NENA Video Relay Service & IP Relay Service PSAP Interaction Information Document

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Prepared by:
National Emergency Number Association (NENA) Accessibility Committee, VRS – IP Relay PSAP Interaction Working Group

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The National Emergency Number Association (NENA) Accessibility Committee, VRS – IP Relay PSAP Interaction Working Group developed this document.

NENA recognizes the following industry experts and their companies for their contributions in development of this document.

Executive Board Approval Date: 06/27/2015

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1 Executive Overview

This NENA Video Relay Service (VRS) and Internet Protocol Relay Service (IP Relay) PSAP Interaction Information Document is intended to provide guidelines for PSAPs and recommendations to the FCC regarding:

- Emergency calls to 9-1-1 via Video Relay and IP Relay Services (or similar third party entity)
- Effective relay of such calls to the appropriate Public Safety Answering Point (PSAP)
- Interaction between the caller, the Communication Assistants (CAs) and the PSAP Telecommunicators

The original VRS and IP Relay Services PSAP Interaction Operations Information Document disseminated in 2008 has become outdated. The updated document incorporates lessons learned, updated regulatory information affecting VRS and IP Relay Services, and suggestions for long and short-term improvements as well as important considerations. The intent is to assist all parties involved in emergency communication necessitating the involvement of third parties to become more seamless and successful.

New technology offers many communication options, which individuals who are deaf, deaf-blind, and hard of hearing and individuals with speech disabilities enjoy along with the general public. Many people have migrated from traditional TTY to Internet based telecommunications, and have terminated landline telephone services altogether. Just as many in the general population rely solely on mobile telephony, individuals who are deaf, deaf-blind, hard of hearing or have a speech disability often rely exclusively on Internet based (Video Relay and/or IP Relay) services for communication access.¹

It is important to keep in mind that prior to the inception of VRS & IP relay services (which began emerging in 2002) people with hearing and speech disabilities were generally limited to communicating via TTYs connected to landlines. With the advent of VRS & IP relay, people began to use their antiquated TTYs less, both for point to point and relay calling purposes. Now, many have made the transition to mobile and internet-based telephony (just as their hearing peers have) and have terminated their landline services, assuming that relay service providers are accessible for emergency calling. In the early days of the industry, prior to the Ten Digit Numbering (TDN) requirements, relay providers were not equipped to connect 9-1-1 calls. Although providers cautioned customers and encouraged them to continue to use their TTY for 9-1-1, consumers still called 9-1-1 through VRS or IP relay service. CAs, faced with a person in crisis, attempted to connect callers with the correct emergency provider even though the system infrastructure was not stable or ready. Due to the obvious need for Internet relay services to be accessible for 9-1-1 calls, the FCC eventually established the current set of requirements.

¹ The focus of this document is on Internet-based modalities and therefore does not include a discussion of PSTN-based captioned telephone.
Voice over Internet Protocol (VoIP) telephony is generally chock full of challenges for the emergency services industry. These challenges are further complicated when adding the nature of relayed calls – involving a third party (and sometimes a fourth) in the call flow. Developing uniform operational guidelines for PSAPs and offering recommendations for relay or other third party providers, along with suggestions for the FCC, is very important.

**Purposes and Scope of Document**

This NENA Video Relay Service and IP Relay Service PSAP Interaction Information Document is intended to provide an understanding of current practices within Video and IP Relay Call Centers and examine how those practices function with PSAPs. We hope this document serves as a guideline to assist PSAPs in maintaining and improving practices and protocols leading to effective communications with persons who are deaf, hard of hearing, deaf-blind and speech impaired. This document is also intended to benefit the Relay industry and governing bodies that seek to improve 9-1-1 access.

As all documents of this nature, this Information Document and subsequent SOPs will be dynamic in nature and need periodic updating.

As the industry and governing bodies look to Next Generation 9-1-1 (NG9-1-1) environments, we further hope this document will serve as an outline of current and future needs and suggestions. Not only do we encourage prompt adoption of the thoughtful and thorough recommendations included, but we also trust that ultimately, users of videophones, wireless devices, and/or Internet-based telephony will be able to access 9-1-1 services directly without requiring an intermediary.

## 2 Introduction

### 2.1 Operations Impacts Summary

This NENA Video Relay Service and IP Relay Service PSAP Interaction Information Document is intended to provide guidelines for PSAPS related to:

- Emergency calls placed via Video Relay and IP Relay services
- The timely Relay (comparable to non-relay calls) of such calls to the appropriate Public Safety Answering Points
- Interaction between call originators, the relay VI/CA, any third parties and the PSAP Telecommunicators.

### 2.2 Technical Impacts Summary

Some of the recommendations contained herein, if implemented, may reduce the amount of time required for efficient handling of Video Relay and IP Relay calls made to 9-1-1.

### 2.3 Security Impacts Summary

VRS and IP Relay services using IP networks are subject to security threats. IP networks were developed to foster connectivity but did not necessarily contain all the requirements to facilitate
security without additional mechanisms. IP multimedia services are an easy target because they are based on IP networks that are inherently insecure. IP was also developed to be flexible, so there are many types of services today that have been built on top of IP over time.

This document discusses VRS and IP Relay in the context of delivering calls to E9-1-1 using NENA i2 based routing services. IP connectivity exists between the caller and the relay service, between the relay service and a VoIP Positioning Center (VPC) and between the VPC and the Emergency Services Gateway (ESGW). (See VRS Emergency Call Flow Chart on page 26) Each of these services are vulnerable to attack and observation, and each needs to be protected. The following are recommended:

1) Each signaling connection should be authenticated (RSA-2048), integrity protected (ideally SHA-256) and encrypted (AES), typically “hop by hop”.

2) Where SIP is deployed for signaling, TLS connections, using “sips:” URIs should be used, or in some cases, IPsec connections between proxy servers.

3) For the media (video and audio) use SRTP, with appropriate keying methods sent over (encrypted) signaling. DTLS-SRTP is preferred, and SDES is acceptable.

4) Credentials should be assigned and distributed to assure that the call path is directed to the correct VRS or IP Relay service provider, VPC or ESGW even if Man In the Middle or impersonation attacks are attempted. Username and password based authentication of users is not considered sufficient by itself and full public key based authentication should be used between subscribers and the VRS system.

5) Denial of Service attacks can be directed at VPCs or VRS and IP Relay services, and appropriate strategies commonly applied by the IP and VoIP industries should be available to mitigate impacts to PSAPs.

The NENA 75-001 security document contains additional information useful to all participants and should be consulted when implementing 9-1-1 for VRS and IP Relay services.

2.4 Document Terminology

The terms "shall", "must", "mandatory", and "required" are used throughout this document to indicate normative requirements and to differentiate from those parameters that are recommendations. Recommendations are identified by the words "should", "may", "desirable" or "preferable".

2.5 Reason for Issue/Reissue

NENA reserves the right to modify this document. Upon revision, the reason(s) will be provided in the table below.

<table>
<thead>
<tr>
<th>Doc #</th>
<th>Approval Date</th>
<th>Reason For Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>52-502</td>
<td>02/12/2008</td>
<td>Initial Document</td>
</tr>
<tr>
<td>NENA-INF-013.2-2015</td>
<td>06/27/2015</td>
<td>Information became obsolete due to new regulations and emerging technology</td>
</tr>
</tbody>
</table>
2.6 Recommendation for Additional Development Work

The recommendations offered herein are meant to serve as suggestions for model operating procedures for the call-taking function within PSAPs. It is hoped this model will be shared with and adopted by relay providers (or other pertinent third party providers). Certainly we all agree that persons who have hearing or speech disabilities are no different from any other citizens in their desire to have quick, effective communication with the appropriate emergency services during their time of need.

2.7 Date Compliance

All systems that are associated with the 9-1-1 process shall be designed and engineered to ensure that no detrimental, or other noticeable impact of any kind, will occur as a result of a date/time change up to 30 years subsequent to the manufacture of the system. This shall include embedded application(s), computer-based or any other type application.

2.8 Anticipated Timeline

This document contains several potential systemic improvement recommendations. Depending upon which (if any) recommendations are implemented, varying timelines will be applicable. Generally, the recommendations are easily achievable within a 6 to 12 month time period.

