vonage i2 compliant solution will provide operators with the callback number and subscriber provided location information for their customers who dial 9-1-1.

Vonage E9-1-1 Call Flow Diagram

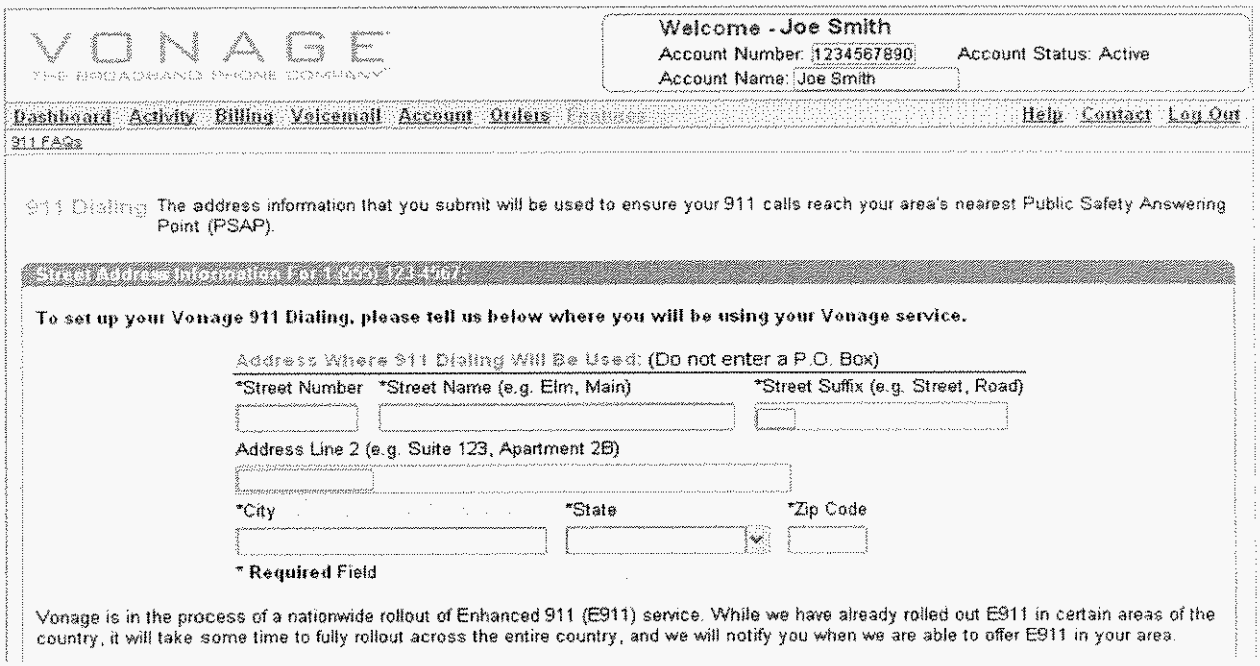


VONAGE

Proprietary and Confidential

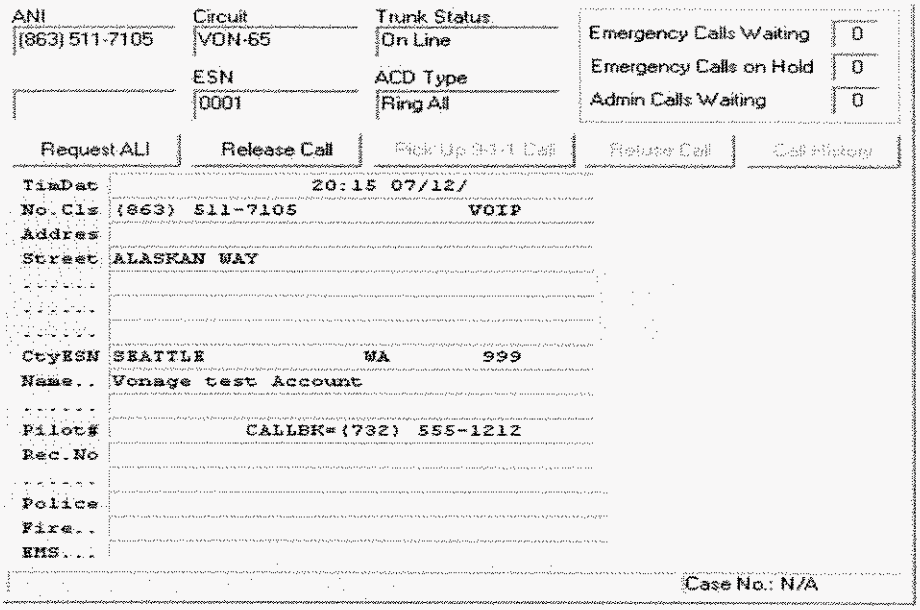
What type of caller location information can I expect to see at my PSAP?

