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Legislative Hearing
on
"H.R. 5785, the Warning, Alert, and Response Network Act."

before the

SUBCOMMITTEE ON TELECOMMUNICATIONS AND THE INTERNET

HOUSE ENERGY AND COMMERCE COMMITTEE
WASHINGTON, DC

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Introduction

Good morning, Mr. Chairman and members of the Subcommittee. My name is Billy Pitts and I am President, Government Affairs for The NTI Group, Inc. ("NTI"). I appreciate the opportunity to participate in this hearing on the WARN Act and want to commend Representative Shimkus and his fellow co-sponsors for recognizing that there is a pressing need to incorporate advanced technologies into the nation's emergency communications capabilities so officials at the national, state, and local levels are able to provide members of the public with warnings and crisis-related information in the most efficient and effective manner possible.

Earlier this year, I was privileged to serve as a member of the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks. One of that panel's key findings was that "the use of communications networks to disseminate reliable emergency information to the public is critical – before, during, and after such events." The Katrina panel also found that, for a variety of reasons, the existing EAS system was not up to the task with respect to Hurricane Katrina. As a result, the panel made several recommendations aimed at improving the nation's emergency communications system, including the following:

- Pursue the establishment of a comprehensive national warning system that complements existing systems and allows local officials to increase the penetration of warnings and to target alerts to particular areas.

- Commence efforts to ensure that persons with disabilities and non-English speaking Americans receive meaningful emergency information.

- Improve coordination of public information functions in order to facilitate the delivery to the public of consistent and reliable emergency information.

Time Sensitive Notification Technology

The reason I was appointed to the Katrina Panel, and the contribution I believe I can make to the Committee's consideration of the WARN Act, arises from the fact that my company, NTI, is a leader in the development of an advanced "time sensitive notification" (or "TSN") technology that enables community leaders to deliver detailed emergency information to targeted groups of citizens, both small and large, within a narrow timeframe. This TSN technology offers a proven method of augmenting existing modes of emergency communications that fulfills many of the Katrina Panel's recommendations and directly supports the functions of a National Alert System outlined in the WARN Act.

Generally described, TSN technology combines advanced computing with the near ubiquity of phone service to allow officials to record a voice message and have it delivered to thousands of people in minutes via cell phones and landlines.[1] TSN technology also is capable of delivering messages to personal communications devices, such as a Blackberry, PDA, or a standard e-mail account. TSN systems can be used to convey vital information before, during or after crises – in instances involving, for example, an amber alert, storm warning, chemical spill, terror attack, or pandemic. Best of all, TSN technology can be put to immediate use by governmental entities without the need for officials to install or learn how to operate any new equipment.

To explain a bit more fully, TSN systems are advanced "one-to-many" telephonic systems that represent a quantum leap forward from earlier auto-dialer systems. In

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

contrast to auto-dialers, which lack the speed, capacity, flexibility and "intelligence" necessary to serve as a reliable provider of emergency information to the public, TSN systems utilize a hosted "Application Service Provider" model that makes them a far more robust and user-friendly tool for communicating information in urgent situations. While a standard 48-port auto-dialer system takes over eight and a half hours to make a single attempt to send a 30-second message to 50,000 people, an advanced TSN system is capable of delivering messages (including making repeat calls where necessary) to tens of thousands of recipients in just a matter of minutes.[2]

To briefly summarize, TSN systems operate as follows: 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 city could, for example, notify all persons on a particular block of an evacuation order or a school district could alert a group of parents waiting at a single bus stop that their children's transportation has been delayed or re-routed due to an accident or weather conditions.

Unlike predecessor notification systems, TSN systems typically are designed with multiple redundancies. For example, the TSN systems deployed by NTI not only

[2] Typically, TSN providers will make three (3) to five (5) attempts before considering a notification process complete. Speed of delivery will vary based on congestion at the local network operations center.

have the ability to deliver messages through multiple mechanisms, they also have carrier redundancy, power redundancy, and database redundancy.