2.9 Cost Factors

The cost of implementing the protocols recommended herein would be borne by each entity adopting them. Initially, most cost will be largely related to training personnel. However, as other migratory and long-term technological solutions are introduced to achieve wire line equivalence, there may well be costs associated. It is not the function of this document to predict such costs.

2.10 Cost Recovery Considerations

Normal business practices shall be assumed to be the cost recovery mechanism.

2.11 Additional Impacts (non-cost related)

The information or requirements contained in this NENA document are expected to have the following impacts, based on the analysis of the authoring group. At the date of publication of this document, development had not started. The primary impacts are expected to include:

1) More reliable and timely emergency connectivity between call originators and PSAPs.

2) Improved quality of communication between callers and PSAPs (more functionally equivalent service provision).

3) Speed of answer closer to that experienced by the general population.

4) Telecommunicators will better understand the procedures and the importance of the service to relay consumers and this understanding will enable them to respond more efficiently and effectively.

5) CA anxiety about handling emergency calls will be reduced and confidence in call handling ability will be enhanced.
6) Instead of randomly assigning calls to any CA, those handling 9-1-1 calls will meet established minimum standards, providing for pre-approved, fully vetted CAs who meet the qualification and training requirements for emergency call handling as outlined in Section 6.3.

7) Understanding actual time required to connect relay customers to the appropriate PSAP will allow service levels to come closer to functional equivalence to emergency calls from the general population. Answer time information gathered can be used to assist in the development of technical and operational guidelines (pre-NG9-1-1) leading to significantly shorter connect times and ultimately the emergency assistance needed when connecting through relay or another third party.

8) Reduction of safety concerns for both the caller and law enforcement in situations where the caller communicates something that contradicts what the interpreter sees on the screen.

9) CAs involved in handling highly emotional or tragic emergency experiences will be assured that they can readily access at least three (3) one-hour counseling sessions with the provider of their choice as well as at least one (1) short-term counseling session with a company Employee Assistance Programs (EAPs) offering on-site or short-term counseling and/or referral services to help employees deal with any resulting issues.

10) Consumers will become familiar with how the 9-1-1 system works, and what the proper role of CAs and PSAP Telecommunicators are, as well as how they relate to the help being sought in their emergency situation. Having an understanding of these factors will save precious time.

2.12 Intellectual Property Rights Policy

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202-466-4911
or commleadership@nena.org
2.13 Acronyms/Abbreviations, Terms and Definitions

See NENA-ADM-000, NENA Master Glossary of 9-1-1 Terminology, located on the NENA web site for a complete listing of terms used in NENA documents. All acronyms used in this document are listed below, along with any new or updated terms and definitions.

<table>
<thead>
<tr>
<th>Term</th>
<th>Acronym/Abbreviation</th>
<th>Definition / Description</th>
<th>**New (N) / Update (U)</th>
</tr>
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<tbody>
<tr>
<td>Alternate Emergency Access Number</td>
<td>AEAN</td>
<td>A 10-digit unlisted number, answered on a 24/7 basis, used to receive VoIP calls until these calls can be delivered to the selective router serving the PSAP. After E9-1-1 implementation, these lines should only be used for specific routing circumstances (as defined in NENA VoIP Deployment and Operational Guidelines OID, 56-504, section 3.7.3 Default, Overflow and Alternate Routing). It can also be utilized to receive misrouted calls from other PSAPs not within the selective routing service area, operator assisted emergency calls, default-routed wireless calls, calls routed to the PSAP via private call centers, and calls relayed from telecommunications relay services. Caller identification should be included as an option.</td>
<td></td>
</tr>
<tr>
<td>American Sign Language</td>
<td>ASL</td>
<td>The reference to “ASL gloss” is when American Sign language is communicated through typing – as on a TTY – and many of the visual elements crucial to clear communications are lost. American Sign Language is a visual-spatial language based on hand shape, position, movement, and orientation of the hands in relation to each other and the body accompanied by facial expressions that are equivalent to tone of voice.</td>
<td>U</td>
</tr>
<tr>
<td>Automatic Number Identification</td>
<td>ANI</td>
<td>Telephone number associated with the access line from which a call originates and may be used as the callback number.</td>
<td>U</td>
</tr>
<tr>
<td>Communications Assistant</td>
<td>CA</td>
<td>General term for person who voices text and types speech (IP Relay or TRS) or who interprets ASL conversation between callers (VRS). The term CA supersedes the term “TDD operator”.</td>
<td>N</td>
</tr>
<tr>
<td>Internet Telecommunications Relay Service</td>
<td>iTRS</td>
<td>Generic acronym for all Internet based forms of TRS; refers to a telecommunications relay service (TRS) in which an individual with a hearing or a speech disability connects to a TRS communications assistant using an Internet Protocol-enabled device via the Internet, rather than the public switched telephone network. Internet-</td>
<td>N</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>based TRS</td>
<td>does not include the use of a text telephone (TTY) over an interconnected voice over Internet Protocol service.</td>
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<tr>
<td>IP Relay Service</td>
<td>Internet Protocol Relay-A telecommunications relay service that permits an individual with a hearing or a speech disability to communicate in text using an Internet Protocol-enabled device via the Internet, rather than using a text telephone (TTY) and the public switched telephone network.</td>
<td></td>
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<tr>
<td>Qualified Interpreter</td>
<td>An individual who interprets effectively, accurately, and impartially, both receptively and expressively, between American Sign Language and spoken English. [FCC 47 C.F.R. § 64.604 (a)(1)(iv)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech Disability</td>
<td>Speech disabilities include communications disorders, such as stuttering, impaired articulation, language or a voice impairment, which adversely affect a person’s ability to articulate speech clearly.</td>
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</tbody>
</table>
| Telecommunications Relay Service (TRS)    | Telephone transmission services that provide the ability for individuals who are deaf, hard of hearing or have speech disability to engage in communication by wire or radio with one or more individuals, in a manner that is functionally equivalent to the ability of a hearing individual who does not have a disability to communicate using voice communication services by wire or radio.  
  
  TRS includes services that enable two-way communication between an individual who uses a text telephone or other non-voice terminal device and an individual who does not use speech-to-speech services, video relay services and non-English relay services. |
| Telecommunicator                          | Person employed by a PSAP and/or an EMD Service Provider qualified to answer incoming emergency telephone calls and provide for the appropriate emergency response either directly or through communication with the appropriate PSAP. |
| Text Telephone                            | The original device with handset couplers and a keyboard similar to a typewriter; used for information interchange through transmission of texts using Baudot or ASCII codes via PSTN and Internet. (per EIA PN-1663) |
| Video Interpreter (VI)                    | Video Interpreter is a “qualified interpreter” who signs and interprets between spoken English and visual |

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<table>
<thead>
<tr>
<th>Service</th>
<th>Code</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Video Relay Service</td>
<td>VRS</td>
<td>A telecommunications relay service that allows people with hearing or speech disabilities who use sign language to communicate with voice telephone users through video equipment. The video link allows the CA to view and interpret the party's signed conversation and verbally relay the conversation back and forth with a voice caller.</td>
</tr>
<tr>
<td>Video Remote Interpreting</td>
<td>VRI</td>
<td>A video teleconferencing system that utilizes an off-site virtual Sign Language Interpreter to interpret between sign language users and non-sign language users physically in the same room through high-speed internet-based video conferencing equipment.</td>
</tr>
<tr>
<td>Voice Carry Over Relay Service</td>
<td>VCO</td>
<td>A method which utilizes both voice and text or video communications, allowing a person with a hearing disability to speak to the other party and read their responses simultaneously as typed or signed by the CA via a text or video capable device.</td>
</tr>
</tbody>
</table>

### 3 FCC Video & Internet Relay Services General Information & Definition

Historically, Telecommunications Relay Service (TRS) started with calls via landline, over the public switched telephone network (PSTN) while using a TTY/TDD, or in some cases, computers with modems. The relayed calls were expanded to broadband internet which is known as Internet Based Relay Service. This document will focus on Internet based TRS, thus, for the purposes of this document, the term “iTRS” includes:

#### 3.1 Internet-Based Relay Services

Calls placed through an Internet connection to dedicated websites or phone numbers while using a videophone, webcam, text pager, computer, or other internet connected mobile device. Current types of Internet-based relay calls are:

**Internet Protocol (IP) Relay:** Text-based communication using an Internet connection via relay provider’s website; CAs relay typed conversation back and forth between the typing and speaking consumers.