The location information displayed at your PSAP will be the customer's self-identified address as provided to Vonage at the time of service sign-up and voluntarily updated when the customer changes locations.



Is there a special Class of Services (COS) for VoIP?

Many ALI providers and LECs are working to create a new class of services just for VoIP. The current COS capability for your PSAP is dependent on your LEC and ALI interface type (E2, PAM, etc). If the VoIP COS is not yet available, we will work with you to determine an area on your PSAP screen that can be used to designate our calls as VoIP.



This PSAP screen is an example only. Your specific display will vary based on CPE equipment, ALI display and LEC.

Are there any special upgrades I need in order to receive E9-1-1 calls from Vonage?

If your PSAP has access to dynamic data update for E9-1-1 calls, there should not be any additional upgrades required. Please review the Deployment Checklist in this kit for a complete list of requirements for VoIP readiness.

Do I need a new MSAG ledger update and ESN for VoIP?

Vonage recommends that you contact the vendor that manages your MSAG (most often your Local Exchange Carrier) upon receipt of this kit to create a VoIP MSAG entry, which will allow us to build VoIP Shell Records with associated ESQKs for your PSAP in the ALI database. These shell records will be used to deliver VoIP caller location information to your PSAP much the same way as wireless call processing.

Below is an example of the format for this VoIP MSAG:

Street Name: VOIP 9-1-1 Caller
Community: *(your PSAP name)*
ESN: _____

Vonage will be using ESNs for routing purposes and only a single ESN per PSAP is required. This ESN can be the same as that currently used for Wireless E9-1-1.

Do I need new trunks for VoIP calls?

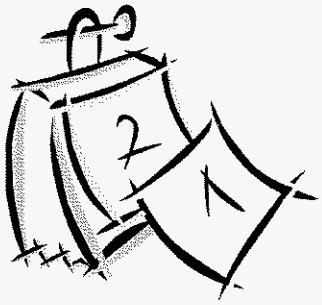
No additional trunks should be required for VoIP calls. The ESN assigned will provide the routing for the Selective Router.

What can I start doing now to get ready to take E9-1-1 calls from Vonage?

- Review the Deployment Checklist in this kit.
- Submit a request to your 9-1-1 SSP for a VoIP MSAG so that it will be ready to provide our VoIP E9-1-1 Deployment team.

If you have additional questions that have not been addressed here, please visit the website we've created for PSAPs at www.vonage.com/PSAPcenter.

When will my PSAP begin receiving VoIP E9-1-1 calls from Vonage?



In the upcoming weeks and months, Vonage will be adding to our current capabilities and begin rolling out our E9-1-1 service to PSAPs across our footprint. Vonage commits to do everything it can to meet the FCC's 120-day deadline. This full scale deployment requires a number of milestones to be achieved, including interconnection, routing capabilities and validation of other 9-1-1 elements. A Vonage deployment professional will be contacting you to schedule completion of deployment and testing.

What happens once my PSAP is "live" with VoIP E9-1-1?

We will send you a recommended "VoIP Standard Operating Procedure" document which will provide you with additional information once your deployment is complete. In addition, we will constantly be adding helpful tips and contact information to our website: www.vonage.com/PSAPcenter

What kind of E9-1-1 networks does Vonage have?

