The Path Forward

A follow up to *The Case for Integrating Crisis Response with Social Media*

and call to action for the disaster response community

American Red Cross

On August 12, 2010, more than 150 people attended an Emergency Social Data Summit at the American Red Cross national headquarters to discuss what possible steps could be taken to move toward integrating social data with disaster response. Another 1,200 contributed virtually to the conference via Ustream and Twitter. This gathering marked the first time that government, nonprofit, technology, and citizen sectors came together to discuss the opportunities and challenges we face in integrating social data with disaster response.

A wide range of ideas and questions came out of the day-long conference, with seven key questions emerging:

- What can we do to prepare in advance of a crisis?
- Who should have custody of social data? How should it be used?
- Can we codify a solution?
- What about the Issues of Accessibility?
- How do we avoid duplication of effort?
- What is the best way to authenticate requests?
- How do we manage citizen expectations for response?

This chapter will examine the issues, opportunities and challenges surrounding each of these questions. Moreover, this chapter will offer suggestions for moving forward, including the formation of working groups to develop possible solutions to the many questions and concerns raised during the conference.

What Can We Do to Prepare in Advance of a Crisis?

The need to reach out to communities to train, build expectations, identify possible solutions, and find answers in advance of a disaster were the overarching themes from the roundtable discussions at the August 12, 2010, Summit.

Many of the organizations at the summit (such as the Red Cross, FEMA, other U.S. government agencies, local responders and other aid groups) are usually the ones evangelizing for the public to be prepared for emergencies, but it was clear that these groups also recognized the need to prepare themselves to listen to and process incoming communications from the public by having fluency in and processes for whatever tools the public may choose to use.

Speakers and discussions at the summit reinforced the importance of advance planning instead of trying to figure out how to use the systems during a crisis. While many volunteers have taken the opportunity to help during disasters, the consensus was that all parties need to take steps now to prepare themselves and the public for emergency data correspondence. This includes building relationships with the public via digital channels in advance of an emergency.

Some counties have made steps toward starting to build this capacity, but at present they are mostly push systems to aggregate and report information, rather than systems that capture and aggregate incoming information. For example, King County (Seattle) and its Regional Public Information Network (RPIN) provide a resource for news alerts from more than 75 government, transportation, utility, health and emergency response agencies serving citizens in King, Pierce and Snohomish counties.

The RPIN keeps the public informed about street and highway closures, weather, major transit disruptions, and provides updates on what agencies are doing to respond to emergencies and incidents. The network also maintains a real-time 911 and fire

dispatch log online. However, it does not currently take citizen reports from social networks and add them to the mix.

By taking the King County approach as a model and engaging local stakeholders in advance, an emergency will be less chaotic as people will know how to get and send information when a crisis occurs. Agencies and organizations comfortable with both pushing and pulling valuable emergency-related information via the social web should ensure a direct and frequent connection between operations and the social engagement function. In addition, by adding monitoring and aggregation of real time reports through social networks, along with visualization tools to map these reports, it is more likely lives will be saved and volunteers empowered to act.

Who Should Have Custody of Social Data? How Should It Be Used?

Summit participants were passionate about the need for a central, uniform system juxtaposed with multiple potential responsible parties including local responders, state agencies, NGOs, volunteer organizations, and, of course, the federal government.

Complicating the issue are the different types of crises and the question of jurisdiction. For example, the recent Deepwater Horizon oil spill was not declared a formal disaster by the federal government, but several federal agencies made decisions about fishing permissions and use of dispersant. In addition, local authorities made decisions about beach closings and British Petroleum (BP) made decisions on clean-up, claims and capping the leaking well. This example doesn't take into account the

authorities responding to wildlife concerns, hurricane patterns or the many volunteers working with agencies or independently on matters affected by the disaster. Adding broader geographic layers, up to and including international organizations, further complicates the question of jurisdiction in an emergency.