**Wireless IP Relay:** Text-based communication using mobile wireless device such as text devices (i.e. Android, BlackBerry, iPhone, Smart phones, etc.) where consumers connect to a service provider’s website either via a browser link or an application (sometimes provided by the relay company) that then connects to a CA who relays typed conversation back and forth between the typing consumer and the speaking consumer.

**Video Relay:** using a video-based broadband connection (mobile, wireless device, computer or stand-alone), consumers connect to a VRS provider where CAs (who are qualified sign language interpreters) convey signed conversation back and forth between the signing
consumer and speaking consumers. The CA and consumer can see one another. The result is a more natural, spontaneously flowing conversation. Some Video Relay consumers may also use VCO, voicing for themselves, but relying on the CA to convey the speaking party’s words in ASL.

3.2 Communication Assistants – Defined by the FCC

“A person who transliterates or interprets conversation between two or more end users of TRS. CA supersedes the term “TDD operator.” TRS providers are responsible for requiring that all CAs be sufficiently trained to effectively meet the specialized communications needs of individuals with hearing and speech disabilities.

Text - To be considered competent to work in IP Relay the CA must demonstrate competency in “typing, grammar, spelling, interpretation of typewritten ASL, and familiarity with hearing and speech disability cultures, languages and etiquette. CAs must also possess clear and articulate voice communications.

Video - CAs working in VRS centers are often referred to as Video Interpreters (VIs) specifically, but they are generically referred to as CAs who must also be “qualified” interpreters who are able to interpret effectively, accurately and impartially, both receptively and expressively, using any necessary specialized vocabulary.” During VRS calls these CAs are able to see the caller using sign language and relay the conversation between the PSAP Telecommunicator and caller at a natural pace.

4 FCC Regulations for iTRS

In 2008, the Federal Communications Commission (FCC) issued rules governing 9-1-1 emergency call handling requirements for providers of certain Internet-based forms of Telecommunications Relay Services (TRS).

4.1 Mandatory Minimum Standards (MMS) for iTRS

MMS are standards all TRS service providers must meet in order to receive reimbursement from the TRS fund. A partial list of the standards most applicable to the information in this document includes:

a.) Operational Standards (explains basic CAs skill set requirements)
b.) Confidentiality requirements
c.) Types of calls providers must offer
d.) Emergency call handling requirements
e.) Speech-To-Speech expectations

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3 FCC 47 C.F.R. § 64.601 (a)(8)
4 FCC 47 C.F.R. § 64.604 (a)(1)(i) and (ii)
5 FCC 47 C.F.R. § 64.604 (a)(1)(iv)
6 FCC 47 C.F.R.§64.605 Emergency calling requirements.
Most pertinent to the purposes of this document are:

a.) Confidentiality
b.) Emergency call handling requirements and
c.) Speed of answer requirements

4.2 Confidentiality Requirements

All information relayed between the parties on call is kept strictly confidential. Relay Centers do not keep records (audio, video or written) of conversations. Relay calls received by PSAPs, however, are routinely electronically recorded, as is for any other emergency call.

It is important to note that although CAs are not considered participants of relayed calls (regardless of type), they are expected to remain transparent in the process. However, in the FCC Interim Emergency Call Handling Order, the Commission recognizes that in order to provide effective communication during emergency calls, CAs may need to record and temporarily retain caller location, contact information and any other pertinent details provided by the caller that may assist Telecommunicators in providing timely and appropriate services. This information is disposed of shortly after the call is terminated.

In the same Order, it was clarified that “consistent with the Commission’s rules and the Act, a CA may relay background visual and auditory information regarding an ongoing emergency to assist emergency personnel in responding to an emergency VRS call.”

4.2.1 FCC Clarifications to NENA and APCO Request

Allowing a VRS CA to relay visual and auditory information regarding an ongoing emergency to emergency personnel should help protect the safety and lives of VRS users and emergency responders. Thus, with the Commission’s rules and the Act, a CA may relay background visual and auditory information regarding an ongoing emergency to assist emergency personnel in responding to an emergency VRS call.

On October 24, 2008, NENA and APCO filed a request for clarification to the Commission’s rule governing non-disclosure by a CA. The FCC response stated the rules generally prohibit a CA from “intentionally altering a relayed conversation” and from “keeping records of the content of any

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7 FCC 47 C.F.R. §64.604 (a)(2)(i) and FCC’s 47 U.S.C 225(d)(1)(F) and (G)
8 Interim Emergency Call Handling Order, 23 FCC Rcd at 5267, para. 19.
conversation beyond the duration of a call.” They further stated that these provisions are to preserve the content and privacy of the “relayed conversation,” but background visual and auditory information regarding an emergency that a CA may see and hear during a VRS call is not part of the “conversation.” Thus, relaying background visual and auditory information to emergency personnel regarding an ongoing emergency does not contravene the statutory and regulatory protections for “relayed conversations.”

Obviously there are many thorny issues that require not only top sign language interpreters, but also individuals with excellent judgment and integrity, which means certified and qualified. Unfortunately many sign language interpreters who work as CAs are not certified members of the Registry of Interpreters for the Deaf, Inc. (RID), the national professional association representing sign language interpreters. Since 1964 RID has played a leading role in establishing the national standard of quality for interpreters in the United States. RID has developed interpreter certification, a Code of Professional Conduct (CPC) and an Ethical Practices System, which includes a complaint process. The RID Standard Practice Paper on Video Relay Service Interpreting, states, “VRS cannot function without skilled, capable interpreters . . . RID believes that national certification must be the minimum standard for qualification of VRS interpreters.” RID certification and the CPC information can be found at http://www.rid.org.

4.3 Current FCC Regulations for iTRS Emergency Call Handling

CFR §64.605 outlines the FCC Requirements for IP/VRS Providers related to Emergency Calls:

- Implement a system that ensures the provider answers incoming emergency calls before other non-emergency calls.
- Request, at the beginning of each emergency call, the caller's name and location information, unless the TRS provider already has, or has access to a Registered Location for the caller. CAs must verify the callers’ physical location matches what appears on their screen, as obtained from the customers’ original Ten Digit Number –TDN registration in the iTRS database. If the location is confirmed, (theoretically) automated systems then route the call to the appropriate local PSAP 9-1-1 line. If the caller indicates they are not at their registered location (or if the caller is not registered with the iTRS provider they are calling through) the CA then:
  a.) requests the caller’s location,
  b.) manually enters it into another (non-automated) system,
  c.) connects to a third party which locates the appropriate PSAP based on callers’ location and
  d.) connects to the PSAP
- Ensure information obtained, as a result of this section, is limited to that needed to facilitate 9-1-1 services (the CA must protect the confidentiality of Emergency calls not only “regular calls).
- Transmit electronically all 9-1-1 calls, as well as ANI, the caller's Registered Location, the name of the iTRS provider, and the CA's ID number for each call, to the PSAP, that serves the caller's Registered Location and that has been designated for telecommunications carriers pursuant to §64.3001 of this chapter, provided that “all 9-1-1 calls” is defined as “any communication initiated by an VRS or IP Relay user dialing 9-1-1”.

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Route all 9-1-1 calls through the use of ANI and, if necessary, pseudo-ANI, via the dedicated Wireline E9-1-1 Network.

Make the Registered Location (physical address provided by consumer to relay provider when relay provider issues them a TDN [ten digit number]), the name of the iTRS provider and the CA's identification number available to the appropriate PSAP, from or through the appropriate automatic location information (ALI) database.

4.3.1 Relay Responsibility to the PSAP
Utilizing the FCC requirements, the iTRS provider is a key player ensuring the customer’s call to 9-1-1 emergency services is efficiently and effectively processed to minimize delay and provide accurate information.

