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Testimony by Guy W Clinch of Avaya, Inc. before the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks

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(Please note: Highlighted text presented as given in live testimony)

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Introduction:

Chairperson Victory and distinguished members of the panel, thank you for the opportunity to address you today.

My name is Guy Clinch, I have over 25 years experience in the telecommunications industry. I have counted among my Customers major metropolitan police, fire, healthcare, education and other organizations responsible for the safety and welfare of the public.

My message is that communications, arranged correctly, enables government to fulfill its duty to protect citizens in disasters.

My company, Avaya Inc., is one that arranges communications. We have a long and unique vantage point on disaster communications. Avaya is a significant communications provider to government at all levels. We serve more than 90 percent of the Fortune 500, many of the largest states in the Nation and agencies all over Washington, from the Department of Homeland Security to the White House.

As distinct from telecommunications carriers, Avaya provides advanced phone systems including wireless, voice messaging, and call centers. These are the tools of communications that people touch, and our business is to arrange these tools specifically for organizations' needs. Avaya has a long history with mission-critical communications that protect citizens. We enable government to manage disasters and minimize their human toll.

I'll talk about the three phases of disaster response; before, during and after. I will be specific about a number of response capabilities. These are communications applications that might have been used during Hurricanes Ivan, Katrina and Rita to decrease the impact of events on the public.

First a word about technologies that might be applied; There are many, and no single one is enough. What is needed is a toolkit that can be applied as circumstances dictate. Some tools become part of the permanent infrastructure; others such as quickly deployable mobile communications systems are available upon demand. What's needed is integration of best-in-class applications, based on non-

proprietary industry standards in communications. What is needed in short is more planning and better arrangement of resources already available.

Many of the technologies I will mention are examples of how the combination of the power of computers and the power of telecommunications networks is facilitating revolutionary new approaches to disaster preparedness, response and recovery. The dramatic expansion in personal mobile communications energizes all of these possibilities.

With nearly two hundred million current domestic mobile telephone users, government entities in the United States are in a potential position to be able to communicate with Citizens in advance of events in unprecedented and personalized ways.

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The First Phase:

In the first phase of emergency response before events unfold, the communications challenge is often a message challenge as well as a technology problem. Accurate and actionable information in advance of events can place many out of harms way. Look back a year before Katrina to Hurricane Ivan in New Orleans. After Ivan, New Orleans resident Latonya Hill, commented, “They say evacuate, but they don't say how I'm supposed to do that.” [i] Little changed.

Even after Katrina, Hurricane Rita showed again the inability of the government to communicate critical and specific information. As Rita churned toward five million people in southeast Texas, and with no clear direction from their government, we experienced a traffic jam 100 miles long!

Had Rita struck with full force, many would have been exposed on the highway. In asking the military to help in rushing fuel to stranded drivers Mayor Bill White commented, "being on the highway is a deathtrap…"[ii]

Getting information right is the first step, but we must arrange communications to deliver it.

Consider how a technology in use in many municipalities across the country might have changed these scenarios. Last year in my home town a chemical spill at the water purification plant caused dangerous pH levels in the town’s drinking water. Advantageously my town has an automated Emergency Mass Notification System - a system that uses a computer to automatically place thousands of simultaneous telephone calls - within minutes of the spill every resident of the town received a telephone call explaining about the situation and giving specific information about appropriate actions.

Periodically during the following days, update phone calls kept citizens informed until the problem was resolved.

That technology can work on a large scale. Before Texans had left their homes in cars, what if they had received a phone call from their government with specific information about when and how to evacuate? What if regular periodic calls to their cell phones kept drivers informed about alternate routes as congestion developed? What if the system allowed motorists to press a key, respond to the emergency message and reach out for help such as for directions about where to buy fuel or find shelter? This is all existing, low-cost, yet often unused technology.

Emergency Broadcast:

This concept can help government address another looming problem. Since 1963 the Emergency Broadcast System has been assumed to be the primary way that government could disseminate critical information to the public[iii]. Jim Flyzik, chairman of the Information Technology Center of America's homeland security committee recently explained that the system is no longer viable[iv]. Technological changes and economic factors have resulted in many local broadcast television stations to have been abandoned by personnel and are now remotely operated. In addition because of the advent of alternative information options such as the Internet and widespread cable and satellite television many citizens may never any longer watch broadcast television. The government is challenged to find a more effective and resilient way to communicate critical information.

