

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

In the Matter of)
)
Telecommunications Relay Services and)
Speech-to-Speech Services for)
Individuals with Hearing and Speech)
Disabilities)

CG Docket No. 03-123

COMMENTS OF SORENSON COMMUNICATIONS, INC.

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Sorenson Communications, Inc. (“Sorenson”) submits these Comments in response to the Public Notice released in the above-captioned proceeding, in which the Federal Communications Commission (“Commission” or “FCC”) seeks to refresh the record on the feasibility of establishing a global, uniform ten-digit telephone numbering system for Internet-based relay services.¹ The numbering system for Internet-based relay services should include the following elements: (1) users obtain numbers from providers; (2) providers obtain numbers from wholesale providers; and (3) a neutral third party administers a national directory in the form of a static database that associates numbers with uniform resource identifiers (“URIs”). Sorenson supports this approach, which builds on the recommendations of the ATIS Report,² because it

¹ *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, CG Docket No. 03-123, Public Notice, “Consumer & Governmental Affairs Bureau Seeks to Refresh Record on Assigning Internet Protocol (IP)-Based Telecommunications Relay Service (TRS) Users Ten-Digit Telephone Numbers Linked to North American Numbering Plan (NANP) and Related Issues,” DA 08-607 (rel. March 19, 2008).

² See Alliance for Telecommunications Industry Solutions (“ATIS”), ATIS-0300093, “Numbering for Internet-Based Relay Services Report,” at 5-6 (Dec. 19, 2007) (“ATIS Report”),

achieves consumer objectives for numbering, without compromising security and reliability. The success of uniform numbering depends on selecting the right plan, but it also requires identification and resolution of a number of implementation details, in order to maximize the benefit to consumers while also ensuring that the networks remain stable and operational.

I. INTRODUCTION AND SUMMARY

When a hearing person wishes to place a phone call to another hearing person, the calling party simply dials the phone number of the person the caller is trying to reach. Hearing people can also readily communicate their phone numbers to friends and others; print their phone numbers on business cards, résumés, and other documents; and port their phone numbers from one provider to another.

These conveniences – which hearing people take for granted – are not generally available to deaf or hard-of-hearing users of Internet-based relay services. Because those individuals rely on communications applications and equipment designed for use on IP networks, there is no tie-in to traditional telephony systems based on North American Numbering Plan (“NANP”) numbers. Not having access to NANP numbers subjects users of Internet-based relay services to various limitations. For example, it is hard for hearing people to call deaf users of Internet-based relay services, because of the difficulty in ascertaining the network addressing information required to reach those users.

The FCC should act to make it as easy for callers to reach deaf individuals as it is for hearing users to call each other using voice services. Specifically, the Commission should adopt a uniform numbering system for Internet-based relay services that is integrated with the numbering system used for traditional voice services. This system, at a minimum, should satisfy

available at: <<http://www.atis.org/INC/Docs/finaldocs/Numbering-for-Internet-Based-Relay-Services-12-19-07.doc>>.

four key objectives identified by deaf users of video relay service (“VRS”) and IP Relay. First, NANP numbers should be available to users of all Internet-based relay services, including VRS and IP Relay. Second, a hearing caller should be able to reach a deaf relay user by dialing a single, geographically-appropriate NANP number that connects to the deaf user through an interpreter or communications assistant (“CA”). Third, users should be able to use NANP numbers to make point-to-point calls, connecting directly without the involvement of an interpreter or CA. Finally, any numbering solution must facilitate a fully integrated E-911 process that enables location information to be passed automatically to the appropriate public safety access point (“PSAP”).

Although any numbering system adopted by the FCC must meet all four of these objectives, it must also address several additional issues. For example, the numbering solution must be secure and must include protections safeguarding users’ privacy. As a result, there are a number of policy, technical and operational issues that must be addressed in order to implement an effective numbering system.

In these comments, Sorenson discusses the most technically sound way to achieve users’ objectives, while also ensuring the security and confidentiality of the numbering database and protecting users’ privacy. The North American Numbering Council (“NANC”) – a Federal Advisory Committee created to advise the FCC on numbering issues – referred the issue of numbering for Internet-based relay services to the Industry Numbering Committee (“INC”) of ATIS.³ A number of companies, including AT&T, NeuStar, Sorenson, Sprint Nextel and Verizon worked assiduously within the ATIS INC to develop a report on numbering for Internet-based relay services.

³ See ATIS Report at 5-6. ATIS is a technical planning and standards development organization.

The ATIS Report does not contain consensus recommendations on every issue, but it does provide recommendations regarding the acquisition and distribution of numbers, and Sorenson supports those recommendations. Sorenson agrees with the ATIS Report recommendation that relay users should be assigned NANP numbers and should obtain those numbers through relay providers. Sorenson also agrees with the ATIS Report that relay providers should obtain numbers from voice service providers and that the numbering system should include a national directory managed by a neutral third party. Consistent with two of the options discussed in the ATIS report,⁴ Sorenson believes that this national directory should be a static database that associates numbers with URIs.⁵ The dynamic information needed to route calls to end users should be contained in databases maintained by relay providers and other network operators.

