ATIS STANDARD

ATIS-0300098

ATIS Standard on -

BEST PRACTICES FOR EMERGENCY NOTIFICATION SYSTEM (ENS) CALL VOLUME TESTING PROCEDURE: WIRELINE

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Best Practices for Emergency Notification System (ENS) Call Volume Testing Procedure:

Wireline

Alliance for Telecommunications Industry Solutions

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Foreword

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Next Generation Interconnection Interoperability Forum (NGIIF) addresses next-generation network interconnection and interoperability issues associated with emerging technologies. Specifically, it develops operational procedures which involve the network aspects of architecture, disaster preparedness, installation, maintenance, management, reliability, routing, security, and testing between network operators. In addition, the NGIIF addresses issues which impact the interconnection of existing and next generation networks and facilitate the transition to emerging technologies.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, Next Generation Interconnection Interoperability Forum (NGIIF), 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time of consensus on this document, Next Generation Interconnection Interoperability Forum (NGIIF), which was responsible for its development, had the following leadership:

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Best Practices for Emergency Notification System (ENS) Call Volume Testing Procedure: Wireline

1 Scope & Purpose

1.1 Scope & Purpose

A Best Practices for Call Volume Testing has been developed to increase awareness for optimization of call completion, opening a dialogue between Telecommunications Service Providers and ENS users or initiators

NOTE: the adoption of best practices helps to set expectations and guidelines.

It is the intent of the NGIIF to promote the use of these best practices to standardize the process to be used for emergency notification initiators with all of their service providers to facilitate their initial deployment and ongoing periodic testing.

2 Definitions

For a list of common communications terms and definitions, please visit the *ATIS Telecom Glossary*, which is located at < http://www.atis.org/glossary >.

2.1 Definitions

Call Completion Optimization: the maximum number of calls completed in the shortest amount of time with the least amount of blockage.

Conference Bridge: any mechanism that allows the multiple parties to effectively communicate in real time during the duration of the procedure.

ENS User/Initiator: Campus, municipality, or any other customer with ENS equipment

ENS Vendor: One who provides the ENS equipment and/or ENS service

Telecommunications Service Provider: Includes the interim or terminating service provider)

3 Wireline Testing Process

The Telecommunications Service Provider's Account Manager, Representative, or ENS User/Vendor should initiate a meeting to discuss the call volume, duration, ENS equipment parameters, testing schedule, and communication arrangements. Information that you may need to have prior to testing could include: message length, NPA-NXX targets and counts, basic call connect time averages, number of retries, and/or one or two way messaging.

On the date of the test establish a conference bridge with representatives from the Telecommunications Service Provider, that could include the carrier sending the calls, the Telecommunications Service Provider's terminating central office within the call route as appropriate, the Telecommunications Service Provider Account Management team, network management center; the vendor of the emergency notification system; and the ENS User/Vendor. Open the bridge 15 to 30 minutes before scheduled start time of the test. The provider of the conference bridge for coordination should be mutually agreed upon by the testing parties.

Once the test has been initiated Telecommunications Service Provider monitors their call data systems to check for call completion or blockage. The central office technician checks for an overload condition within the office.

The ENS User/Vendor checks the call volume to the recipients to see if they are completing as well. All participants provide feedback to the conference bridge for the duration of the test.

If a critical incident affecting the network occurs (e.g. mass evacuation notification due to wildfire, earthquake, etc) it will be mutually agreed upon between the parties to suspend and/or reschedule the testing.

During the test Telecommunications Service Provider(s) captures snapshots of data screens to be used for future reference (normally reserved for use within Telecommunications Service Provider only). Based on the call volume presented during the test on the trunk group(s) going through the central office(s) that the ENS User/Vendor is targeting, Telecommunications Service Provider could make a recommendation on the optimal number of calls that can be sent in concurrent 1-minute periods without causing network blockage or the need for redialing the individual customers on the distribution list.