The approach so far has been to attempt to adapt the Emergency Broadcast System as new technologies emerge[v]. Now called the Emergency Alert System, an attempt has been made compensate as the target audience has fragmented.

What has yet to be fully examined, however, is the opportunity presented by the revolution in personal communications. According to the Cellular Telecommunications & Internet Association at mid-year 2005 there are 194,479,364 domestic cellular phone subscribers.[vi] Even in rural areas, most individuals can now access two-way communications regardless of whether they are in reach of a physical network connection. This fact allows us to envision intriguing new possibilities for mass notification.

For instance, many personal cellular telephones today contain Internet browsers. Technologies exist to allow governments to push relevant information in the form of multimedia to these devices. Photos, maps, and graphic animated displays can be used to capture people's attention. Governments could also use other cellular telephone technologies such as the Short Message System (SMS) [vii] and so called Push-to-talk hoot and holler features to get the word out.

Technology Pushing Technology:

Telecommunications applications can be manually initiated, but as well automatic and event triggered. This is important because although many technology advances have helped public safety agencies, other evolutions have created new challenges. As an example, before cell phones when a traffic accident occurred, one or two phone calls reporting the problem would be received by the local Public Safety Answering Positions (PSAP). Today twenty times as many simultaneous calls are not uncommon[viii]. The change has occurred because people wishing to help no loner need to drive to a wired telephone and get out of their car to make the emergency call. Today for every one road incident as many as fifty calls can come in from Good Samaritans calling directly from the scene or having just passed by.

Traditional PSAPs are struggling to compensate for these new voice traffic volumes that were never anticipated when the equipment in the PSAP centers was designed. Compounding the problem is the fact that the average PSAP in this country is staffed by only 2.7 personnel and 80 percent have five or fewer personnel.[ix] Even day-to-day events such fender-bender automobile accidents routinely overwhelm the administrative resources of public safety organizations.

Event Driven Communications:

Event driven technologies can help. For example, based on geographic information obtained from Global Positioning Satellite technologies present in cell phones, automated systems can identify the location from which mobile telephone calls originate. Once the first call is received and logged reporting an incident, computer based programs can identify subsequent calls from the same geographic area and automatically answer the calls with automated announcements that confirm the caller is reporting the same event - allowing them to opt out to a live agent if they are reporting a different event - and then informing the caller that the situation is under control.

Another example is that notification of appropriate officials immediately as events occur can be enhanced through automation. In many cities today sophisticated camera systems are being put into place that can identify vehicle license plate numbers and even do facial recognition of persons of interest by law enforcement. These systems can trigger automatic conference calls that gather the appropriate personnel for an immediate and impromptu discussion.

Speech based document conversion technologies can automatically brief callers as they enter the conference giving details important to a productive conversation. Multimedia converged applications allow documents such as photos from the cameras and comparison mug shots to be automatically delivered along with the conference call to cell phones, Personal Digital Assistants and Voice over IP computers.

In many cities air monitoring systems continuously test for the release of hazardous chemicals. These systems can be integrated with telecommunications so that command and control is automatically notified as danger arises.

Emulating the "flash mob" phenomenon[x] simultaneously and without any intervention, corps of qualified first responders can be contacted, have their credentials check, be tested for fitness, be given instructions as to where to go and be queried for an estimated time of arrival at the scene. With little intervention commanders can obtain speech driven real-time reports detailing staffing levels, resource availability, and current deployment.

Cumbersome directories and calling lists can be enhanced or eliminated by speech driven technologies. Rather than dialing numbers or keying in codes, commanders might simply speak into their telephones, "Get the Red Team" and automated systems can assemble the personnel into a conference. Participants can receive a telephone call with an automated voice that says, "Commander Smith requires your immediate attendance on a conference call." A short message that Commander Smith had been prompted to record such as, "Chem spill on Main Street," can serve as a preamble for the participants. With no further actions participant can be assembled into the automatically convened conference call.

To insure that only the appropriate parties join the call, security may be maintained by requiring the participants to repeat a word or a string of digits and biometric technologies can be used to electronically match the voice of the person holding the phone to that of a prerecorded voiceprint.