In addition, the Commission should adopt consumer protection rules to address confidentiality and other issues that will arise with the implementation of a uniform numbering system for Internet-based relay services. Specifically, the FCC should adopt rules analogous to the customer proprietary network information (“CPNI”)⁶, slamming and number portability rules developed in the voice context.

⁴ ATIS Report at 14-18.

⁵ A URI can be used to provide information identifying a customer, the network on which the customer resides and the protocol used to communicate with the customer’s device.

⁶ The CPNI rules protect the confidentiality of information such as the phone numbers called by a consumer, and the frequency, duration, and timing of such calls.

II. NUMBERING FOR INTERNET-BASED RELAY SERVICES

Sorenson participated in the development of the ATIS report on “Numbering for Internet-Based Relay Services,” and supports the recommendations adopted in that report.⁷ Specifically, the ATIS Report recommends that:

- Relay users be assigned geographic NANP numbers, reflecting their location if desired, which will route to the relay provider of their choice when dialed by a hearing caller.
- Relay users obtain numbers through relay service providers. Additionally, relay users should be able to obtain NANP numbers directly from a voice service provider, or utilize an existing number, if desired.
- Relay providers obtain numbering resources either from voice service providers or, if they choose, by qualifying to obtain resources from the NANP Administrator or the Pooling Administrator under existing guidelines.
- A central database managed by a neutral third party should be employed. The INC examined several alternatives contributed by INC members for how this may be accomplished.⁸

As discussed below, the recommendations of the ATIS Report include a specific proposal for number assignment, and two options for implementing the national directory.⁹ The ATIS Report also explains the types of calls that must be supported,¹⁰ as well as the criteria for ensuring that the third-party database administrator is truly neutral, and other actions necessary to ensure confidentiality and security.

⁷ All relay providers were invited to participate in the ATIS process. *See* ATIS Report at 3-4.

⁸ ATIS Report § 7.0 at 29.

⁹ Several other proposals were presented to ATIS and considered by the participants in the ATIS process. Ultimately, however, only the DNS and NPAC proposals discussed in the final ATIS Report were deemed to provide suitable bases for a numbering solution.

¹⁰ *See, e.g.*, ATIS Report at 6 (discussing hearing-to-deaf, deaf-to-hearing, and point-to-point calls).

A. Assignment of Numbers

The ATIS Report considered two issues related to assignment of numbers: the manner in which end users obtain numbers, and the method by which relay providers obtain numbers.

Assigning numbers to end users. Consistent with the recommendation in the ATIS Report, relay users should obtain numbers from their relay service providers.¹¹ This approach is the same as the way in which hearing users obtain numbers from their service providers. Having users acquire numbers through relay providers would also take advantage of the dynamic competition in the relay business, giving providers strong incentives to offer excellent service and make number acquisition as easy as possible for relay users. In addition, providers' relationships with users will allow them to better meet users' individualized needs during the number assignment process. As discussed in the ATIS Report, users should also be able to port their numbers from existing TTYs or wireline telephones to VRS or IP Relay providers.¹² Allowing these types of ports will make the transition to NANP numbers smoother by enabling users to retain numbers they may already be using.

Assigning numbers to providers. Some relay providers may qualify to obtain resources directly from the NANP Administrator or from the Pooling Administrator. However, many relay providers likely will not qualify to obtain numbers directly. As the ATIS Report states, those providers should obtain numbering resources from wholesale providers (*i.e.*, local exchange carriers or other voice service providers), following the model used by voice over Internet

¹¹ ATIS considered several options for assigning numbers to VRS users, *see, e.g.*, ATIS Report at 7, but ultimately concluded that numbers should be assigned through relay providers and that users should also have the option of obtaining NANP numbers directly from voice providers. *See* ATIS Report at 29.

¹² ATIS Report at 29.

protocol (“VoIP”) providers.¹³ Relying on the VoIP model for numbering acquisition has several advantages. First, this approach to numbering acquisition is already in place, and has proven successful. Second, this approach would avoid the need to create a new centralized entity to manage numbering resources. Third, if multiple companies compete to offer numbers to relay providers, they are likely to offer lower prices and better services.

B. Recommended Approach to the National Directory

Consistent with the recommendations of the ATIS Report, a key element of any viable numbering solution is a centralized database, or national directory, that links NANP numbers to network addresses (preferably URIs).¹⁴ The ATIS Report discusses in detail two approaches to the national directory. One approach uses the Number Portability Administration Center (“NPAC”) for the national directory and the other uses a private dynamic Domain Name System (“DNS”) database. The NPAC approach involves a static database that associates each number with a URI. The URI, in turn, identifies the provider whose dynamic database must be queried in order to route the call. The DNS approach includes two different methods: one for VRS and one for IP Relay. The DNS approach to VRS associates the telephone number with an IP address.¹⁵ The DNS approach for IP Relay associates the number with a URI. Thus, the NPAC approach and the DNS IP Relay approach both associate NANP numbers with URIs. Sorenson believes that the basic approach proposed by proponents of either the NPAC or DNS model could be effective, with some modifications, to the extent that they are based on an approach using static URIs in the national database.