Carrier redundancy is achieved by locating TSN systems on several local exchange carriers' ("LECs") and interexchange carriers' networks, allowing the TSN system user to place thousands of calls without the call traffic congestion that would occur if all of the calls passed through a single LEC's central office. For instance, if a mayor chose to initiate calls from an auto-dialer located within his or her city, both the outgoing calls and the incoming calls would cause the LEC to experience congestion. By initiating calls from multiple sites located outside of the LEC's service area, a TSN service provider is able to eliminate one layer of congestion and reduce the risk of system failure. Enhanced TSN systems avoid overwhelming the local network operations center ("NOC") by using software that can read congestion at the local level and sort call traffic automatically. As a result, TSN systems are able to offer the quickest and highest percentage possible for call completion.

In order to obtain power and database redundancy, TSN providers deploy systems at sites straddling the nation's three power interconnects, ensuring constant access to power during emergencies; if one of the major power interconnects fails and all back-up resources have been expended, the TSN system provider can redirect calls to its operational centers located on the other two power interconnects to ensure that its users' messages are sent. Furthermore, if there is a 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. Each data center also is supplied with its own

back-up systems (gas generators, etc.) to allow the center to remain operational should it experience a power failure. 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 benefits offered by TSN technology 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-present 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 to other central offices, so that a local telephone network is less likely to be "exhausted" by urgent calls.

Predecessor systems with unsophisticated delivery detection, on the other hand, are not aware of congestion. They are simply 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.

TSN systems send messages at faster speeds than their technological predecessors. Unlike predecessor notification 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 providing redundancy protection should one carrier experience its own congestion or failure) than older notification technologies. For example, NTI's advanced TSN system is currently delivering 400,000 thirty-second voice messages in a half-hour and has contracted Service Level Agreements ("SLAs") to ensure the capacity to deliver well over that amount. As discussed above, by employing software that can 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.[3]

TSN technology provides message consistency and facilitates the use of a "credible spokesperson." According to the FCC's Katrina Panel, one of the shortcomings in the dissemination of emergency information during last year's storms was the confusion engendered by the lack of a consistently accurate and reliable source of information. The failure of the impacted communities to fully utilize the existing EAS meant that the public was dependant on reports from mass media sources (particularly broadcast radio and television) that often misconstrued events or provided inaccurate information. Even where the EAS was operational or media reports were accurate, the

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

information provided tended to be either over or under inclusive in terms of its relevance to the various areas impacted by the disaster.

Relying on the mass media to get timely, accurate and relevant information to our citizenry poses risks that we can ill-afford. In contrast, TSN systems have the advantage of ensuring that the information delivered to the public is both uniform and tailored to the audience. 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.

A related advantage of TSN systems is that they permit governmental entities to communicate emergency information through a familiar voice of authority, be it the voice of a mayor, county executive, governor, school superintendent or another recognized "credible spokesperson." The benefit of using a "credible spokesperson" to speak to the public in times of emergency is widely recognized.[4] 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

[4] *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. 2003); "Emergency Management Plans," Kevin Brown, MD, http://www.gnyha.org/eprc/general/presentations/20030204_Emergency_Plans.pdf.

really counting on that."[5] Only an emergency notification system that allows a single point of presence to formulate and deliver the message can achieve the goal of a "credible spokesperson."

Advanced TSN systems offer interactive functionality, including call delivery reporting. Advanced TSN systems 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 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 is their superior reporting capability. For example, NTI's advanced TSN technology allows the originator of the emergency communication 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. The sender then has the option to resend calls to those who did not receive the message.

TSN systems possess multi-lingual capability. Another issue raised by the Katrina Panel was the need to ensure that emergency information was available to non-English speaking Americans. TSN systems can be and are used to deliver messages (and

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

receive responses) in a number of different languages. As a result, broad utilization of TSN providers would help address the concern raised by the Katrina Panel regarding the need to improve the provision of multilingual emergency communications in areas in which languages other than English are of primary fluency.