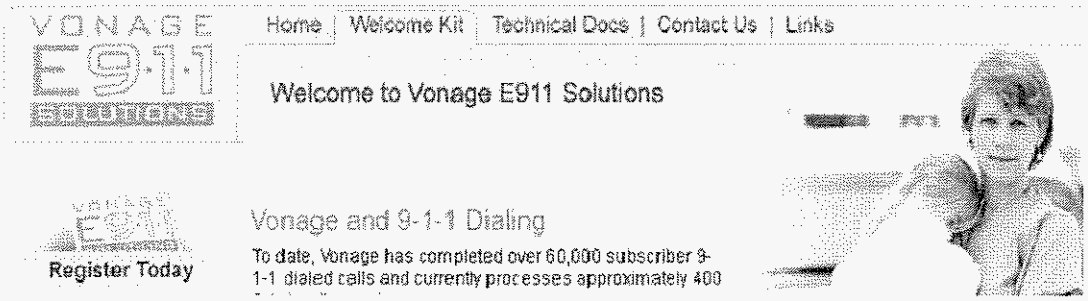
Vonage and the many VoIP E9-1-1 vendor partners under contract maintain carrier-grade networks and datacenters specifically designed to be redundant and built to ensure uninterrupted E9-1-1 call processing. Network Operations Centers (NOC) staffed 24x7x365 monitor all system and network activity and will be available for PSAP assistance or troubleshooting.

What E9-1-1 professionals are assisting Vonage in this deployment effort?

Vonage has partnered with the E9-1-1 deployment professionals at TeleCommunication Systems, Inc. (TCS) to assist in this enormous effort. With extensive experience in wireless carrier E9-1-1 deployments, TCS will be responsible for various project management functions in the Vonage deployment.

What other resources has Vonage created to help PSAPs?

Vonage has created a PSAP website, which can be found at www.vonage.com/PSAPcenter. If you have additional questions, you can contact us directly via this site.



Vonage Commits to 120-day Time Frame to Launch Enhanced 9-1-1 Capabilities and a Stronger Partnership with the 9-1-1 Community

Vonage Chairman and CEO Supports Stronger Partnership with the National Emergency Number Association (NENA) and the 9-1-1 Community

STATEMENT BY Vonage Chairman and CEO, Jeffery A. Citron
In the upcoming weeks and months, Vonage will be rolling out Enhanced 9-1-1 services across our footprint. This enormous undertaking will rely upon our successful partnership between Vonage, network service providers, third-party technology vendors and, most importantly, public safety. In order to provide our customers the best emergency services available we are extending our commitment to the public safety community to create a true partnership that will meet this end through cooperation, collaboration and coordination.

Vonage requests the assistance and guidance of the public safety community for the following initiatives:

Connection to 9-1-1 Selective Routers

Vonage needs access to over 750 selective routers scattered throughout the United States as quickly as possible. As an important first step in providing full E9-1-1 service, Vonage is encouraging all 9-1-1 leaders to work with 9-1-1 System Service Providers (SSPs) to ensure full connection and the integration of IP elements into the Selective Router (SR).

Access to p-ANI and Other vital E9-1-1 Elements

Using the wireless model for 9-1-1 access, Vonage is seeking appropriate pseudo-Automatic Number Information (p-ANI) and other vital elements to better facilitate the translation of IP-based callers into the traditional 9-1-1 system. We are asking the public safety community to get involved in this important discussion by meeting with the FCC and their 9-1-1 System Service Providers to ensure a consistent numbering scheme is implemented nationwide.

Proper Routing

To ensure consistent routing of 9-1-1 calls, Vonage is asking 9-1-1 leaders to be vigilant in alerting Vonage and its vendors of database errors and/or routing challenges as they arise.

About Vonage 9-1-1

Vonage brings together a dedicated team of 9-1-1 professionals and experts in technical, operational and policy leadership. The company has committed to deploying E9-1-1 within the 120-day timeframe mandated by the FCC order. The first full scale E9-1-1 deployment is slated for July 2005 in New York City. In addition to deploying E9-1-1 as quickly as possible, Vonage has brought a 24x7 call center online as an additional safety net for customers who have not activated our basic emergency services.

Vonage looks forward to a successful year and long partnership with the 9-1-1 community to work together to resolve issues related to the current IP solution, and on the joint development of the next generations of 9-1-1 services. To this end, Vonage will be creating web, email and phone support systems to interface with the PSAP community and NENA.

FOR MORE INFORMATION:
Stephen Seitz, Vonage, Vice President of 911 Regulatory Affairs 848-248-1809
John Cummings, Vice President of 911 Systems 848-248-9616

VoIP Glossary*

This is a glossary of VoIP terms for PSAPs. Not all of the terms are used in this PSAP Kit.

