Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	)	
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Review of the Emergency Alert System	)	EB Docket No. 04-296
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To: The Commission	)	

COMMENTS OF NOTIFICATION TECHNOLOGIES, INC.

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Office of Secretary

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Pursuant to Section 1.419 of the Commission's rules,[1] Notification Technologies, Inc. ("NTI™"), by its attorneys, hereby submits its Comments in the above-referenced proceeding.[2] NTI respectfully recommends that the Commission recognize the critical role of hosted, time-sensitive notification ("TSN") systems as an adjunct to its updated Emergency Alert System ("EAS").

SUMMARY

TSN systems, which represent the latest generation of "one-to-many" communications services, are increasingly being deployed as a means of transmitting vital communications in times of emergency. TSN systems are more advanced, reliable, faster and "user-friendly" than their predecessors and are performance-tested through the delivery of millions of time-sensitive calls per month. Thus, the Commission should take steps to promote the widespread use of TSN.

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[1] *See* 47 C.F.R. Section 1.419.

[2] *See Review of the Emergency Alert System*, First Report And Order And Further Notice Of Proposed Rulemaking, 37 CR 47 (2005) ("FNPRM").

DISCUSSION

I. TSN Systems Have the Proven Capability to Play an Integral Role in the Accomplishment of the Commission's EAS Goals.

In its Notice as well as in testimony before Congress, the Commission has stated that its ultimate goal is to have a comprehensive and robust emergency communications system that "enables officials at the national, state and local levels to reach affected citizens in the most effective and efficient manner possible."[3] In particular, the Commission has emphasized the need for a system that "use[s] a variety of communications media so that officials can reach large numbers of people simultaneously."[4] The Commission should encourage use of TSN systems, which have the proven capability to successfully reach "large numbers of people simultaneously" in urgent situations.

TSN systems essentially are advanced, intelligent "one-to-many" telephonic systems that can be used by governments and first responders to send urgent messages to members of the public. Such systems primarily send notifications to people's landline or cellphones, taking advantage of the near ubiquity of such services.[5] In addition, users of advanced TSN systems such as that offered by NTI can send messages to PDAs and other text devices and via e-mail.[6] Thus, urgent messages are virtually certain to reach the people who need to receive them.

The Commission is quite familiar with the forerunners of TSN technology, such as auto-dialers, which are computer-operated random or sequential dialing devices that dial telephones

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[3] FNPRM at para. 62; *see also* FNPRM at Statement of Chairman Kevin J. Martin ("The system also should take advantage of advances in technology that enable officials to reach large numbers of people simultaneously through a variety of communications media.").

[4] *Id.*

[5] The United States has a telephone penetration rate of 92.4 percent for landline phones and 62 percent for mobile phones. *See Federal State Joint Board on Universal Service*, Order, 36 CR 1279, para 8 (2005); *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, Tenth Report, FCC 05-173, para. 5 (re. Sept. 20, 2005).

[6] More information concerning TSN and NTI's products can be found at www.ntigroup.com.

and, upon connection, play a recorded message; auto-dialers came into use approximately three decades ago.[7] Some users deploy a "blended" auto-dialer data center operation, whereby the auto-dialer is used for routine messages and the outsourced data center is used for urgent messages. These blended systems are redundant given the advent of TSN providers. After auto-dialers, "reverse-911 technology" was introduced approximately one decade ago,[8] and is characterized by the Commission in the Notice as "a calling system that places calls generated by a public safety call center to a specific audience."[9] In essence, these systems layered more sophisticated list management tools on top of auto-dialer technology.

The TSN technology – which utilizes a flexible, hosted Application Service Provider ("ASP") model – represents a quantum leap forward from these predecessor systems in the development of "one-to-many" notification, providing users with a far more robust and user-friendly tool for communicating information to large numbers of people in urgent situations. TSN systems can be used to convey vital information before, during and after crises – in instances involving, for example, amber alerts, storm warnings, pandemic influenza and chemical spills. An advanced TSN system, such as that developed and deployed by NTI, is capable of delivering messages to tens of thousands of recipients in a matter of minutes. In contrast, it takes a standard 48-port auto-dialer system over eight and a half hours to send a 30-second message to 50,000 people – and that is just first attempts to reach people who may be using the phone. To maximize delivery of a call, systems should retry anywhere from 3 to 5 times on unsuccessful first attempts (busy signals, ring no answers, fax machines, phone network busy).