TSN technology can manage increased scalability. Predecessor notification systems are not scalable because they are limited by the number of phone lines to which they are connected. For example, implementing a standard auto-dialer system typically involved the deployment of pieces of equipment supported by between 24 and 96 phone lines. And while it was possible for such a system to increase capacity by adding additional phone lines, doing so would risk overloading the local network as discussed above. In short, the types of automated notification systems that pre-date advanced TSN technology simultaneously 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.

In contrast, the users of TSN technology face far fewer limitations, as the systems on which they rely 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 reliable and user-friendly. TSN providers' use of multiple power interconnects and multiple telecommunications carriers means that an outage at one point of the network will not terminate a user's ability to send messages. Predecessor 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 notification 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 hundreds of 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 ten million time-sensitive calls per month.

TSN systems are well-suited for use in rural areas. 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. Because TSN systems utilize a "hosted" application, 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 which are the conditions that would face a rural community during an urgent situation. Most importantly, the ubiquity of land-lines, coupled with the rapid adoption rate of cell phones, ensures that residents of rural areas will have access to up-to-date information relevant to their specific geographic location.

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, insurance, customer service maintenance, and upgrades across thousands of users rather than just one making them the best choice given current available options.

TSN technology is compatible with other alerting standards. The FCC has long recognized the importance of compatible alerting technologies to inform and safeguard the American public during emergencies.[6] TSN systems are compatible with other alerting standards, such as Common Alerting Protocol ("CAP"). If the FCC was to choose CAP a baseline alerting architecture, most TSN systems would be able to communicate seamlessly with the rest of the Commission's EAS network.

Examples of Emergency Communications via TSN Systems

As noted, the Katrina Panel identified a number of shortcomings in the performance of emergency communications systems before, during, and after last summer's catastrophic storms. However, the Panel also cited some success stories. One of the bright spots noted by the Panel was the performance of new technologies, such as TSN technology. Indeed, NTI's ***Connect*-ED®** TSN system was used by school systems in the areas affected by the storms to deliver over 2.3 million hurricane-focused messages to members of the public. Examples of how TSN technology supplemented and enhanced information provided by traditional EAS means include the following:

- Before and after both Hurricane Katrina and Hurricane Rita, the East Baton Rouge Parish School district used the ***Connect*-ED** system to send urgent messages to more than 34,000 phone numbers to inform families and employees about school closings. In all, the district sent over 11 hurricane-related messages

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

to their constituents.

- After Hurricane Katrina made landfall, the Lafayette Parish School District sent messages to nearly 300 transportation employees to request that they volunteer their assistance in a city-wide rescue operation. The parish also delivered several messages to over 56,000 phone numbers regarding pre- and post-Katrina school closings and reached over 61,000 phone numbers with advance information regarding Hurricane Rita.

I could give you numerous other examples. However, there is one particular example that merits a more detailed description. In advance of Hurricane Katrina, the St. Charles Parish school district used TSN technology to send out an evacuation message to over 21,000 phone numbers. Moreover, the use of TSN to provide information to the residents of the parish did not end with the pre-storm notices. The school district's communications director, Rochelle Cancienne, continued to send TSN messages in the storm's aftermath in order to assist the parish's Emergency Operations Center in communicating with a community that was largely un-served by television or radio due to power outages and other service disruptions. Working with NTI's client care center – sometimes in the middle of the night or pre-dawn hours – Ms. Cancienne was able to use her cell phone to send TSN messages reassuring residents that the reports that were being circulated by the media regarding the extreme devastation wrought by the storm were not reflective of the conditions in their particular parish. Specific examples of the kinds of information sent out using TSN technology included:

- information regarding the extent and location of damage within the parish and the reconstruction and reopening of the parish's schools;

- job-related information targeted to school district employees (the largest employee base in the parish); and

- information targeted specifically to the families of the additional students re-located to the parish from other school districts in the greater New Orleans area.