4.3.1.1 Prioritization of 9-1-1 Calls to their Customer
TRS customers should receive quality 9-1-1 prioritization and handling in an emergency situation that requires police, fire, or medical response. The iTRS call queue system shall incorporate at a minimum the following:

4.3.1.1.1 Prioritization of all Incoming 9-1-1 Calls
The iTRS provider shall consider an incoming 9-1-1 call from a subscriber a priority for relay. The establishment of a system that allows 9-1-1 to be recognized immediately and put to the front of the queue will save precious time and lives. In the Interim Emergency Call Handling Order, the Commission required providers to implement a system to ensure that incoming emergency calls are answered before other non-emergency calls so that an emergency caller does not have to wait in a queue for the next available CA.

4.3.1.1.2 Prioritization of Customer Callbacks
The FCC requires providers to confirm the TDN of the calling party at the beginning of each 9-1-1 call in order to flag the number and make it possible to prioritize any necessary callbacks to that number. Such callbacks may be necessary if callers to 9-1-1 are disconnected, or if the call has ended but emergency responders still need to gather additional information. The Internet-based TRS Order, required CAs to give emergency personnel the caller’s 10-digit number. The rule applies conversely as well - providers must ensure that callbacks from the emergency services personnel to the consumer via the consumer’s 10-digit

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10 See 47 C.F.R. § 64.605(a), adopted in the Interim Emergency Call Handling Order; see also 47 C.F.R. § 64.605(a)(2)(ii) adopted in the Internet-based TRS Order.
11 See 47 C.F.R. § 64.605(a), adopted in the Interim Emergency Call Handling Order.
12 See supra para. 12, note 54
13 See 47 C.F.R. § 64.605(a)(2)(ii), adopted in the Internet-based TRS Order.
number are answered by the provider before non-emergency calls. One drawback to callbacks is the current inability to route return calls to the CA who originally handled the call. Should they need to call back, the person experiencing the emergency is starting completely over with an unaware, new, CA. Conversely, should an emergency service provider need to call back, they would also connect via a completely new CA that was not involved in the original emergency call.

4.3.1.1.3 Immediate Initiation of CA announcement to PSAP
Since there is a high probability of silence during the relayed call, and since a Telecommunicator may be unaccustomed to delay conversation, it is critical for the CA or VI to be trained to immediately announce their identity and purpose to the answering Telecommunicator. If there is a period of silence there is a high risk that the PSAP will assume the caller abandoned the call. The CA’s/VI’s speedy announcement to the PSAP Telecommunicator can eliminate dangerous delays, or redials on the caller’s end. This initiation of an introduction was noted by the FCC CSRIC II 4A Workgroup.

4.3.1.1.4 Standardized Initial Announcement to PSAP
The iTRS providers shall use the following, at a minimum, after the PSAP Telecommunicator answers the phone and then proceed to relay and answer the PSAP questions.

“This is a Video Relay emergency call; I am #ID interpreting for Company”
or
“This is an IP text Relay emergency call; I am #ID interpreting for Company”

4.3.1.1.5 Assistance to Unresponsive Callers
If a 9-1-1 caller becomes unresponsive during the call, the CA may also share any other relevant information observed while connected visually or audibly to the caller’s location as described in 4.3.2.1 iTRS process to relay visual and auditory information. The CA shall inform the PSAP of the status of the situation and follow any specific instructions provided.

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15 FCC CSRIC II WG 4A Best Practices for Reliable 9-1-1 and E9-1-1, Final report dated March 2010. Section 5.6.4.2. Also, the IP/VRS interpreter can incorporate additional operating procedures when relaying a 9-1-1 call and initiate an introduction immediately after the PSAP greeting, before interpreting back to the 9-1-1 caller. http://transition.fcc.gov/pshs/docs/advisory/csrsc/WG-4A-Final-Report.pdf
4.3.1.1.6 Provision of Registered Address

If the caller becomes unresponsive prior to having confirmed their location, the CA shall provide the address information available from the caller’s profile (or alternate location information provided by the caller) to the PSAP.

4.4 iTRS E9-1-1 Deployment using NENA i2

Since the initiation of the January 1, 2009, FCC mandate, very few iTRS providers have successfully interfaced with the E9-1-1 system as originally outlined by the FCC.16

4.4.1 Use of Voice Positioning Centers

The FCC mandates the TRS to provide E9-1-1 service with call back number and location. The NENAi2 deployment utilizing the Voice Positioning Centers (VPC) routing capabilities has provided a way for call centers to integrate their customer data into the existing ANI/ALI format.

4.4.1.1 Example of California E9-1-1 Network Call Types17

The traditional legacy E9-1-1 system originally using only the ILECs and CLECs for fixed locations has expanded to handle wireless and emerging technologies since year 2000. The Wireless E9-1-1 calls entered in 2000, then VoIP in 2005, Call Centers for Telematics in 2007, and Relay Services (iTRS) in 2009. Shown below depicts the current environments as of August 2013.

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16 See FCC E911 Requirements for IP-Enabled Service Providers, III (B): Transmitting Communications Assistant Identification Numbers (CA IDs) via the Automatic Location Information (ALI) Database, Order, DA 09-2389 (Nov 5, 2009). This Order indicates that most iTRS providers experience technical challenges which are barriers to transmitting caller information through E9-1-1 line.

17 http://www.caloes.ca.gov/PublicSafetyCommunicationsSite/Documents/CA911NetworkCallTypesComparison.pdf
4.4.2 iTRS Standard ANI/ALI

The iTRS call centers are part of and are integrated into the VoIP E9-1-1 deployment simply by standardizing the ANI/ALI name field to include the TRS company name and CA Identification number followed by “Relay Customer”. All other elements of the NENAi2 deployment remain constant, including the Class of Service and VPC participants.

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As with any call from a mobile or VoIP caller, if the ALI is queried very soon after the call starts, the “shell record” may be returned by the ALI system rather than the dynamic ALI response from the VPC. That record would not have the TRS company name or CA Identification number. A rebid of ALI may be needed to obtain this information.
4.4.2.1 TRS ANI/ALI Name Field Examples

The ANI/ALI name field standard is a key element so that the PSAP Telecommunicators immediately know that the incoming call will have a need to be handled by the PSAP’s standard operation procedure for relayed calls. Below are three examples showing the company names of Sorenson, Purple, and CSDVRS.19

<table>
<thead>
<tr>
<th>NENAi2 E9-1-1 ANI/ALI Display</th>
<th>NENAi2 E9-1-1 ANI/ALI Display</th>
<th>NENAi2 E9-1-1 ANI/ALI Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorenson using TRDO as VPC</td>
<td>Purple using VIXXI as VPC</td>
<td>CSDVRS using TRDO as VPC</td>
</tr>
<tr>
<td>(###) ###-####  20:31 02/14</td>
<td>(###) ###-####  10:41 01/01</td>
<td>(###) ###-####  17:51 04/30</td>
</tr>
<tr>
<td>CA 130 VOIP SORENSON RELAY CUSTOMER</td>
<td>CA 384 VOIP PURPLE RELAY CUSTOMER</td>
<td>C HTS CA 159 VOIP CSDVRS Relay Customer</td>
</tr>
<tr>
<td>(925) 211-0244</td>
<td>(951) 211-4431</td>
<td>(916) 211-0172</td>
</tr>
<tr>
<td>TRDO</td>
<td>VIXXI</td>
<td>TRDO</td>
</tr>
<tr>
<td>CONTRA COSTA FIRE - EAST</td>
<td>MOR VLY PD/CHP-SB</td>
<td>CITRUS HEIGHT PD</td>
</tr>
<tr>
<td>CONTRA COSTA FIRE - EAST</td>
<td>CDF-PER</td>
<td>SAC REG FIRE/EMS</td>
</tr>
<tr>
<td>LAT METERS PERCENT</td>
<td>CDF-PER</td>
<td>LAT METERS PERCENT</td>
</tr>
</tbody>
</table>