While a centralized source or place for information collection seems necessary, it's unlikely that there will be one source for crisis data. The challenge may more likely be met with creating a standard that parties can agree upon, and a suggested method for data to be sourced, collected, verified and acted upon in a timely fashion during a crisis. In essence, roundtable groups at the Summit said they wanted to create a way for all the data on a local, regional or national basis to be collected and passed on to organizations that need the information.

Other concerns about a centralized system were the lack of certainty that social networks can continue to function in times of disaster, and that a centralized system might fail – or worse, that a singular agency may not perform in a time of crisis. It was recommended that flagging systems go beyond a single network, such as Twitter. Using a system that sources a universal hashtag or code allows the system to extend beyond a singular point of failure. If someone can't Tweet, and instead updates on Foursquare the universal code should catch it. Furthermore, using an open universal code could allow for redundancies so that responding government agencies and NGOs can act if one has a point of failure.

One possible solution would be to port data into the current 911 system. While giving the appearance of a centralized system, 911 is actually distributed. "A central

location seems implausible," said one roundtable group at the Summit. "Even with 911, which may be the best source for emergency response, people have a hard time remembering to go there. This is in spite of a robust sensitization campaign and strong brand awareness."

Another roundtable group thought the problems presented by centralization might require a national consortium of organizations spanning federal, state and NGOs to provide guidelines on data collection and facilitate preparedness and/or warnings for networks to distribute. This consortium could function as a loosely defined independent agency, similar to the National Science Foundation's (NSF) outsourced management of the Internet to companies like PSINet, CERFNet, UUNet and others in the 1990s as part of the Commercial Internet Exchange (CIX).

Another example of how to approach this is the model used by OASIS, which hosts the XML standards EDXL and CAP; and also W3C (http://www.w3.org), which does not currently host emergency or disaster related standards, but does host much of the infrastructure standards like HTML, CSS, XML, etc.

A third roundtable group noted that every state has an Emergency Operations Center (EOC) where data can be aggregated. States provide links to live feeds and situation reports from the field that are shared through technical and governance components. These EOCs could easily be integrated into mapping tools like Ushahidi's solutions and visualized, enabling emergency operation centers to become aggregators.

Generally, Summit participants believed that ANY data system – centralized or not – should be open to ensure saving lives is the top priority. Waiting for permission or

authority to act could cost people critical time. In addition, open systems invite the power of the crowd.

Can We Codify a Solution?

A common question heard throughout the Summit was, "How do we develop a network-friendly code for the public to use?" This solution would need to be easily aggregated across multiple social networks and applications. Facebook and Twitter may be popular now, but different tools will no doubt also be popular in the future. Whatever system is selected needs to work across diverse networks and applications. This requires a specific code or a subset of commands which can direct a statement to emergency response.

One suggestion included using a code word like "e911" or other key data phrase that can be monitored and aggregated regardless of the social network in which it appeared. This could be set as a standard by legislation, similar to Section 508 compliance, which requires Federal agencies to make their electronic and information technology accessible to people with disabilities, and Amber Alerts, which has a protocol for determining the escalation of a report of a potentially abducted child to the issuing of an alert.

Depending on how data is housed or filtered, many participants advocated for an open applications programming interface (API) which can be developed for disparate emergency responders on the local, state and national levels. This would also permit open data sharing among geographically diverse groups of people, and empower the

spirit of volunteerism noted in the Crisis Camps movement and cited throughout the white paper and the Summit.

Finding a uniform code, data set and/or application programming interface (API) remains crucial to response because it affords organizations the opportunity to educate the public about the codes or procedure in the event of an emergency. Using a common data set also creates the possibility of opt-in listening grids, similar to Kate Starbird's Colorado EPIC project "Tweak the Tweet" (*see details in Chapter Three: The Crisis Collaboration Movement*).