In total, the school district successfully completed more than 114,000 calls to some 21,000 residents over a 27 day period, a remarkable achievement given that the local telephone infrastructure was greatly distressed due to the hurricane.

The use of TSN technology before, during, and after Hurricane Katrina played a key role in holding the St. Charles Parish community together in a time of extraordinary crisis. As Ms. Cancienne has noted, prior to deploying NTI's TSN system, the school system's most effective means of mass communications was over the PA system at Friday night football games

The use of TSN technology also provided ancillary benefits by helping the Parish's Emergency Operations Center to monitor the capacity of the local telephone lines by constantly analyzing their call delivery reports. Message delivery success rates in the school district dipped as low as 8% on August 29th but climbed back up to 28% just seven days later. Within a month, the district was back to a standard +80% success rate. In the future, the district has proposed working with the phone company to overlay data to determine where outages have been repaired.

As a result of its experience in using TSN technology during a major crisis, St. Charles Parish School District is now collecting contact information from all staff members and the parents of children enrolled in its schools three (3) times per year rather than once per year in order to ensure that data is up-to-date. Furthermore, the district is accepting relocation contact information so that they can communicate with staff and families who have evacuated – improving the likelihood that local citizens will receive important information from community officials even when local telephone lines might be impacted within the parish itself.

TSN Technology and the WARN Act

The examples given above all involve the use of TSN technology by school officials to communicate with parents and staff. This reflects the fact that TSN services (such as NTI's ***Connect*-ED** service) principally have been targeted to educators as a tool not only for use in emergency communications (such as school lock downs, weather closings, etc.), but also on a daily basis for parent-teacher outreach and attendance monitoring. However, in light of the significant role that TSN systems were able to play in providing essential information during last year's storms, a growing number of municipalities are expressing interest in utilizing the technology as a key component of their community-wide emergency response programs. NTI has recently launched a new service, called the ***Connect*-CTY™** service, in response to this demand.

The best way for local communities to enhance their emergency communications capabilities to incorporate technological advances such as TSN technology is through voluntary public/private efforts. For example, in comments filed in the FCC's ongoing EAS proceeding, NTI has urged that the agency include TSN services in funded pilot programs. NTI also has urged the FCC to recognize TSN systems as "eligible services" under the E-rate program.

The WARN Act is of crucial importance because it reflects a clear recognition of the limitations of current emergency notification systems. The Act provides for the establishment of a National Alert System ("NAS") whose functions already are achievable with TSN technology. For example, the Act calls for an NAS that:

- will "supplement existing Federal, state, or local emergency warning and alert systems";
- will "be designed to provide alerts to the largest portion of the affected population feasible" and to "improve the ability of remote areas to receive alerts";

- will be “flexible enough in its application to permit narrowly targeted alerts”;
- will “not require members of the public to activate a particular device”; and
- will provide “secure widely dispersed multiple access points” and “system redundancies to ensure functionality in the event of power system failures” or other interruptive events.

As described above, TSN technology meets these statutory goals today. TSN systems already are being used to supplement the existing EAS and for providing alerts to the affected population, including targeted alerts to specific at-risk groups. It is well-suited for use in rural areas and does not require the activation of a particular device. Finally, multiple access points and redundancies that ensure the system’s functionality are inherent in the design of enhanced TSN services.