¹³ ATIS Report at 19-20.

¹⁴ As discussed below, for security and privacy reasons, the national directory should be centrally managed by a neutral third party and should contain only static information.

¹⁵ IP addresses would have to be updated dynamically in the DNS database.

Building on the NPAC proposal and the DNS proposal for IP Relay, Sorenson supports the use of a national directory that would link NANP numbers to URIs. These URIs would be static, in the sense that they would change only infrequently. The URIs would point to the service provider serving a particular relay user and would identify the user, the network serving the user and the protocol employed by the user's device.¹⁶ The user's specific connection information would be contained in a dynamic directory maintained by the relay provider serving that user – or, in some cases, by an alternative network provider. The data in the national directory would be provisioned when a user's number is first assigned.¹⁷ The dynamic connection information needed to complete the call would be maintained by the provider servicing that user ("servicing provider"). If the user changed servicing providers and ported his or her number, then the new servicing provider would be responsible for maintaining the dynamic data needed to match that user's telephone number with the user's device.

The URI approach is superior to other alternatives because it provides an overarching architecture that accommodates different types of relay services (*e.g.*, VRS and IP Relay). The DNS proposal for VRS described in the ATIS Report would associate a number with an IP address.¹⁸ Because IP Relay addresses are often associated with a screen name, or some identifier other than an IP address, as the DNS proposal acknowledges, association of a number with an IP address will not work for IP Relay. The DNS proposal for IP Relay, however, which uses URIs, would work for both VRS and IP Relay, as well as any other Internet-based relay

¹⁶ The national directory could be, but need not be, the NPAC. In considering whether to select the NPAC, the Commission will have to evaluate issues that are broader than the specific issues relating to numbering for Internet-based relay services, because the NPAC is already in use for telecommunications services.

¹⁷ This information might have to be updated from time to time (*e.g.*, if a user were to change providers).

¹⁸ See ATIS Report at 17-18.

services. In addition, the use of URIs is a solution that will adapt well to future technologies. Linking numbers to URIs is preferable to linking numbers to IP addresses. IP addresses change more frequently than URIs; IP addresses are not sufficiently generic; they do not provide information about the protocols or systems employed by the end-user's device; and they do not work for users with multiple devices served by a single IP address.¹⁹ Using URIs as an intermediate step in resolving telephone numbers to IP addresses is similar to ENUM, a protocol developed by the Internet Engineering Task Force ("IETF") to link PSTN numbers to network addresses.²⁰

To ensure sufficient flexibility, the national directory should employ URIs that point to the source of dynamic data needed to complete a call. The dynamic data should be kept by individual providers, or in certain cases, by other communications network providers, and should not be part of the national directory. For VRS today, the URI should point to the relay provider that assigned the number to the user. That provider should be responsible for maintaining a directory associating the number with an IP address or other dynamic connection information. For IP Relay, the user's phone number is likely to be associated with a text communication network, such as AOL, and the user identified with a screen name, or some other identifier, rather than with an IP address. In those cases, the URI in the national directory would point to AOL, or some other network provider, that could be connected through to complete the call.

¹⁹ Because URIs are more generic than IP addresses, using URIs would minimize the risk that the national directory would need to be reconfigured to accommodate new technologies or protocols. Instead, the URIs would continue to point to individual provider's dynamic databases and those databases could be reconfigured as necessary.

²⁰ See, e.g., ATIS Report at 31 (explaining that ENUM maps telephone numbers to end users or to servicing providers by converting the telephone number into a domain name and then using the DNS to map the domain name into a URI (e.g., sip:17948675309@provider.com). Other DNS queries are then required to resolve the URI to an IP address.).

C. Description of Call Flows

As discussed above, consumers desire a numbering approach that supports both hearing-to-deaf relay calls and point-to-point calls. This section describes the call flow using the URI national directory approach. Call flow varies depending on how a call originates. Diagram 1²¹ illustrates call flow from the perspective of the servicing provider, that is, the relay provider that assigned the user a telephone number. If a hearing caller were to dial a deaf user's NANP number, the call would be handled by the relay provider serving that user.

In Diagram 1, the relay provider has obtained a NANP number from a wholesale provider and assigned that number to the relay user. The servicing provider also has updated the national directory by providing a static URI associated with the relay user's number, and pointing to the servicing provider's dynamic directory. When a hearing caller dials the NANP number, the call is carried over the public switched telephone network ("PSTN") and connected to the servicing provider. The servicing provider then queries its directory for the address of the relay user's device and completes the call to the relay user. Depending on the device used by the relay user, the URI provisioned in the national directory may point to another network provider's directory to complete the call.²² For example, if the hearing caller were trying to make an IP Relay call to a relay user's mobile device, the URI might map the telephone number to an AOL screen name, and the call would be completed by connecting through the AOL network.²³

²¹ Diagrams 1, 2 and 3 are appended as Attachment 2.

²² The servicing provider is responsible for ensuring that the URI in the national database points to the correct provider.