4.4.2.2 Example of California NENA i2/IP E9-1-1 ALI Display20

The ALI display Customer Name Field has 32 characters. When a VRS or IP Relay E9-1-1 call is processed through a VPC using NENAi2, the interface shall provision the ‘Company Name’ RELAY CUSTOMER in the name field. This will assist the Telecommunicator as well as reduce potential abandoned calls if there is silence as noted by the FCC CSRIC II WG 4A Best Practices for Reliable 9-1-1 and E9-1-1.21


20 http://www.caloes.ca.gov/PublicSafetyCommunicationsSite/Documents/CAVoIPE9-1-1i2ALIDisplay.pdf

21 FCC CSRIC II WG 4A Best Practices for Reliable 9-1-1 and E9-1-1, Final report dated March 2010. Section 5.6.4.2 “VSP (IP/VRS) ALI Data – Issue/Gap: For VSP (IP/VRS) calls, the ALI shall include an indication that a relay call is incoming to the PSAP. During the initial translation delays of a relay call, the call taker may hear silence and hang up on the caller resulting in the caller to call back. WG 4A recognizes a need to update or create applicable documents to
4.4.3 iTRS E9-1-1 Service Benefits using NENA i2

4.4.3.1 Reliability and Security for iTRS

Sending relayed calls to a PSAP via 10-digit number is not as effective, or reliable, or as secure, as managed iTRS service call centers using NENAi2. Calls through non-emergency line are not answered at the same level of priority thus resulting in delayed provision of emergency services needed.

promote best practices and educate VSPs (IP/VRS). The BP could be based on this example; In the existing ALI subscriber name field, the IP/VRS company along with “Relay Caller” can be used to alert the PSAP call taker to initiate the appropriate SOP for handling relay calls along with expecting translation delays. This improves the reliably of handling the call by not mistaking it for an abandoned call. [http://transition.fcc.gov/pshs/docs/advisory/csric/WG-4A-Final-Report.pdf](http://transition.fcc.gov/pshs/docs/advisory/csric/WG-4A-Final-Report.pdf)
4.4.3.2 Routing and Automatic Rerouting to the PSAP
iTRS deployed as E911 using NENAi2 and future NENAi3 are being routed within the 911 system to the correct PSAP based upon location. Also, these E911 and NG911 calls have the ability to automatically reroute if the PSAP is placed in an alternate answer mode.

4.4.3.3 ANI/ALI Display Information at the PSAP
iTRS deployed within the E9-1-1 system send the ANI/ALI data to the PSAP for advanced notification if it is a “Relay Customer” as well as the ability to eliminate mishaps when the VI provides information to the PSAP Telecommunicator for numbers and street names.

5 NENA PSAP 9-1-1 Call Handling Guidelines
According to the NENA Call Answering Standard/Model Recommendation Document 56-005, the individuals who serve in the nation’s 9-1-1 Centers (PSAPs) are trained to understand the protocols and the potential experiences they will face before serving as a Telecommunicator. They are each given explicit directions on how to best handle the wide variety of emergency calls that come to them which are listed below.

5.1 Call Talking Protocols for PSAPs
All 9-1-1 Emergency lines will be answered, “(city or county) 9-1-1 with a question according to each PSAP’s SOP.”

For non-emergency lines, the answering agency should be clearly identified to the caller. Example: County Dispatch, Operator Number_____” or “Agency name, may I help you?”

When non-emergency calls are received on emergency lines the Telecommunicator will advise the caller that they have reached an emergency line and will direct the caller to a non-emergency line. It is not recommended that the call be transferred to an administrative line, since that may tie up the 9-1-1 trunks.

5.2 Standard Call AnsweringPriorities and Speed of Answer Guidelines
All phone calls will be answered in order of priority.

- 1st priority - 9-1-1 and emergency 7/10 digit phone lines;
- 2nd priority - non-emergency lines;
- 3rd priority - administrative and/or internal phone lines

In some circumstances, 9-1-1 calls are being routed via a manual call center, which subsequently routes the call to a 10-digit number at the PSAP. This should only occur in extenuating circumstances, see Section 6.5.

*Note: Due to contract agreement between iTRS Providers and Voice over Internet Protocol (VoIP) Positioning Center (VPC), incoming iTRS calls are often routed to non 9-1-1 line.
Speed of Answer Standard for voice calls to 9-1-1: 90% of all calls answered within 10 seconds and during the busy hour, 95% of all calls answered within 20 seconds.\footnote{NENA 56-005, Section 3.1, Standard for Answering 9-1-1 Calls.}

5.3 Typical Call Procedures for PSAPs Directly Receiving Call

A. The basic information Telecommunicators ask from callers is as follows:
   1. Location of emergency
   2. Nature of emergency
   3. Caller’s call back number

B. Telecommunicator follows the agency’s established SOP for standard call handling protocols, assesses call to determine type of services needed.

C. If PSAP does not serve callers’ location:
   1. Telecommunicator transfers call to appropriate PSAP, if possible; or
   2. Telecommunicator explains to caller “this is the wrong emergency provider location; I cannot transfer this call. Please hang up and dial xxx-xxx-xxxx.”

6 Working Group Recommendations and Rationales

6.1 Minimum Training Standards for Telecommunicators

Establish minimum training standards for Telecommunicators that include:

- Basic ADA information (why we have TRS)
- How ASL is a visual, not written language and the variety of communication modalities used by relay consumers
- CAs’ role as interpreters
- Differences between Video and IP Relay Services
- Difference between VRS and Video Remote Interpreting
- VRS/IP Relay call handling protocols, policies, procedures, and situations
- Standards and protocols of FCC, NENA, RID, and iTRS Providers
- Controlling calls - responsibilities and procedures (see NENA Call Answering Standard Model Recommendation Doc 56-005, \url{http://www.nena.org/?page=911CallAnswerStnd}
- Speech-to-Speech Relay Services (STS)

**Rationale** - Telecommunicators must be required to take training that will help them understand policies, procedures and the importance of the service to relay consumers. Although they may be generally familiar with TTYs and/or iTRS, training is still imperative to assure emergency communication enables speedy and effective responses.
6.2 Minimum Training Standards for CAs (or Other Applicable Third Party Entities) Handling Relayed Emergency Communication

Establish required minimum training and include, at a minimum, the following:

- Basic 9-1-1, E9-1-1 & IP Relay/VRS system histories, legal mandates, goals, roles and responsibilities of each group and how they fit into the overall system
- Top 3 elements to every 9-1-1 call: 1) Location, 2) nature of incident, and 3) getting a call back number.
- Call handling protocols, policies, procedures, and situations PSAPs follow
- Standards and protocols of FCC, NENA, RID, and Relay Providers
- Critical Incident Stress Management (CISM)
- Special situations and how to handle them (suicide, confessions, children)
- Strategies and techniques coping with job related stress and self-care
- Issues with radio functionality in PSAPs and First Responders
- Functions of an emergency center’s administrative phone line
- What the PSAP Telecommunicator sees on their display (mapping, caller information, etc.)
- Handling regional signs, signs for names & locations
- Speak word by word or translate to English while reading text messages from the caller

Rationale – Currently CAs are not sufficiently and adequately trained before being expected to handle emergency calls. CAs must be required to take introductory and continuing education classes CAs must be required to attend refresher courses regarding relay calls at least every 6 months. RID certified interpreters who work as CAs have stated they feel nervous about receiving emergency calls due to the infrequency of this type of call compared to the more routine type of calls they receive as well as a lack of consistently provided training on how to handle emergency calls.

6.3 Recommendation: Establish Minimum Qualification for All VRS CAs Handling iTRS 9-1-1 Calls. Minimum qualifications include, but are not limited to:

- Current, valid National Association of the Deaf (NAD) or RID certification
- 5 years or more community interpreting experience (consisting of at least 2 or more years of law enforcement and/or medical emergency interpreting services),
- At least 1000 documented hours of VRS call handling experience.
- Thoroughly trained, (just as a PSAP Telecommunicator is trained), in 9-1-1 protocols and competency testing at least every 6 months.

Rationale - All providers currently route calls to the “next available CA,” regardless of the skill or experience levels. To date, many providers hire VRS CAs who have not obtained national certification and who may have no community-related experience. It is imperative for those handling 9-1-1 calls to meet established minimum standards.