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[7] *See* Auto Dialer Industry Overview, http://atcdialer.com/autodialerio.htm.

[8] *See* Patented Technology, http://reverse911.com/products/technology.php.

[9] FNPRM at n.31. "Reverse 911" technology has, as of yet, not been formally defined.

Briefly and generally described, TSN systems operate as follows: First, an authorized user with access to either a landline or cell phone interfaces with the password-protected system via a toll-free number and records an outgoing voice message. The user can then program this message (either via a secure Internet connection or over the phone) to be sent immediately, or at a specified time, to either an entire universe of recipients or to selected subgroups. Some TSN systems even offer a geographic mapping function that gives users the ability to send messages to all telephones in a particular area. Using this feature, a school system could, for example, alert a group of parents waiting at a bus stop that their children's transportation has been delayed or re-routed due to an accident or weather conditions.

Unlike predecessor systems, TSN systems can be designed and deployed to have the redundancy that the Commission favors.[10] For example, TSN providers such as NTI design their TSN systems to have "carrier redundancy", power redundancy, and database redundancy.

More specifically, NTI's advanced TSN system utilizes several interexchange carriers' ("IXCs") networks, allowing NTI to place thousands of calls without the call traffic congestion that would occur if all of the calls passed through a single IXC. Through the use of multiple IXCs, more accurate routing to the endpoint can occur due to different relationships between IXCs over the Public Switched Telephone Network ("PSTN") resulting in different methods of reaching the incumbent local exchange carriers ("ILECs") and competitive local exchange carriers ("CLECs") to reach the final termination point. TSN systems use software to sort call traffic automatically, thus ensuring the quickest and highest percentage possible for call completion.

[10] *See* FNPRM at para. 62.

In addition, TSN providers such as NTI deploy systems at sites straddling the nation's three power grids, ensuring constant access to power during emergencies; if one power grid fails, NTI can redirect calls to its sites located on the other two power grids to ensure that its users' messages are sent. Furthermore, if there is power failure or other problem associated with a data center in a geographic area, the TSN technology can automatically extract information (e.g., the phone numbers to which calls should be sent) from a redundant data center in another geographic area. Thus, users of TSN providers' systems maintain the ability to send messages even in circumstances where the user's primary site, or one of its other sites, may lack electrical power.

Multiple redundancies are only one of the features that distinguish advanced TSN systems from predecessor technologies. Other operating advantages that TSN technology offers over predecessor systems in providing urgent communications include the following:

The architecture of intelligent TSN systems minimizes local phone line congestion. TSN systems have intelligent delivery capability, utilizing mathematical algorithms to analyze network congestion and to automatically adjust to the point-of-presence capacity. Where call congestion is detected, TSN systems can throttle down how frequently calls are sent while simultaneously looking for less congested paths. Thus, for example, when NTI's advanced TSN technology detects a certain level of congestion, it can redirect calls so that the long distance and local telephone networks are less likely to be "exhausted" by outbound urgent calls.

Predecessor systems with unsophisticated delivery detection, on the other hand, are not aware of congestion. They are, alternatively, programmed to send one call per line upon the previous call's completion. If the system is large enough to get calls through quickly, meaning, if enough phone lines are employed to send calls at one time, then the system could potentially choke the local telephone network to the point of collapse. If the system is small enough to not

cause this type of congestion, it is most likely not going to have enough capacity to get calls out to a large number of recipients quickly. These predecessor technologies are, then, either too big or too small.

TSN systems send messages at faster speeds than their technological predecessors. Unlike predecessor systems, TSN systems are not limited to the number of telephone ports installed by the user. Rather, TSN systems are capable of originating thousands of calls over several different carriers' networks simultaneously, allowing users to deliver significantly more messages in substantially less time (and increasing redundancy should one carrier experience its own congestion or failure) than predecessors of the technology employed by TSN systems. For example, NTI's advanced TSN system has contracted Service Level Agreements ("SLAs") to ensure the capacity to deliver nearly 400,000 thirty-second voice messages in a half-hour. As discussed *supra*, by employing the ability to read congestion at the local carrier level, TSN providers are better able to ensure that more calls can get through the pipe at the local level quickly by minimizing network congestion (fast busy signals). This performance stands in stark contrast to predecessor systems' slower speeds, which are causing some municipalities to consider making equipment upgrades to increase their system speeds.[11]

TSN technology facilitates the use of a "credible spokesperson" and provides message consistency. TSN systems allow governmental entities sending urgent messages to communicate with the public by using a familiar voice of authority, be it the voice of a mayor, county executive, governor or another recognized "credible spokesperson." The concept of use of a "credible spokesperson" to speak to the public in times of emergency is widely recognized.[12]

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[11] *See* "Five Towns Look to Speed Up Reverse 911 System," Asbury Park Press (Oct. 20, 2005).