²³ VRS calls could also be routed through an alternative network provider. The FCC's *Interoperability Order* requires that all devices used for VRS be H.323 compatible, however. See *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Declaratory Ruling and Further Notice of Proposed Rulemaking, 21 FCC Rcd. 5442, ¶ 55 (2006) ("*Interoperability Order*"); see also Public Notice, "Notice of Certification of Snap Telecommunications, Inc. as a Provider of Video Relay Service

A hearing caller may also contact a relay user through a relay provider other than the servicing provider chosen by the relay user. Diagram 2 illustrates this call flow.²⁴ In that scenario, the hearing caller dials the toll-free number of the relay service provider of the caller's choosing and provides the NANP number of the relay user the caller is trying to reach. The provider queries the national directory to obtain the static URI indicating how to connect through the relay user's servicing provider.²⁵ The provider then queries the servicing provider (or the alternative network provider, if necessary) for the connection information of the relay user's device and routes the call to the relay user.

For point-to-point calls (*i.e.*, non-relay calls between users without an intervening CA or interpreter), the calling party dials the NANP number of the called party. Diagram 3 illustrates this call flow.²⁶ A point-to-point call is routed to the calling party's servicing provider. That provider then queries the national directory for the static URI identifying how to connect to that user through the called party's servicing provider. The calling party's servicing provider queries the called party's servicing provider (and/or the alternative network provider, if necessary) for the connection information of the called party's device and routes the call to the called party. Unlike in the first two scenarios, neither the calling party's nor the called party's servicing provider is providing relay services and the call is not reimbursable by the TRS Fund (just as point-to-point calls are not reimbursed today). The providers simply facilitate the point-to-point call between users of different service providers.

(VRS) Eligible for Compensation from the Interstate Telecommunications Relay Service (TRS) Fund," 21 FCC Rcd 5511, FCC 06-67, at 2 & nn.8-9 (2006), *corrected by* Erratum, CG Docket No. 03-123, 2006 FCC LEXIS 2825, at 1 & nn.1-2 (rel. May 9, 2006).

²⁴ See Attachment 2 at 2.

²⁵ As noted above, the servicing provider already would have updated the national directory to associate the number with the correct URI.

²⁶ See Attachment 2 at 3.

D. Confidentiality and Security

Any numbering system adopted by the FCC must ensure confidentiality and security.

The URI directory approach, described above, would help ensure confidentiality and protect user privacy by controlling access to user data. As explained in the ATIS Report, it is critical that the party administering the national directory be a neutral third party that has no ownership or affiliation with any Internet-based relay service provider.²⁷ This neutral third party should not:

- Be a TRS provider;
- Be owned by a TRS provider;
- Be an affiliate of a TRS provider;²⁸
- Have an organizational affiliation with a TRS provider;
- Be permitted to have an equity stake in, or a board member involved with, any TRS provider; or
- Be a telecommunications service provider.²⁹

In addition, the neutral third party should be prohibited from selling caller information or information about called parties. Similarly, the neutral third party should not be permitted to transfer information about calling or called parties to anyone other than authorized recipients.

The ATIS Report described privacy concerns related to the database(s) needed to allow the assignment of NANP numbers to users of Internet-based relay services. In particular, Sorenson agrees with the Report's statement that:

²⁷ ATIS Report at 10.

²⁸ If a formerly neutral third party were to enter into competition with a TRS provider, or become affiliated with a TRS provider, it would have to relinquish its role as a neutral third party or divest itself of the third-party administrator of the national directory. *See Request of Lockheed Martin Corporation and Warburg, Pincus & Co. for Review of the Transfer of the Lockheed Martin Communications Industry Services Business*, Order, 14 FCC Rcd 19792 (1999).

²⁹ *See* ATIS Report at 10 (listing nearly identical criteria for assuring the neutrality of the third-party administrator). The ATIS Report provides additional guidance regarding the regulations that should govern the neutral third party. *See* ATIS Report at 44-45 (reproduced as Attachment 2 to these comments). *See also* 47 C.F.R. § 52.12(a)(1).

Due to the sensitive nature of information contained in such databases, there must be a privacy requirement for the entities that maintain these databases that limits the dissemination of information contained in these databases. In addition there must be strict data use requirement for use of these databases such that these data are only used for establishing sessions for the purposes of communications and are not used for unintended purposes such as telemarketing.³⁰

As detailed above, the national directory must be administered by a neutral third party that is not affiliated with any relay provider. The information in the national directory must be kept confidential and secure. Accordingly, the national directory must be downloadable only by neutral third parties with an authorized need to access the data. As the ATIS Report explains, providers should not be able to download either the national directory, or the dynamic data kept by other providers, in their entirety. Providers should be able access information only by making single queries on a per-call basis.

Providers should also access the national directory only through secure connections. Similarly, providers should only be able to access each other's databases on a single query/per-call basis and that access must also be provided over secure connections.

The procedures outlined above will help protect users from many of the concerns identified in the ATIS Report, including viruses, worms and denial of service attacks.³¹ Sorenson also supports the use of additional security measures discussed in the ATIS Report, including user authentication and the use of secure connections between providers and neutral third parties, and between providers.³²

³⁰ ATIS Report at 11.