Term	Definition
ALI	Automatic location Identification: A database that relates a specific telephone number (TN) to an address. This database accepts a PSAP query with a TN and responds with an address. In the case of an ESQK, the ALI database steers the query to the appropriate VPC and steers the response back to the PSAP. An ALI is typically owned by a LEC or a PSAP.
ANI	Automatic number identification: Telephone number associated with the access line from which a call originates.
CBN	Callback number. The VoIP subscriber's telephone number.
CRN	Contingency routing number. A 10-digit, 7x24 PSAP emergency telephone number. Used for fallback routing if a call cannot be routed through the selective router to the PSAP.
ESGW	Emergency services gateway. A component, residing in the VoIP service provider's network, responsible for integrating the SIP network with the emergency services network and routing 9-1-1 calls to the appropriate selective router, based on the ESRN/ESQK it receives from the regional call server or the 9-1-1 call server.
ESQK	Emergency services query key. A digit string that uniquely identifies an ongoing emergency services call and is used to correlate the emergency services call with the associated data messages. It may also identify an emergency services zone and may be used to route the call through the network. Similar to an ESRK in wireless E9-1-1 networks.
ESN	An ESN is a three to five digit number representing a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, or Emergency Service Zone (ESZ). The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper service agency (ies).
ESRN	Emergency services routing number. A 10-digit number that specifies the selective router to be used to route a call.
First responder	Police, fire, or medical resource who is dispatched to handle 9-1-1 calls and deliver emergency services.
I2	NENA defined VoIP E9-1-1 solution. I2 routes VoIP calls into the current E9-1-1 systems and to the correct PSAP with correct ANI and ALI. I2 accommodates both stationary and nomadic users and provides MSAG valid location information and provides a method for nomadic user location either through an automated process or user input via a service prompted web based form or equivalent. Intended migratory path from i1.
I3	NENA defined VoIP phase E9-1-1 solution. Also referred to as Long Term, Next Generation 9-1-1 Enables end to end IP based E9-1-1 design, supporting VoIP originated call delivery and the transition of current wireline and wireless service providers to IP interface technology. Support IP mobility users, and all capabilities of I2. Utilizes extended capabilities of IP to provide location and other information with the call, as well as other sub-sets of relevant
LEC	A Telecommunications Carrier (TC) under the state/local Public Utilities Act that provide local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).

Term	Definition
Mobile subscriber	A subscriber who uses a wireless device that can be in motion during the call. Wireless Fidelity (WiFi) VoIP is expected to eventually allow the end user to take a home-based telephony connection and roam within an interconnected wireless network, much as cellular technologies allow today.
MSAG	Master street address guide. An MSAG ledger is used by a municipality to assign a particular police, fire, or rescue agency to a given street and number range.
Nomadic subscriber	A subscriber who uses a device that is static during a call but does not have a static IP address assigned to it. Nomadic subscribers use Internet Service Provider (ISP) VoIP, which allows the end user to establish a telecommunications connection wherever he or she can obtain an Internet-based connection to her ISP provider.
PSAP	Public safety answering point. A PSAP is the endpoint of an emergency services call. PSAPs are responsible for answering emergency services calls (as defined in TIA J-STD-036).
SIP	Session Initiation Protocol. SIP is the IP-based protocol defined in IETF RFCs 3261 and 2543. SIP is one of two dominant messaging protocols used by the VoIP industry.
S/R	Selective Router. The node in the emergency services network that performs enhanced call routing for 9-1-1 calls. Usually operated by the LEC.
VoIP	Voice over Internet Protocol. VoIP is a system for providing telephone service over the Internet.
VoIP provider	A generic term to describe a company that provides VoIP call services. Some VoIP providers provide direct service to the consumer (VoIP service providers). Others provide backbone and PSTN access services (VoIP carriers). Still others provide ESGW (ESGW operators). Some VoIP providers provide more than one of these services.
VPC	VoIP positioning center. The application that determines the appropriate PSAP, based on the VoIP subscriber's position, returns associated routing instructions to the VoIP network, and provides the caller's location and the callback number to the PSAP through the ALI.

*This glossary was created with supporting content provided by the NENA Master Glossary of 9-1-1 terms. The complete glossary can be found at:
http://www.nena.org/9-1 1TechStandards/Standards_PDF/Master%20Glossary.pdf

VoIP 9-1-1 State Information

State-specific information was not available at time of printing.

Please check our PSAP website for the most current information provided by your State and Local 9-1-1 leaders.