6.4 Require Skills-based Routing: iTRS to Route Calls Based Upon Pre-defined CA Skills

Rationale - Ensures all 9-1-1 calls are routed to pre-approved and fully vetted CAs who meet the qualification and training requirements for handling emergency calls.
6.5 Investigate Connection Process Between Relay Services and PSAP

There are reports of many 9-1-1 calls from iTRS users being answered by a manual call center, hired to match their TDN with the correct PSAP. The third party PSAP locator subsequently routes the call to a non-9-1-1 10-digit number at the correct PSAP. Even though this should ONLY occur on a failure, or when the caller reports they are not at their self-registered location, it happens more often than not. Extensive testing is needed to understand how often calls are handled by the manual call centers, and why.

It is recommended that the process of connection between relay services and PSAP be further investigated. Relayed calls are not direct calls into PSAPs (they go via a third party hired to map to the closest PSAP), relay calls arrive via non-9-1-1 lines such as alarm, 10-digit emergency, non-emergency, business or administrative lines instead of 9-1-1 lines, which is a serious FCC violation. The result is caller information (ANI/ALI) does not populate on the Telecommunicators’ screen nor do calls present as priority calls. PSAPs are not obliged to give the same level of service to calls not presenting through 9-1-1 lines as those which do. This is a safety issue that needs to be fully understood and addressed as soon as possible.

Rationale - Currently there is only anecdotal information available. The FCC or other entity must perform non-biased systemic testing to verify weaknesses in the current system. Based on findings, reasonable 9-1-1 connection standards should be established to assure the safety of all. Understanding actual time required to connect relay customers to the appropriate PSAP will allow service levels to come closer to functional equivalence to emergency calls from the general population. Answer time information gathered can also be used to assist in the development of technical and operational guidelines (pre-NG9-1-1) leading to significantly shorter connect times and ultimately the emergency assistance needed when connecting through relay or another third party.

6.6 Speed of Answer Requirements for 9-1-1 Calls Via Third Party Relay Service

The current distinction between the NENA standards, (requiring 90% of all emergency calls be answered within 10 seconds)\(^{23}\) and FCC regulations requiring iTRS providers to respond to 85% of all calls (not specifically emergency calls) within 60 seconds are inconsistent and unsafe.

It is recommended that all iTRS providers, including connection to PSAPs should answer emergency calls within 10 seconds. These calls should be answered by emergency-call trained CAs and Telecommunicators 95% of the time. Providers should answer all emergency calls within 10 seconds 99% of the time.

Current FCC regulations require relay providers to prioritize and to accept emergency calls. There are sparse requirements as to the speed and skill with which these calls are to be answered and handled. Service level discrepancies are found in the contracts relay providers have with third party

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23 NENA 56-005, Section 3.1, Standard for Answering 9-1-1 Calls.
“numbering partners”. Some have more automated responses than do others. Some rely solely on human intervention – which causes dangerous delays in call processing. Utilizing their company specific equipment, platforms, personnel and approaches, providers are satisfying the letter of the law according to the relay company’s interpretations of the regulations. Providers achieve the required priority routing of emergency calls by sending 9-1-1 calls to the ‘next available’ CA, (regardless of qualifications, experience with emergency calls or specialized training).

Clearly it is easier to achieve the speed of answer standard providing VRS compared to IP or traditional relay services since IP and TRS relay answer times are measured on a daily basis and VRS answer time is averaged over a month. IP Relay is required to answer in 10 seconds and VRS in 60 seconds, a significant and dangerous difference.

The time required for a VRS CA to connect a caller to the correct PSAP is an unknown quantity. It is not a measurable piece of data the way the current system is set up. Having a system that is not able to track service levels such as connect time is unacceptable and unsafe.

Rationale: The public has been taught to believe calling 9-1-1 will result in immediate help. Individuals who are deaf, deaf-blind, hard-of-hearing or have speech disabilities also trust that their 9-1-1 call responses will be immediate. This concept is also in keeping with the concept of functional equivalence.

There are concerns regarding implications of the current rules and the absence of ANY requirements that specifically relate to speed of answer for incoming 9-1-1 calls. There is also no requirement regarding how long relay providers have to connect a 9-1-1 call to the callers’ correct PSAP. The problem in this situation is that a relayed 9-1-1 call actually goes through two different networks in order to reach the PSAP.

The following diagram illustrates two different ways to reach a PSAP. The top call flow is automatically routed to the PSAP while the bottom call flow is manual, which means the caller will connects to a live agent working at the VPC before being connected to the correct PSAP.

Emergency Call Flow using VoIP E9-1-1 Linkages

<table>
<thead>
<tr>
<th>Caller</th>
<th>Relay Service</th>
<th>VPC</th>
<th>ESGW</th>
<th>Selective Router</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Relay Center (pre-registers users, or updates info to VPC during call)
VPC - VoIP Positioning Center
ESGW - Emergency Services Gateway
Exacerbating the relay and PSAP connection issue is the fact that many relay providers have contracted with third party vendors (known as VoIP Positioning Center or VPC) that provide 9-1-1 routing services. These vendors, in turn, use manual call centers with live operators who read from approved scripts. Some of these manual call centers announce themselves to the relay consumer as “9-1-1”, leading consumers to believe that they ARE talking to 9-1-1 Telecommunicators. Some manual call centers have also asked callers which type of assistance (police, fire, ambulance) is needed. Others report having been asked for the zip code of the emergency location.

The main purpose of any 9-1-1 call is to reach the correct PSAP as quickly as possible. Manual call centers and CAs should not ask callers what type of assistance is needed. It is the responsibility of the PSAP Telecommunicator to assess the call and to send the appropriate assistance. This is a critical training issue.

6.7 Delivery of Location Information
Some callers may not know the address of the emergency location especially if they are calling from a mobile device. The caller, however, may be able to give the city/state, state or a nearby landmark. It is not known if the VPC will be able to route the call to the appropriate or nearest PSAP without the exact address. Furthermore, it is unclear whether or not it is the responsibility of the CA to take information about the surroundings and attempt to figure out the caller’s location from that.

In addition, there may be confusion to consumers if questions about the emergency location are repeatedly asked by both the CA and the VPC agent. Consumers are unsure who they are talking to -- the 9-1-1 Telecommunicator? the CA? Another middle person? They have no idea they are actually talking to a contracted third party VPC prior to connecting to the PSAP! By adding another step to this already cumbersome process, precious time is wasted and consumers do not realize what is going on since many providers say their call routing systems are totally automated, when in practice, they are not. There is currently no penalty invoked upon providers who do not provide clear warnings to consumers nor any incentive for providers to automate the routing of emergency calls.

Language differences are yet another concern - some ASL users may not be savvy enough or may be too upset to provide discernible location information. Some ASL users may use local or home signs that are a challenge for interpreters. Sometimes CAs may try to get location information prior to connecting to an appropriate PSAP.

Having iTRS providers to retrieve location information from the callers’ mobile device would be beneficial so it can be electronically transmitted to an appropriate PSAP in a timely manner. Automation would save precious time to callers, CAs and VPC agents.

Rationale: Regulations require that the location of the caller be obtained from a self-reported address entered by the user prior to any emergency call. For calls from fixed devices, this location should always be used to route the call and will report the location via the ALI. Requesting location by ASL, or, worse, verbally from an emergency call center by the CA, delays the call arriving at the correct PSAP and the location being available to the PSAP telecommunicator as soon as it otherwise would have been.
Mobile devices often have accurate location information too - usually more accurate than the self reporting database, since consumers rarely update the self-reported location of their mobile devices. It is desirable for the device to report its location automatically on a 9-1-1 call, and for that location to be used to route the call and be reported via the ALI. Current regulations may limit what is possible, but there are no applications which would report the location and current VPCs do not accept location data in the signaling, despite standards which provide the mechanism for that.

Recommendations:

- Regulations should be clarified to allow device location reporting.
- Applications should be upgraded to report location.
- The interface between relay providers and the VPC should be upgraded to allow location reporting in the call signaling per the available standards.
- Penalties should be assessed on relay providers whose calls use emergency call centers to route calls in conditions other than extraordinary failures.