³¹ See ATIS Report at 26.

³² See ATIS Report at 27-28.

E. URI Directory and Consumer Objectives

The URI directory approach described above meets all of the key objectives identified by consumers. It allows for the assignment of geographically-appropriate NANP numbers; it facilitates relay calls from hearing people by allowing hearing callers to dial a NANP number to connect to a deaf relay user; it facilitates point-to-point calls using NANP numbers; and it supports E-911, as discussed below in Section IV. In addition, the approach proposed above uses architectures and technologies that have been developed and proven in conjunction with other services (such as VoIP), easing the transition to NANP numbers. Using URIs in the national directory also ensures that the solution will support a variety of relay services and communications protocols and be readily adaptable to new technologies. The URI directory also aligns service providers' incentives with users' needs: by making providers responsible for users' overall experience – from numbering assignment to database provisioning – this approach ensures that competitive pressures will spur providers to offer users the best possible service. Finally, the URI directory approach, with the additional security measures described above (*e.g.*, neutral third party, secure connections) provides security and protects confidentiality.

F. Consumer Protection

The Public Notice specifically sought comment on the application of consumer protection rules in the numbering context. As a general matter, many of the consumer protection rules that apply to telephone services do not apply to Internet-based relay services such as VRS and IP Relay because relay services are not telecommunications services.³³ Nonetheless, many of these protections would be beneficial to users of Internet-based relay services. Accordingly, Sorenson

³³ See, *e.g.*, *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Report and Order and Further Notice of Proposed Rulemaking, 15 FCC Rcd 5140, ¶ 81 (2000) (finding that found that “TRS providers do not provide telecommunications services” and “are not telecommunications carriers”).

supports the adoption of rules that would protect users of Internet-based relay services, similar to the way in which users of voice services, including VoIP, are protected. In particular, Sorenson urges the FCC to adopt rules similar to the slamming, CPNI and number porting rules that currently apply to telecommunications services, though in each case certain adjustments would need to be made to accommodate the unique nature of VRS and IP Relay.

Slamming: Once VRS and IP Relay users begin selecting specific providers to handle their relay calls, it will be desirable to have rules that prevent unauthorized changes of the users' servicing provider. For example, providers should be required to obtain a letter of agency or third-party verification before switching a user's provider. The existing slamming rules, which were developed for voice services, cannot simply be applied to relay services, however, because there are differences between VRS and IP Relay and voice services. It is not clear, for example, how electronic authorization would work in the context of relay services. The penalty system, which was an integral part of the effort to deter slamming, would also require modification, because it assumes a system in which users pay service providers. In the relay context, however, users do not pay relay providers.

CPNI: The FCC should adopt rules for relay services similar to the CPNI rules that apply to voice services. Users should have the right to access their CPNI and direct providers to disclose CPNI to persons designated by the user. Providers should be able to use CPNI as required by law or with the customer's consent. Providers also should be able to use, disclose, or permit access to CPNI without prior consent for certain purposes, including to:

- Initiate and render service;
- Protect the rights and property of the provider;
- Protect users from fraudulent, abusive or unlawful use of relay services;

- Respond to calls for emergency services or assist in the delivery of emergency services;
- Engage in outreach regarding new features, applications or relay services; or
- Provide customer premises equipment, video mail, directory assistance, call blocking, call return, repeat dialing or call waiting.

Number portability: As discussed above, Sorenson supports the ATIS recommendations to have relay providers assign numbers to individual users, and to have non-carrier providers acquire numbers from wholesale providers. Sorenson also supports the ATIS recommendation that users be able to port their numbers between relay providers, or from a voice provider or TTY to Internet-based relay. Number assignment and number portability are closely related, since whichever entity obtains the number from the NANP also will be responsible for the technical implementation of porting. Since Sorenson is not a carrier, if the ATIS approach were adopted, it would contract with a wholesale provider to obtain numbers, and would work with that wholesale provider to implement number portability.

Number resource optimization: Sorenson does not anticipate that the adoption of a uniform numbering plan for relay users would have a significant effect on the Commission's efforts to optimize numbering resources.

III. IMPLEMENTATION ISSUES

The discussion above focuses on the threshold issues that must be addressed in order to implement NANP numbers for Internet-based relay services, principally number assignment and the national directory. There are a number of other implementation issues, however. These implementation issues include, but are not limited to: selecting a neutral third party to administer the national numbering directory; defining the content of the directory; determining how numbers are provisioned and updated; detailing the specifics of how the national directory is queried; defining provider call connection standards; establishing number portability;

determining a system for passing caller ID; and identifying cost recovery mechanisms.

Moreover, providers must be able to implement any new numbering solution while continuing to meet the requirement that they offer VRS twenty-four hours a day, seven days a week.³⁴ All systems associated with numbering for Internet-based relay services must be robust, fail-safe, secure and confidential. This section seeks to identify steps required to implement a uniform numbering system, but is not intended to be exhaustive. Some of these steps can be undertaken concurrently.