[12] *See* A Guide for Developing Crisis Communications Plans, Michigan Crisis and Emergency Risk Communications, Michigan Office of Public Health Preparedness, http://www.michigan.gov/documents/Michigan_Crisis_Emergency_and Risk_Communication3_82364_7.doc (Oct.

As Dr. Julie Gerberding, the Director for the Centers for Disease Control and Prevention, said in the context of communicating to the public about a smallpox threat, "Now, people really look toward the most credible spokesperson, especially when there is a lot of uncertainty on an issue, and that's going to be very important and helpful to us to have people at the local level that are trusted and credible come out and be able to educate people about this. We're really counting on that."[13] TSN networks allow for such communication between local leaders and the public during times of uncertainty and emergency, which is an "essential" communication recognized by the Commission.[14]

In addition, TSN systems have the advantage of ensuring that the information delivered to the public is both consistent and tailored to the audience. Broadcast notification systems, such as those using television and radio, run the risk of being over or under inclusive. In contrast, TSN systems can deliver consistently worded messages to as many or as few recipients as is appropriate given the circumstances. Thus, for example, in the event of a health crisis, times and instructions for the receipt of medical treatment could be delivered on a neighborhood-by-neighborhood basis, minimizing the risk of institutions being overwhelmed by panic-stricken citizens.

Advanced TSN systems offer interactive functionality, including call delivery reporting. Advanced TSN systems such as that deployed by NTI are interactive, allowing the government entities that use the system not only to create and send messages, but also to receive information in response. For example, the "sending" party can deliver a TSN message that

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2003); "Emergency Management Plans," Kevin Brown, MD, http://www.gnyha.org/eprc/general/presentations/20030204_Emergency_Plans.pdf.

[13] Interview with Dr. Julie Gerberding, Online NewsHour, http://www.pbs.org/newshour/bb/health/july-dec02/gerberding_smallpox.html.

[14] *See* FNPRM at para.73.

requests the receiving party's location or that inquires whether the receiving party needs assistance; the receiving party, by using his or her phone's touch-tone capability, can provide an appropriate response, thereby facilitating urgent relief efforts. This interactive capacity allows those engaged in emergency management to determine whether their messages have been received, an important advantage over anonymous, one-way broadcast technologies.

Another significant feature of advanced TSN systems are their superior reporting capabilities. For example, NTI's advanced TSN technology allows the user to receive a report of successful and unsuccessful message deliveries – distinguishing between "live" reception, voice-mail reception, non-reception and non-working numbers – all within minutes of sending the message. As described below, this two-way functionality not only allows officials to determine the extent to which information is successfully getting through to the public, but also can provide critical feedback regarding the operational status of the telephone network.

TSN systems possess multi-lingual capability. TSN systems can be and are used to deliver messages (and receive responses) in a number of different languages. As a result, broad utilization of TSN providers would answer the Commission's encouragement of the provision of multilingual emergency communications in areas in which languages other than English are of primary fluency.[15]

TSN technology can manage increased scalability. TSN's predecessor systems are basically pieces of equipment that typically have between 24 and 96 phone lines plugged into them (although a user could have 672 ports or multiple systems totaling more than that, but they run the risk of overloading the local network as discussed *supra*). As such, the predecessor systems are not scalable because they are limited by the number of phone lines to which they are

[15] *Id.* at para 81.

connected. Thus, predecessor systems are too large, in terms of costs, equipment and maintenance, and too small, in terms of their ability to send vast amounts of messages quickly.

TSN providers, however, face far fewer limitations, as their systems are built to scale and can send outbound calls through a number of different telecommunications carriers' networks, assuming that they have entered into the necessary agreements to do so. This carrier redundancy allows TSN systems to far exceed the volume of calls of a predecessor system.

TSN systems are more reliable than predecessor systems. TSN providers' use of multiple power grids and multiple telecommunications carriers means that an outage at one point of the network will not terminate a user's ability to send messages. Predecessors systems are susceptible to a single point of failure, which can occur at many points of the message's path – such as an operational problem with the predecessor system's machines or a flood, fire, or electrical outage at the site of the predecessor system's equipment center. Due to cost constraints, most users of predecessor systems do not add redundant equipment or back-up power to their systems. Thus, these systems remain prone to the "single point of failure" problem.