The unfortunate widespread use of emergency call centers on VRS 9-1-1 calls is fraught with difficulty. Calls are delayed while CAs obtain location information from caller and report it to the call center; the call center provides it to the PSAP. Callers are confused as to who they are talking to. The caller may be unaware of exactly where they are, which is no different from hearing callers and is the reason for the Enhanced 9-1-1 system in the first place. Language differences and the inevitable stress of an emergency may inhibit the ability of the caller to provide an accurate location. These intermediary emergency call centers should ONLY be used when some kind of error condition is detected and the automatic routing fails.

6.8 Establish and Require Standard Disconnect Protocols for PSAPs and Relay or other Third Party Providers

The following are situations which can occur, but for which there are no established call handling requirements for:

6.8.1 Caller Hangs Up after reaching CA but before connecting to PSAP

Relay providers are required to instruct CAs to follow the same protocol as 9-1-1 Telecommunicators in the event of a hang up. This protocol generally includes:

a) using any available information to contact the correct PSAP directly and then attempting to facilitate a call back between PSAP and original caller

b) no additional attempts to re-contact the caller will be made, if, after the first attempt the originators’ phone number is busy or does not answer.

c) no message will be left and the CA will provide as much information to PSAP as possible regarding location of caller as is available if a callback attempt goes to video or text mail.
Currently this is handled in various ways amongst relay providers. One specific method should be prescribed and expected by consumers. Most providers say they will contact the PSAP, provide information they have and leave it in the hands of the PSAP.

6.8.2 CA connection to the Telecommunicators is dropped, leaving CA connected only to caller

All CAs should attempt to re-dial PSAP; however, the PSAP protocol is also to call back immediately.

**Rationale:** If the PSAP tries to call the caller, the caller’s number will have busy signal because the caller is on the line with CA. The CA will call again to reconnect to the same PSAP even though it will reach a different Telecommunicator. It is suggested that Telecommunicators should be trained to wait for the CA to call back. In this situation the CA and the Caller are connected and the Telecommunicator has been dropped. The Telecommunicator whose relayed call is dropped is encouraged to inform co-workers to transfer the call to that person if they receive a call.

6.8.3 Call Back and Prioritization for Methods for Reconnection through VRS/IP Relay

It has been demonstrated repeatedly that a callback, or lack thereof, during an emergency call can mean the difference between life and death. It is imperative that Telecommunicators obtain the caller's 10-digit telephone number that the caller is calling from. The callers’ number will be entered into Providers' system as a "priority" number. Should the caller be disconnected, their number (for incoming or outgoing calls) will be flagged as a priority number. (There is not a standard length of time Providers prioritize) A PSAP calling that number back will go to the front of the queue. Conversely, a callback from that number to a PSAP, which would be treated as a new 9-1-1 call, will also get priority.

It is strongly recommended that these processes by codified in order to provide a standard VRS/IP relay users may expect from all providers. 24

6.8.4 Retention of 9-1-1 Relay Call Data for PSAPs

Because of the importance of quick action in the face of an ongoing emergency, VRS Providers should retain an authenticated record of any relayed 9-1-1 call as an interim solution until technology allows for PSAPs to record and retain all VRS calls. iTRS call centers should maintain 9-1-1 caller recorded logs of text and video that could be retrieved by PSAPs for exigent circumstances. The FCC CSRIC II 4A Working Group highlights that there should be basic standards for PSAPs to retrieve 9-1-1 caller data from relay services. 25

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24 Second Internet-based TRS Order, 24 FCC Rcd at 798-99, para. 15 (“Therefore, we again remind providers that they must ensure not only that incoming 911 calls are prioritized, but also that callbacks from the emergency services personnel to the consumer via the consumer’s 10-digit number are answered by the provider before non-emergency calls.”)

6.8.5 iTRS E9-1-1 Data Retention Time
FCC ruling indicates that iTRS shall retain call data for immediate access for at least 30 minutes after an emergency call has terminated for the sole purpose of providing that information to emergency personnel should they call back. Once a caller places a call to 9-1-1 either directly or indirectly, the caller has given up the right to privacy; therefore, iTRS shall retain call data after an emergency call has terminated. After that time, it is recommended that iTRS retain call data for a minimum of 14 days for a PSAP to obtain an authenticated file of the recorded information if requested.

6.8.6 iTRS PSAP Data Request
iTRS shall provide a method for PSAP to request data expeditiously under an exigent circumstance for immediate assistance. For follow up data requests from the PSAP, the iTRS shall provide a form or on-line request and process information for the PSAP to receive information.

6.8.7 Retention of IP Relay Text
If the message is text, the full data log of each message sent and received along with a universal accurate time stamp shall be made available to the PSAP.

6.8.8 Retention of Video and Audio
If the message is video and audio, the full data log of each message sent and received along with a universal accurate time stamp shall be made available to the PSAP.

6.9 Visual and Audio Cues
Providers should develop potential ways CAs could cue Telecommunicators about visual and audio information they see or hear when the caller is unable to express due to their life being in danger or being incapacitated by someone visible or audible.

Rationale: There are concerns for the safety of both the caller and law enforcement in situations where the caller communicates something that contradicts what the interpreter sees on the screen. For an example: The caller has a gun to her/his head. The Telecommunicator asks if there is any weapon. Knowing that the attacker can understand signs, the fearful caller answers, “No”. Should the interpreter follow the caller’s word or not? If the interpreter says yes, there may be a chance that the person could lip-read the interpreter and then shoot the caller. Additionally there is a safety concern for first responders who come into a dangerous situation without warning.

Potential Remedies:

Improvement Act of 2008. Data and Service Reliability Areas In Need of Attention. Item 6) VSP (IP/VRS) caller data

• Issue/Gap: For VSP (IP/VRS) there should be basic standards for PSAPs to retrieve 9-1-1 caller data from relay service. The existing privacy interpreter FCC regulations do not address the fact that a caller gives up some privacy rights when calling 9-1-1.”

a) The assisting interpreter (who is not visible on screen) calls PSAP directly and informs them of the situation.
b) The Supervisor is informed of the situation and calls the PSAP to inform them of the situation.
c) Form a task force of CAs to make suggestions.

6.10 Support for CAs
All CAs receiving and handling 9-1-1 emergency calls must be supported through mandated training, onsite or outside counseling, teaming protocols (standards regarding availability of teaming, replacements, regular and emergency work breaks), and thorough training on how to cope with trauma.

Rationale: All individuals who handle 9-1-1 calls face the possibility of life and death situations on a daily basis. Recognizing the serious nature of the calls, it is imperative that CAs be provided not only the same training as PSAP Telecommunicators, but also the same level of personal support and assistance they are offered. Should CAs be involved in a highly emotional or tragic experience, providers need to ensure these employees can readily access Employee Assistance Programs (EAPs), offering short-term and long-term counseling and/or referral services. In order to help employees deal with any problems arising from vicarious or direct trauma as a result of handling a 9-1-1 call, providers must also offer short and long term care.

6.11 Establishment of Media Communication Line Service Call Center(s)
In order to effectively provide equal access 9-1-1 services to all people using videophone technology, the establishment of multiple Media Communication Line Service (MCLS) call centers, which will include multi-video conferencing for redundancy, is recommended to ensure connection to any PSAP in a single call.