Directory Administration

Once the general requirements for the national directory have been established, it will be necessary to select an administrator. This includes, but is not limited to, the following steps:

- Issuing requests for proposals (“RFPs”)
- Collecting responses
- Selecting vendor(s) – In the past, the FCC has considered selecting multiple vendors in order to realize the benefits that competition between vendors would provide
- Having the vendor(s) set up the database(s)
- Determining how the neutral third party is managed.

National Directory

It is necessary to define the processes for provisioning, updating and querying the national directory. This requires the following steps:

- Defining the structure of the national directory, as well as the type of data required for the national directory
 - If URIs, determine what the URIs identify (*e.g.*, servicing providers, alternative network providers)
- Defining the process for provisioning numbers in the database

³⁴ 47 C.F.R. § 64.604(b)(4).

- Defining protocols for database queries.

Number Portability (Provider Perspective)

The Commission and industry must establish processes that allow users to port numbers between relay providers. At a minimum, the following tasks must be accomplished:

- Defining a process for porting numbers between relay providers, and from TTY or voice providers to relay providers
- Establishing a system for accepting user requests to port numbers between relay providers
- Establishing a system for accepting user requests to port numbers from TTY or voice service to relay provider
- Establishing a system for switching the party responsible for paying for a number once it has been ported.

Caller ID

It is necessary to establish a system that allows caller ID to be passed even when the user calls through a non-servicing provider.

Directories and Connections

Databases will have to be developed, and secure network connections will have to be established, to facilitate queries from relay providers. At a minimum, a new numbering solution will require:

- Establishing internal databases to associate numbers with information required to route calls
- Establishing secure connections to third-party database(s)
- Establishing secure connections to other relay providers
- Establishing criteria for security and confidentiality of information contained in databases
- Implementing a system to query third-party databases (including databases of other providers)

- Modifying relay call management systems to process called numbers and associate them with the correct end user
- Customizing devices and applications to support uniform numbering.

Provider Acquisition of Numbers

Providers will have to establish a system for acquiring numbers. Non-carrier providers will have to contract with wholesale providers.

User Acquisition of Numbers

Providers will have to assign users with NANP numbers. This will require establishing a process for providing existing users with geographically-appropriate numbers as well as a process for assigning new users geographically-appropriate numbers. The Commission should also consider the application of its financial incentives policies to numbering matters.

Consumer Protection

As noted above, the Commission should establish consumer protection rules affording relay users protections similar to those available to hearing users of voice services. These protections include both CPNI and slamming:

Customer Proprietary Network Information

- Implementing necessary protections
- Filing certifications with FCC

Slamming

- Establishing internal procedures to prevent slamming
- Contracting for third-party verification
- Making sure consumers are educated about the consequences of their decision to switch providers.

Cost Recovery Mechanism

The Commission will have to determine how numbering costs are recovered. Among other matters, this will require:

- Identifying a cost recovery mechanism for third-party database provider; and
- Identifying a cost recovery mechanism for relay providers.³⁵

In order to expedite resolution of those issues that can most effectively be resolved on an industry-wide basis, the Commission should refer certain implementation issues to an Issues Management Group (“IMG”), under the auspices of the NANC. IMGs are commonly used to address new issues and time-sensitive projects related to numbering. In this case, the IMG should be open to all parties and there should be no fee to participate in the IMG. The IMG should be directed to resolve the matters referred to it as expeditiously as possible (*e.g.*, within 60 days of the referral).

IV. EMERGENCY CALLING

Many users of Internet-based relay services view numbering and E-911 as being linked. The provision of integrated E-911 service requires that location information be passed automatically to the PSAP. This requirement to pass location information automatically requires, in turn, that the user’s device have a unique identifier which is associated with a location. As a technical matter, the unique identifier can be, but need not be, a telephone number. For purposes of these comments, Sorenson assumes that the unique identifier is a telephone number.

³⁵ See *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Report and Order and Declaratory Ruling, 22 FCC Rcd 20140, ¶¶ 44, 56 (2007) (permitting providers to seek exogenous cost adjustments if new costs are imposed that are beyond the providers’ control).

Sorenson has previously described to the Commission its plans for implementing an integrated solution for VRS 911 calls.³⁶ Sorenson's solution requires it to work closely with users to provision accurate location information for each user in an automatic location information ("ALI") database. Once this integrated solution has been implemented, a VRS 911 call to Sorenson should work as follows: When the user dials "9-1-1," Sorenson will prioritize the call to the top of the queue for immediate connection to an interpreter and attach the caller's unique ID to the call. An interpreter will then place a voice call to Intrado,³⁷ and the caller's unique ID will be passed along with that call. Intrado will use the unique ID to query the previously provisioned 911 database for the caller's address and map that location to the appropriate PSAP.³⁸ The call will then route to the PSAP, along with pseudo Automatic Numbering Information ("pANI") that the PSAP uses to retrieve the ALI and the caller's callback number. The PSAP communicates with the relay user through relay services and contacts the first responder and provides the first responder with all necessary information. The first responder will proceed to the caller's address to render assistance.