TSN systems, on the other hand, use their power and carrier redundancies to send thousands of calls each day, compiling a reliability record that far exceeds that of predecessor systems. TSN systems also enjoy a higher success rate in recognizing answering machines than most predecessor systems. Using its advanced TSN technology, NTI successfully placed more than 54 million time-sensitive calls in 2005, and is currently delivering more than seven million time-sensitive calls per month.

TSN systems are more cost effective than other one-to-many notification systems, even in rural areas. TSN systems have lower upfront installation and operational costs than

predecessor systems, as TSN technology does not require the hardware, software or additional phone lines of predecessor systems. Operationally, TSN providers' geographic and carrier redundancies facilitate least-cost routing of calls. Should a user/owner of a predecessor system wish to repeat the same level of redundancy at the data center and call origination center level, significant costs would be incurred to establish and maintain such facilities. TSN providers are able to defray the costs of redundancies, SLAs, customer service maintenance, and upgrades across thousands of users rather than just one making them the best choice given current available options.

The lower cost structure of TSN providers is a "practical implication for underserved and rural communities" that the Commission has highlighted in this proceeding.[16] Rural users of TSN technology (including local and state governments) can obtain a reliable means by which to communicate more quickly with the general public for less cost than predecessor systems. All TSN system users, including those in rural areas, do not have to pay for maintenance of equipment, as they would with predecessor systems. In addition to offering the advantage of a lower cost structure, TSN technology has proven reliable in completing a large number of calls in a concentrated geographic area (*see* discussion of NTI's Connect-ED™ system, *infra*), which are the conditions that would face a rural community during an urgent situation.

TSN system databases are more accurate than those of predecessor systems. In an attempt to avoid the costs of predecessor systems, some users deploy a "blended" auto-dialer data center operation, whereby the auto-dialer is used for routine messages and the outsourced data center is used for urgent messages. Two problems are apparent with this structure. First, it is difficult to ensure that data will be up-to-date in an emergency situation as the user has to

[16] *See* FNPRM at Separate Statement of Commissioner Jonathan S. Adelstein.

extract information from his or her database and send it, in a secure manner, to the provider who will deliver the calls. Second, the provider of the blended model (who tend to be companies whose primary business is selling auto-dialers) will most likely have far less experience than a TSN provider whose system is activated and utilized on a daily basis. Advanced TSN systems, such as those developed by NTI, constantly work with clients to update their databases, and have a proven record of successfully sending hundreds of thousands to millions of messages every day.

TSN technology is compatible with other alerting standards. The Commission has long recognized the importance of compatible alerting technologies to safeguard the American public during emergencies.[17] TSN systems are compatible with other alerting standards, such as Common Alerting Protocol ("CAP"). As the Commission noted, CAP has been "endorsed by...many public and private organizations responsible for alerts...."[18] If the Commission chooses CAP as a baseline alerting architecture, TSN systems would be able to communicate seamlessly with the rest of the Commission's EAS network.

II. Case History: Use of NTI's TSN Services in Emergency Situations

NTI has developed and deployed an advanced TSN system for its Connect-ED™ and Connect-CTY™ services, which enable municipal governments and school administrators to schedule, send and track personalized voice communications to thousands in minutes from the convenience of a computer or the necessity of a cell phone when the circumstances dictate.

More specifically, NTI first developed the *NTI Connect-ED* system, which school systems around the country currently use for a variety of purposes, including as a means of

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[17] *See Amendment of Part 73, Subpart G, of the Commission's Rules Regarding the Emergency Broadcast System,* 10 FCC Rcd 1786, para. 174 (1994).

[18] *See* FNPRM at para. 67.

getting information to parents, students, and employees in the event of an urgent situation. Indeed, the *NTI Connect-ED* service proved to be an invaluable tool for a number of communities during last year's devastating string of hurricanes, delivering over 2.3 million distinct hurricane-focused messages to affected members of the public. Some examples include:

- On Monday, August 29, 2005, the St. Charles Parish School District used the *NTI Connect-ED* service to send a recorded message to over 21,000 phone numbers relaying information about mandatory evacuation procedures as requested by the Parish's Emergency Operations Center. In the following days and weeks, the Parish made repeated use of the *NTI Connect-ED* service to contact citizens and school personnel with updated information, requesting that recipients pass along the information to friends and family with children in the district who would not be receiving calls.