The FCC Emergency Access Advisory Committee (EAAC) has developed the Recommendations on Current 9-1-1 and Next Generation 9-1-1: Media Communication Line Services Used to Ensure Effective Communication with Callers with Disabilities document.26 That document provides assistance in the development of the MCLS as part of the migration to the national Internet Protocol-enabled emergency network known as Next Generation 9-1-1 (NG9-1-1) which is a matter of long-term national policy. The MCLS is a Translation Service to assist callers with disabilities and Telecommunicators using video, voice, text and data during 9-1-1 calls where different communication modalities (such as sign language, lip-reading, speech to speech, text, and others) are being used simultaneously.27

In order to provide effective 9-1-1 services, the following recommendations include:

27 id. at 4.
a.) Establishment of MCLS as a separate entity – that operates a system of at least three (3) MCLS Call Centers (in different geographic regions in order to allow for redundancy) to handle all emergency calls only.
   1) VIs and CAs to be qualified and thoroughly trained including but not limited to recommendations in Section 6.2
b.) Requirement for MCLS call centers to record and retain all calls in accordance with State and local PSAPs’ policies and procedures until the NG9-1-1 is deployed
c.) Enforcement of any rules that may be adopted are consistent with these recommendations
d.) FCC, DOJ, DOT, and other appropriate federal agencies, along with stakeholders, to develop appropriate steps to expedite any regulatory changes needed to adopt the recommended solutions for transition to stand-alone MCLS in the NG9-1-1 environment. Current regulatory review must include:
   1) Policies, procedures and practices between callers and PSAPs
   2) System redundancy
   3) Contingency and back-up plan
   4) Call-back procedures
   5) Qualification of VIs and CAs for handling emergency calls via relay services
   6) Training requirements for CAs including varying communication methods to accommodate needs of callers
   7) Certification criteria for MCLS call centers
e.) Requirement for VRS/IP Providers to have their service compatible with recommended guideline as set forth in National Emergency Number Association (NENA) Specification for i3 Solution in order to forward all 9-1-1 calls to an MCLS call center as soon as technically possible.
f.) Collaborate with relay service providers and MCLS provider or administrator to develop interim recording and retention policy for relayed calls in accordance with State, county, and city PSAPs’ policies and procedures.

6.12 Mandate Consumer Education

Consumer Education should be conducted by non-biased third parties (not relay providers) to include at a minimum:

28 We note that in June 2013 the Commission released a Report and Order and Further Notice of Proposed Rulemaking (FNPRM) adopting a comprehensive set of new rules to improve VRS. In the accompanying FNPRM, the Commission sought comment on whether the Commission should transfer the VRS emergency call handling obligation to a single VRS contractor through a complete bidding process. The Commission also sought further information about EAAC’s recommendation for Media Communications Line Service such as how this service would interface with VRS and other forms of TRS. Structure and Practices of the Video Relay Service Program, Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, CG Docket Nos. 10-51 and 03-123, Report and Order and Further Notice of Proposed Rulemaking, FCC 13-82, at paragraphs 256-260 (rel. June 10, 2013).
• A thorough explanation of the 9-1-1 system and the risks associated with internet, VoIP and wireless connections in the event of an emergency (weak or absent signal; absence of location information, etc.)
• Limitations of current technology and the nature of relay call that involves lag time.
• CA roles and limitations during emergency calls
• Implied consent (you give up your right to privacy) when you call 9-1-1

Rationale: Many consumers are not familiar with how the system works, the proper role of the CAs and PSAP Telecommunicators, or how they relate to the help being sought in their emergency situation. iTRS callers may be tempted to explain their emergency to the first person who communicates with them, losing precious time when, in fact, they need to be connected to the PSAP to get the help they need.

6.13 Video Remote Interpreting Services
According to FCC ruling, when the call between caller and 9-1-1 is completed, the VRS call is also terminated. Some VRS providers, at their sole discretion, continue to provide Video Remote Interpreting (VRI) service between the caller and first responders on site. This is considered a VRI call and is not billable or reimbursable by the VRS fund. First Responders as part of a government entity must comply with the Title II of the ADA to provide immediate communication access via the VRI. Government agencies must consider setting aside funds to provide this type of access to on-site emergency personnel.

7 Outstanding Issues
The operational guidelines/recommendations in this Information Document identify policy issues and potential barriers which need further attention and possible changes in federal regulations, particularly those of the FCC and U.S. Department of Justice (DOJ). Issues include:

1. To date, there are very few requirements or standards regarding how 9-1-1 relay calls must be handled, with one exception – the clarification, cited above, which addresses what visual information a CA can relay to the 9-1-1 Telecommunicator. Although there may be similarities, each relay provider has variances in call handling procedures as well as training.

2. There are no FCC mandates regarding answer time requirements for emergency calls as compared to answer time requirements for standard calls.

There are two general mandates regarding the thresholds for call response time. However, there are currently no requirements that apply specifically to emergency calls other than emergency calls must be prioritized:
• IP Relay required speed of answer-85% of all calls within 10 seconds, measured on daily basis.
• VRS required speed of answer-80% of all calls within 60 seconds, measured on a monthly basis.\(^{29}\)

Providers, therefore, have each established routing protocols that send emergency calls to their first available CA in order to comply with FCC requirements to prioritize emergency calls.

Call Recognition alert CAs to incoming 9-1-1 calls. Generally, workstations have on-screen announcements enhanced with brightly colored 9-1-1 display notifications and/or special ring tones.

3. Lack of regulations that mandate iTRS to implement technology capable of automatically passing the caller’s information from Relay Service Provider to the PSAP. (Third party system currently used by iTRS providers to locate PSAPS lengthens the PSAP connection time greatly)

4. Warning labels or stickers on customer-premise equipment as is currently required for VoIP equipment, reminding consumers of limitations, loss of power, service issues with moving – and the importance of keeping registered location current.

5. Uniform standard operating procedure mandated for iTRS Providers to employ when handling misuse of priority 9-1-1 by consumers. Currently in the event of a 9-1-1 Prank call, the protocol for a PSAP is to call back the suspected prank caller and to treat the call as a real emergency until proven otherwise. The called party is questioned to determine if further action is needed or a response is required. iTRS Providers have no protocol.

6. With implementation and conversion to NG9-1-1 technology, video conferencing equipment must be required and installed in all PSAPs to allow multi-way video conference calls between the caller, Telecommunicators, interpreting provider, and others as needed.

7. Research on the extent that GPS (Global Positioning Systems) might help the PSAPs determine caller’s location.\(^{30}\) Beneficial for all users of wireless devices.

8. Research on iTRS 9-1-1 call recording capabilities to include playback in video, in text & audio format. This will be an interim solution only until PSAPs are able to complete this function.

9. iTRS Double Interpretation Condition

\(^{29}\) 47 CFR § 64.604(b)(2)(iii)(2)
iTRS performs a key element of not only translating ASL and text, but also possible foreign language words. The complexity of double interpretation is greatly increased as more customers use iTRS. iTRS specializing in foreign languages could focus services where they would be best utilized, especially during a 9-1-1 call to expedite call handling.

iTRS services that utilize 10-digit numbers for relaying 9-1-1 emergency calls do not receive priority 9-1-1 trunk call answering, do not have the location and call back information displayed, and do not have the ability to automatically alternate route if a PSAP is not open or available. Deployments outside the E9-1-1 system are critically inheriting risks of delay due to manual routing, potential wrong 10-digit number, data misinterpretation, no ANI/ALI display, and the inability to transfer the call to a secondary PSAP with the ANI/ALI screen.

10. ALI Display with Latitude/Longitude
As iTRS customers adopt mobile devices and applications for video and IP text relay service, the existing NENAI2 deployment can accommodate populating latitude and longitude information. This deployment method is already working for the Telematics call centers for vehicle E9-1-1 calls. The ALI display would simply show the latitude/longitude data in the PSAP ALI display fields instead of populating the house number and street name fields.

11. VRS Spanish Language Services
When a VRS caller uses Spanish as their primary language, the call will reach the first available Spanish VI based on the caller profile; however, the caller’s profile indicating language preference is bypassed and is connected to the first available VI during 9-1-1 call. Communication breakdown arises between the caller, VI and Spanish Telecommunicator due to language barrier. VI may not know Spanish language to facilitate communication between the caller and Spanish Telecommunicator.

8 Recommended Reading and References


NENA NG9-1-1 System and PSAP Operational Features and Capabilities Requirements, 57-750, http://www.nena.org/?page=Standards

Registry of Interpreters of the Deaf (RID) http://www.rid.org

RID Code of Professional Conduct http://www.rid.org/ethics/code-of-professional-conduct/

FCC https://www.fcc.gov/consumer-governmental-affairs-bureau
## 9 Previous Acknowledgments

NENA 52-502 Executive Board Approval Date, 02/12/2008

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