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Phase Two:

Let's now consider communications as a disaster unfolds. Command and control of responding organizations, and speed and flexibility of their reactions depend upon robust communications yet significant obstacles exist between agencies and jurisdictions. According the Department of Homeland Security, "The challenge of communications interoperability has plagued public safety agencies for decades."[xi] It is now almost five years since September 11, 2001, and responding organizations from one county or agency in all likelihood cannot communicate with other first responder organizations in the same locale.

One debate is about radio spectrum. According to the DHS the federal government has set aside over $3.5Bil to upgrade and replace existing Public Safety Communications equipment.

Frankly, much of this debate is re-arranging deck chairs. Even if the political choices were made to allocate spectrum for Public Safety, how long would it take and how much would it cost for 3,034 counties, and 87,849 local governments[xii] to convert to the new standard? Consider a comparable example.

Enhanced 911 standards were required by the Wireless Communications and Public Safety Act of 1999 (911 Act). It is a federal law backed by a series of orders, of which you may be familiar. Yet, E-911 is still to become a universal reality. Transition Period Deadlines have expired, investments have been made, but incompatibilities still threaten the lives of those in the path of danger as was so a decade ago. [xiii]

The answer to the Interoperability challenge is not to rip-and-replace existing public safety communications systems. The cost, complexity and risk are too high. The answer lies in solutions that bridge the gap between the disparate radio systems of multiple agencies. Solutions exist, they are being implemented in both the public and private sector, and the process makes use of the tools already familiar to the first responder community. They even add functionality -- allowing an official on a traditional telephone, a cell phone, and even a Voice over IP device to dial through to the public safety communications systems. In addition to interoperability, these systems add features such as conference calling, call pickup and live transfer.

The Quarantine Challenge:

Up until now in our discussion we have focused on the traditional notion of a disaster where the challenge is to evacuate people away from impending events. Quite different from recent events such as hurricanes, today's realities force us to consider other possibilities. According to comments made recently by Massachusetts Lieutenant Governor Kerry Healey (R), rather than evacuation, events such as a potential Bird Flu pandemic may force governments to quarantine large geographic areas for extended periods of time[xiv]. How will governments maintain order, educate children, and keep a constant dialogue with citizens when mobility is limited.

Telecommunications applications and the convergence of telephones with computers hold some of the keys. Distance learning applications that transcend the physical campus and bring the classroom to the home by taking advantaged of the Internet and telecommunications networks can keep the education processes moving. Broadcast notification solutions can bring specific and relevant information to the individual in their home. Large scale conference calling technologies can help to erase isolation and help maintain the sense of community.

New advances in telecommunications applications are showing great promise in enhancing personal safety. Because cellular telephones have become minicomputers there are new applications that can be loaded on to the processors in cellular telephones that, for instance, can allow the user to turn on and off features such as mobile "bread crumbing."[xv] This is a concept in which at the user's discretion the telephone network can track their movements with relation to cellular telephone ground stations.

For instance, a woman walking alone on a college campus might activate the system if she felt ill at ease or threatened. If she then signaled that she was in danger by pressing a one-touch button or after a specific period of time her movements ceased and she had not deactivated the functionality, campus authorities might be dispatched to her geographic vicinity.

With proper subscription requirements and respect for privacy, a whole new level of two-way dialogue between the citizen and their government may become possible. Citizens might opt-in to a system that in the event of localized or national emergency, would allow them to receive telephone calls with specific and actionable information directly to the phone they carry with them most hours of the day.

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Phase Three:

After an event like Katrina, the goal is to restore civilian well being. You need to know who is affected – what their needs are – and how to direct the right, individual help. Avaya and companies we work with responded after Katrina to an American Red Cross request by urgently deploying call centers at the Houston Astrodome and Red Cross shelters cross the country. This is how displaced citizens found missing family members and told one another they were alive. The systems also helped the Red Cross to process the tens of thousands of applications for assistance. The call centers were the beginning of civil aid.

Even a severe disaster is soon over. Renewed civility begins with hot food and dry clothing – but also by handing along valid information from public entities to relief organization, matching those in need with the needed resources, and providing efficient, responsible distribution of resources. This, too, is difficult after disaster, but it doesn't have to wait for agents to personally answer telephones, nor require that a victim find some way to go online. Self-service voice technology can collect information in an organized way from callers even when a live agent can't answer.