In the event that there are capacity changes in the Telecommunications Service Provider's network, or the ENS User/Vendor's capability changes, then it may be necessary for new testing to occur. It is therefore recommended that periodic (e.g. monthly or quarterly) testing be arranged.

3.1 Additional Factors to be Considered Relative to Testing:

It is important to understand that the result from each test performed may vary due to the following:

- Area Infrastructure
    - The telecommunications infrastructure may vary by area, even within a given community. Therefore, it is necessary to compare results over time based upon the same collection of targeted phone numbers. One given community may not have the same call algorithms as the given community next door.
- Dynamic Traffic
    - Traffic volumes vary by average business day, nights, weekends, holidays, events, time of day, etc. ENS Users, ENS Vendors, and telecommunications providers should work together to identify an appropriate time of day for tests to be performed to best replicate the highest volume of residual traffic likely to be encountered during an ENS event. The call volume algorithms then should be set to the highest level acceptable to all parties involved.

3.2 Recommendations when Initiating a Mass Call Event

- Advanced Notifications
    - Advanced notifications are desirable prior to placing a mass calling notification event. In many cases it is not practical due to the nature of some types of events, such as emergencies. However, it would be helpful if agreements and arrangements could be made between the local service provider and the mass calling operator to have the first call in the notification queue go to a number designated by the service provider. This alert to the local service provider at the initiation of the event may assist in giving the service provider advanced awareness of a mass calling event.

4 Discussions Related to Lessons Learned and Evolution

4.1 For ENS User

- Based upon actual delivery time achieved, in what ways should you modify your emergency communications plan relative to when you are going to use, or not use, an ENS service to use your system effectively?
- Does each member of the emergency management team have a strong understanding for what areas of your community you can reach quickly versus other areas which will require more time?
- Any training or re-training necessary for various stakeholders in the community in order to properly set expectations relative to using a mass notification service during an unforeseen event

- Remember to go through these questions after each test or real event. Remember that the network is dynamic and that the results will change based upon the environment encountered when each call is sent.
- As with any emergency testing procedure it is recommended that the team review the results and apply lessons learned to future tests and real-world emergency notifications scenarios.

4.2 For ENS Vendors

- What information about the network configuration within the area can be saved and reused?
- What information about the carrier(s) and or the switch configuration can or cannot be applied to future messages sent on behalf of any and/or all customers?
- Is there a way to promote standardized testing procedures among the client base?
- What additional protocol can be established with the telecommunications service provider that can benefit other mutual clients?
- It is suggested that the appropriate call throttling algorithms for the respective area should be stored for automatic use in each subsequent call event.

4.3 For Telecommunications Service Providers

- If possible, establish an advance warning program for both future tests and, when possible, real-world scenarios. The intent of this process is to bring together the user, the telecommunications service provider, and the mass notification provider to identify simple scenarios where advanced notification of a mass notification event is given to the telecommunications service provider.
- Determine if the correct internal parties were involved with the advance testing process.
- Determine if there were any remote switching facilities that did or did not have direct access to E9-1-1 trunks in the advance testing scenario. During the test was there any congestion between the remote and the host? If so, should this be evaluated for future system modifications and/or should further throttling be implemented and tested?
- Determine what statistical information can be shared between testing parties.
- Analyze congestion and make recommendations on where to throttle back traffic
- Ask vendors/users to review the validity of phone numbers in database. Would the removal of numbers identified with fax machines and non-working numbers in the database better alleviate congestion?
- Ask vendors/users how often the database is scrubbed for non-working numbers? Would scrubbing the database improve the performance of future tests?

5 Summary

ENS Users, ENS Vendors, and Telecommunication Service Providers need to work together to perform periodic coordinated tests. These tests will be used to determine the appropriate call throttling algorithms for the respective area as well as to foster ongoing dialogue among all parties to ensure timely and efficient communications. Thus, the ENS procedures and systems will continuously evolve.