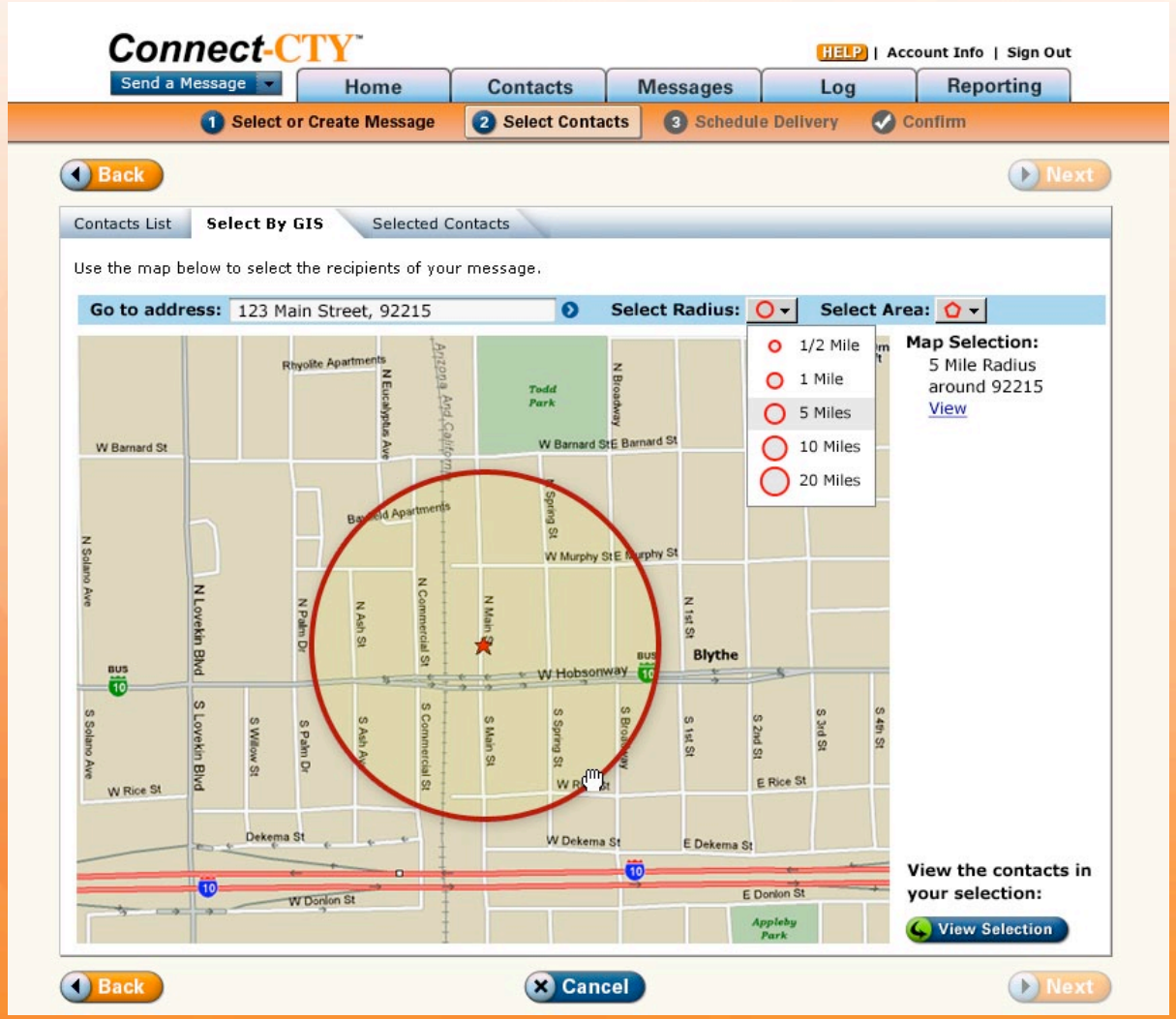
There is no question that we, as a nation, need to be forward-looking in our thinking about emergency communications and we simply cannot wait another four or five years before upgrading our alert capabilities to take advantage of advanced technologies. In particular, we believe there is an immediate need for pilot programs that will demonstrate the feasibility of incorporating existing enhanced technologies into an improved national alert system. As the provider of one such advanced alerting system, we heartily endorse the WARN Act and look forward to working with members of the Subcommittee as the bill moves forward.