Communications for human follow-up after Katrina were planned in reaction, and the lesson was that relatively modest advanced planning would achieve better results much sooner.

Consider that radio towers, telephone poles and other infrastructure often fail in disaster. Mobile communications resources need to be available for quick deployment and may also be pre-positioned to make their deployment even faster. They can be made self-sustainable with generators and linkable to satellites. And when they are based on industry standard protocols, they can participate flexibly with other technologies.

In the urgency of Katrina, disparate agencies and competitors set aside jurisdictional differences and, under American Red Cross auspices, delivered mutual planning and cooperation. In planning scenarios that would anticipate disasters, that same spirit can continue to prevail. Avaya continues to be engaged in planning of this kind. Avaya's view is that a range of private communications facilities, such as call centers, can by agreement be pooled and arranged for shared emergency use within hours rather than days.

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Conclusion:

In summary, mainly planning – and only modest investment, and straightforward arrangements of existing capability – are needed to implement in directions I have outlined. Visions should not crowd out realism. Imagined ideals need not trump what is possible. Emerging technology has an enormous role, which I have intentionally under-emphasized in this brief commentary. Avaya seeks the chance to conduct further discussion, when opportunity permits. Advancing technology can expand the powerful existing capabilities that I have emphasized, and no investment revolution is required.

Endnotes:

[i] http://www.usatoday.com/weather/hurricane/2004-09-14-new-orleans-storm_x.htm

[ii] http://www.huffingtonpost.com/2005/09/23/100milelong-traffic-jam_n_7777.html

[iii] http://www.fas.org/nuke/guide/usa/c3i/ebs.htm

[iv] http://ledger.southofboston.com/articles/2006/02/25/news/news11.txt

[v] http://www.fcc.gov/eb/Orders/2005/FCC-05-191A1.html

[vi] *http://www.ctia.org/research_statistics/index.cfm/AID/10030*

[vii] http://www.ravewireless.com/index.php?option=com_content&task=view&id=74&Itemid=23

[viii] http://www.itspublicsafety.net/docs/ImplementationGuide.pdf

[ix] http://www.nena.org/pages/Content.asp?CID=144&CTID=22

[x] http://en.wikipedia.org/wiki/Flash_mob

[xi] http://www.dhs.gov/dhspublic/interapp/press_release/press_release_0529.xml

[xii] http://www.census.gov/prod/2003pubs/02statab/stlocgov.pdf

[xiii] http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-01-351A1.pdf

[xiv] http://www.dailyfreepress.com/media/paper87/news/2006/02/27/News/Healey.Proposes.Massachusetts.Disaster.Contingency.Plan-1639165.shtml?page=2

[xv] http://www.ravewireless.com/index.php?option=com_content&task=view&id=76&Itemid=39

Additional Resources:

- http://www.avaya.com
- http://www.nena.org
- http://www.ravewireless.com
- http://www.dccusa.com
- http://www.twistpair.com

Speaker's Biography:

Guy W. Clinch is the Director of Programs and Solutions, Public Service Markets for Avaya, a leading global provider of business communications applications, systems, and services. He is responsible for the creation of solutions addressing the unique requirements of State and Local Government, Education and Healthcare markets.

In this role Mr. Clinch has worked with Avaya customers, front line associates and industry organizations to conceptualize and implement the Avaya Public Safety Ecosystem. The Ecosystem, a defined set of concentric safety nets involving software, hardware and best practices, enable institutions to prepare for, respond to, and recover from business communications disruption.

Mr. Clinch has over 25 years experience in the telecommunications industry during which he has created frameworks of repeatable solutions based on common requirements across vertical and horizontal industry groups. This work has often redefined corporate strategies. His background also includes successful direction and management of customer facing sales and technical teams. He was previously with Lucent Technologies, where his teams continually surpassed achievement of objectives; and with AT&T where he was responsible for directing technical field forces in real-time customer service interactions.

Mr. Clinch is a graduate of Harvard University and is a frequent spokesperson at various conferences and forums with a primary focus on Avaya solutions in the State and Local government, Education and Healthcare industries. He currently resides in Massachusetts.