- On August 31, 2005, the Lafayette Parish School District used the *NTI Connect-ED* service to send messages to nearly 300 transportation employees to request they volunteer their assistance in a city-wide rescue planning operation. The Parish also used the service to contact over 56,000 phone numbers with pre- and post-hurricane information about school closings.

- Before and after both Hurricane Katrina and Hurricane Rita, the East Baton Rouge Parish School District used the *NTI Connect-ED* service to send urgent messages to more than 34,000 phone numbers to inform families and employees about school closings.

Apart from its utility as a means of fulfilling the Commission's goal of reaching "large numbers of people simultaneously," the *NTI Connect-ED* TSN system proved itself capable of providing government officials with another valuable benefit during last year's hurricanes. Taking advantage of the "reporting" capability described above, one city's Emergency Operations Center was able to use the system as a tool for gauging the progress of telephone service restoration and to locate areas of telephone outages.[19]

The versatility of the *NTI Connect-ED* system and the effective utilization of that system in over 5,000 sites across the nation, and the level of local governmental interest and

[19] In light of this performance, the Commission has included NTI's President, Government Affairs, Billy Pitts, on the Commission's independent panel reviewing the impact of Hurricane Katrina on communications networks. *See Notice of Appointment of Members To Serve On Federal Communications Commission's Independent Panel*

demand, has led NTI to develop its *Connect-CTY* service, which allows local government officials (or designated first responders) to communicate with members of a community within minutes, providing direction coming from the voice of a credible authority figure. It further allows officials to use geographic mapping functionality to identify regions that might need to receive different information, for instance, if region one is to receive an evacuation notice at 1:00 PM and region two at 9:00 PM.

III. Actions the Commission Can and Should Take to Facilitate the Further Deployment of the TSN Systems.

In light of the proven reliability of TSN systems in delivering communications between and among government entities and citizens before, during, and after emergency situations, the technological superiority of TSN systems to other "one-to-many" communications systems, and the compatibility of TSN technology with other alerting systems, NTI respectfully requests that the Commission and other federal agencies take certain actions to encourage the widespread use of TSN technology.

First, the Commission should directly examine the benefits of TSN technology through inclusion of TSN systems in the funded pilot programs and systems of its agencies, including the Department of Homeland Security, the National Oceanic and Atmospheric Administration (of the Department of Commerce) and the Department of Education. TSN providers' ability to send vast numbers of voice messages within minutes to the public (or to key agency personnel) would be invaluable to these agencies (and the public) in times of terror or catastrophic weather.

Second, the Commission should include TSN technology on the list of eligible services in the Schools and Libraries Universal Service support mechanism. One-to-many telephone

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Reviewing the Impact of Hurricane Katrina on Communications Networks, Public Notice, DA 06-57 (rel. Jan. 12, 2006).

message distribution platforms, when used by schools for community outreach, urgent notification, and attendance notification also are "integral" to the educational purposes underlying the schools and libraries program. In fact, Congress has repeatedly recognized that improving communications between and among educators, students and parents is critical to the success of the educational mission. Legislation such as the Enhancing Education Through Technology Act and the No Child Left Behind Act specifically focus on the importance of "using technology to promote parent and family involvement in education and communication among students, parents, teachers, principals, and administrators."[20]

Finally, a TSN system, like any system using telephones, will suffer absent a Commission mandate directing the ILECs to grant fast access to their telephone numbers databases and to provide regular updates at a reasonable cost. Without such access, government entities using TSN technology will not be able to update their calling lists and databases. This can obviously lead to dire consequences when urgent messages and instructions do not reach their intended targets. While many LECs sell listed, unlisted and E911 data to government entities, the process can be slow and updates can be too costly for most municipalities, especially those located in small rural communities.

[20] 20 U.S.C. § 2402(a)(8) (goals of the Enhancing Education Through Technology Act); *see also* Section 1118 of the No Child Left Behind Act, *codified* at 20 U.S.C. § 6318 (emphasizing role of communications in enhancing parental involvement in education).

CONCLUSION

For all of the foregoing reasons, NTI respectfully requests the Commission to recognize the important role that TSN systems can provide government entities in their emergency management efforts and should take the necessary and appropriate steps outlined herein to encourage the broadest use of TSN systems.

Respectfully submitted,

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