Geo-Targeted Messaging by Radius

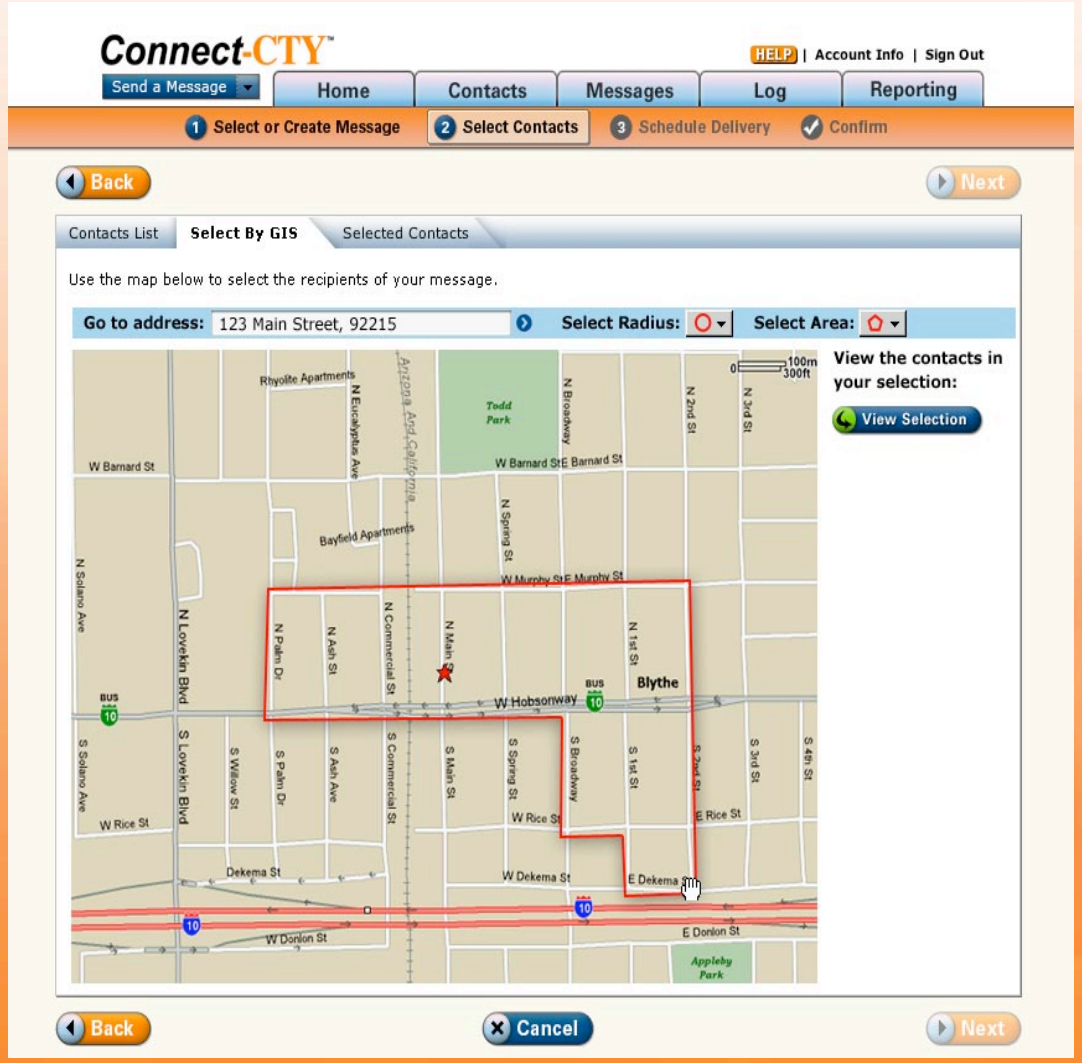
Suspected Emerging Disease Incident

(Bird Flu)

"Send this message to all addresses within a five mile radius."



Geo-Targeted Messaging by Polygon



A chemical spill has just occurred.

"Send this message to all addresses within a five square block area."