In the voice context, telephone numbers are associated with ALI and they are also used for callbacks from either the PSAP (if, for example, the call gets disconnected) or from the first responders (if, for example, they need directions to the caller's location). The primary challenge to using telephone numbers for callbacks in the relay context is ensuring that the callback is granted priority over all other, non-emergency, calls. To address this issue, Sorenson proposes

³⁶ See, e.g., Letter to Marlene H. Dortch, FCC Secretary, from Ruth Milkman, counsel for Sorenson, CG Docket No. 03-123, and attached presentation (March 29, 2007); Letter to Marlene H. Dortch, FCC Secretary, from Ruth Milkman, counsel for Sorenson, CG Docket No. 03-123, attached presentation at 4, 15-16 (Feb. 22, 2008).

³⁷ Sorenson has contracted with Intrado to identify the appropriate PSAP.

³⁸ The 911 database will have been pre-provisioned with the user's address. Intrado will associate the address with the appropriate PSAP in real time.

that the emergency caller's telephone number be passed to the PSAP for use in callbacks. Any calls to that number should be given priority for a specified period of time (*e.g.*, 60 minutes) after the initial 911 call is placed, in case the PSAP or first responder needs to reach the 911 caller.

If an emergency call is disconnected or dropped, the interpreter should attempt to re-establish contact between the PSAP and the 911 caller. If the PSAP or first responder needs to call the user back during the emergency, it should dial the user's telephone number to establish a new call. While the emergency situation exists, all calls to the user's number will be given priority access. If, for some reason, the 911 caller's telephone number is not available, the interpreter should provide the PSAP an alternative telephone number from a pool of numbers dedicated solely to receiving incoming calls from PSAPs or other emergency personnel during emergencies. One of the numbers from this pool would be assigned temporarily to the relay user for that particular emergency and any call to that number would receive priority over all non-emergency calls and would be used to reconnect to that particular user.

While 911 and numbering are related, the topic of the Public Notice was numbering. Sorenson, therefore, has focused its comments on 911 issues directly related to numbering. Sorenson continues to support Commission adoption of an integrated 911 requirement. The record in the 911 proceeding, however, is out of date, and does not fully address many of the complexities of the integrated 911 system and does not address the additional challenges of providing emergency access to users of relay services who use mobile devices to dial 911. Therefore, the Commission should also refresh the record in the 911 proceeding.

V. CONCLUSION

The Commission should adopt the URI directory approach to numbering described above, in order to allow users of Internet-based relay services to have access to NANP numbers in the most reliable, confidential and secure manner feasible.

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Attachment 1

REQUIREMENTS FOR A NEUTRAL THIRD PARTY³⁹

(a)(1) *Neutrality*. The relay service neutral third party shall be non-governmental entities that are impartial and not aligned with any particular Internet-based relay service provider. Accordingly, while conducting their operations under this section, the relay service neutral third party shall ensure that they comply with the following neutrality criteria:

(i) The relay service neutral third party may not be an affiliate of any Internet-based relay service provider. “Affiliate” is a person who controls, is controlled by, or is under the direct or indirect common control with another person. A person shall be deemed to control another if such person possesses, directly or indirectly -

(A) An equity interest by stock, partnership (general or limited) interest, joint venture participation, or member interest in the other person ten (10%) percent or more of the total outstanding equity interests in the other person, or

(B) The power to vote ten (10%) percent or more of the securities (by stock, partnership (general or limited) interest, joint venture participation, or member interest) having ordinary voting power for the election of directors, general partner, or management of such other person, or

(C) The power to direct or cause the direction of the management and policies of such other person, whether through the ownership of or right to vote voting rights attributable to the stock, partnership (general or limited) interest, joint venture participation, or member interest) of such other person, by contract (including but not limited to stockholder agreement, partnership (general or limited) agreement, joint venture agreement, or operating agreement), or otherwise;

(ii) The relay service neutral third party and any affiliate thereof, may not issue a majority of its debt to, nor may it derive a majority of its revenues from, any Internet-based relay service

³⁹ ATIS Report, Appendix 3 § 1, at 44-45.

provider. “Majority” shall mean greater than 50 percent, and “debt” shall mean stocks, bonds, securities, notes, loans, or any other instrument of indebtedness; and

(iii) Notwithstanding the neutrality criteria set forth in paragraphs (a)(1) (i) and (ii) of this section, the relay service neutral third party may be determined to be or not to be subject to undue influence by parties with a vested interest in the outcome of Internet-based relay service. The FCC may conduct an evaluation to determine whether the relay service neutral third party meet the undue influence criterion.

(2) Any subcontractor that performs relay service neutral third party functions must also meet the neutrality criteria described in paragraph (a)(1).

Attachment 2

Diagram 1: Servicing Provider View

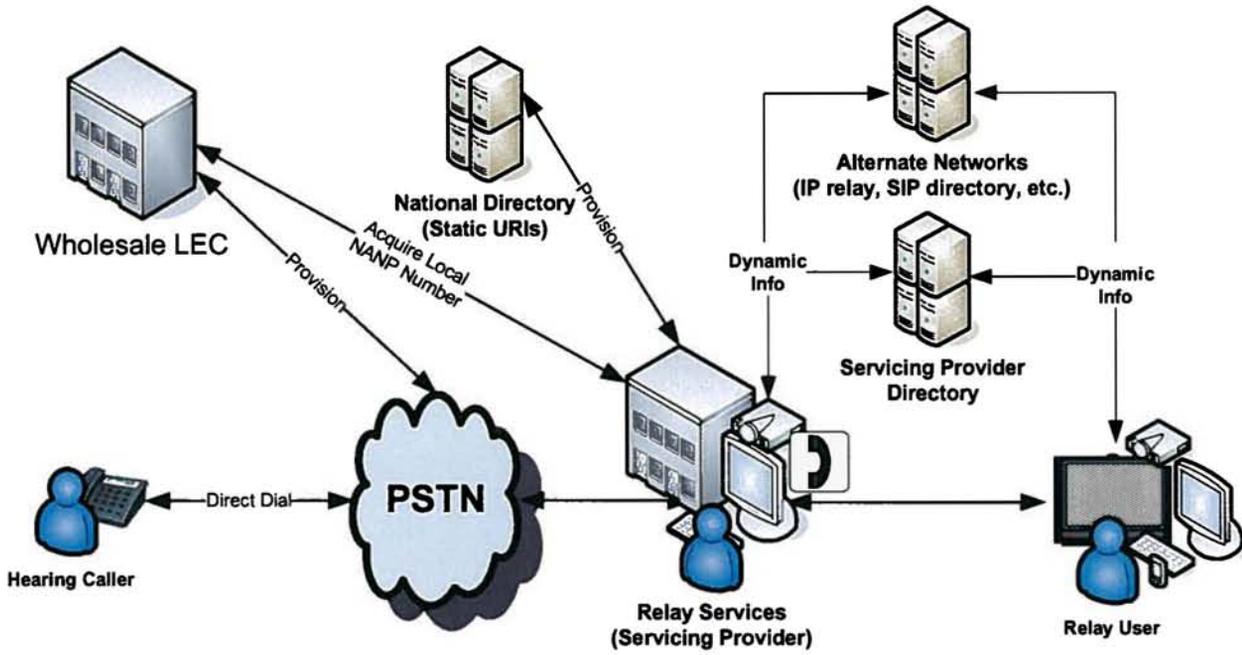


Diagram 2: Non-Servicing Provider View

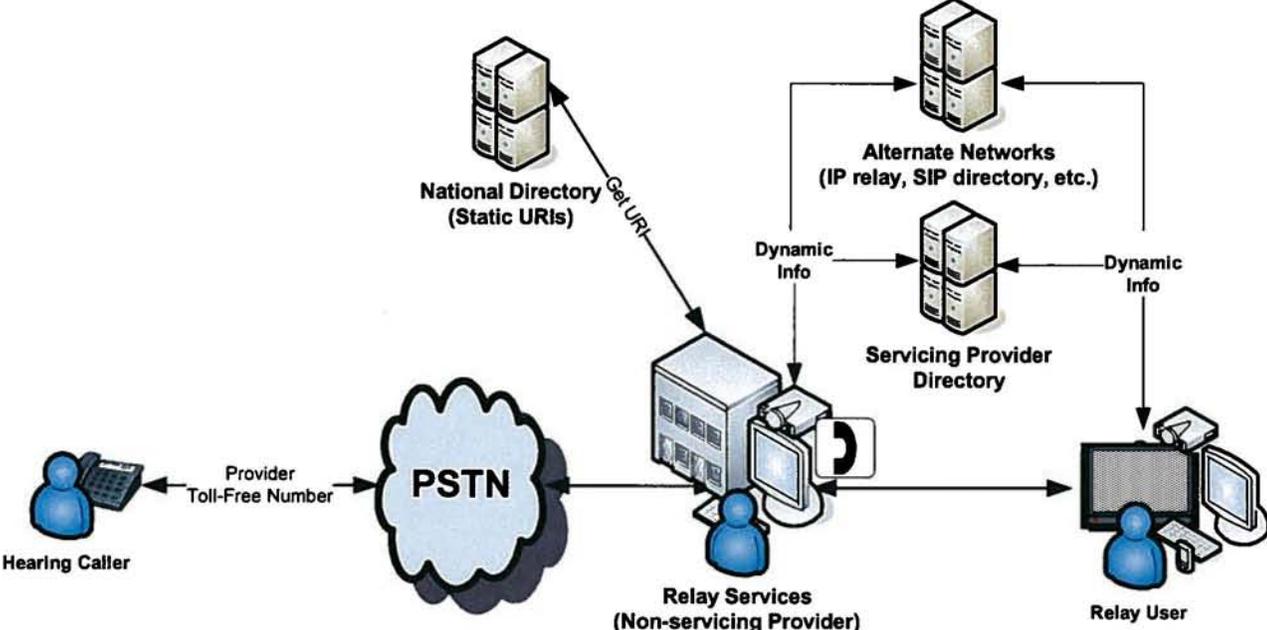


Diagram 3: Point-to-Point Calling