One critical aspect of a data standard would be ensuring that geodata is passed along and shared. A Summit roundtable cited that 10 percent of people had smart phones that could offer geolocation (ComScore's data says 45 million in the United States, or 14.6 percent, have smart phones that could offer geolocation). This data could greatly help responders pinpoint locations to send assistance.

One Summit roundtable group thought a simple answer was a 911 API, although the "simplicity" of this is debatable. An SMS gateway to 911 would be one possibility, although it would need to be verifiable – the ability to talk with someone is a key part of the current system to prevent overload. Moreover, another group raised the possibility that this type of solution would take years to implement, require huge outlays of capital and a significant increase in capacity.

The technical issues with texting are numerous, and start with the necessary rulemaking to account for this within the FCC's 911 rules, and the subsequent industry standard that the wireless industry would need to adopt. Further, the standardized

technical capability for the network access points and traffic routing would need to be adapted by the entire wireless infrastructure industry. Such a change could take years. If this solution is pursued, an intermediate step would have to be taken to more easily share data between various agencies, local government and aid groups.

What About the Issues of Accessibility?

Concerns raised at the Summit addressed accessibility for low income and poorly served communities with limited digital access. This raised the question of focusing emergency social data efforts too much on social networks, considering the fact that cell phones are often the common denominator, regardless of income. Conference attendees cited texting as the most accessible technology for communications when networks are overloaded. When voice doesn't work, a short text message often can and will go through.

In her closing Summit keynote, Heather Blanchard, co-founder of Crisis Commons, emphasized that mobility should be the focus of any solution as it is often the only option for communications during a time of crisis. Texting is a base function of the second generation of wireless networks; personal communications services (PCS) which were deployed globally in the 1990s. Of course, the 3G networks which have been deployed globally in the 2000s all have texting capabilities, as do 4G networks that are currently being deployed. Most developing countries do not have the luxury of landline communications and use 3G and 4G networks to leapfrog western "wire-based" telecommunications. Very few analog networks remain in the world, making texting an

almost universal functionality that is available globally. This raises the possibility of creating a text code to accompany an Internet code to allow anyone to text emergency management in a time of need. This could be a free service, similar to 911 and 311 calls (See Chapter Six: Devising a Solution for more about how the 911 system was devised and advanced in the United States).

"There are four billion cell phones in the world," one Summit roundtable group noted. "Statistically some people qualify for public/nonprofit assistance with cell phones. During the inauguration, they used mobile speakers as an old time approach to send messages to the public because there [was a concern that there] were many visitors attending the event that [didn't] have the same local communication resources as [the residents of] Washington D.C."

This brings up a second major telecom issue: universal service. In the United States, universal service is considered to be a question of landline (or wireless landline access network – WLAN) network access, not a mobile network. However, because of costs, most people opt for a mobile network where available. Further, most wireless carriers participate in the federal government's Federal Low-Income program.

Finally, there is a concern about language. Clearly any system built in the United States, and certainly around the world, must include provisions for Spanish-speaking people and other languages. This is a huge challenge that will have to be addressed in any public system devised to respond to digital cries for help.

How Do We Avoid Duplication of Efforts?

The fear of duplicating efforts was a major concern among attendees, and this is a governance issue that remains unresolved.

One great fear expressed by some Summit participants was having a singular agency become responsible for these types of communication. These participants preferred a more collaborative approach, citing the potential of a government agency being overwhelmed in a crisis or the potential failure of any single point of contact or technology platform. Many attendees preferred an open system, but did not have an answer for how that would be structured.

Craig Fugate, Administrator of the Federal Emergency Management Agency (FEMA) emphasized during his Summit presentation that the agency was looking to partner with the public and with NGOs during times of crisis. In a recent interview Fugate was quoted saying, “We have to work better as a team when disaster strikes at all levels of government. There shouldn't be a division between the local, state and federal government.”

Several references were made to state run Emergency Operation Centers (EOCs), which handle phone events when a crisis occurs. Data can be shared by EOCs in one master database for redundancies and outsourcing in times of need. States could provide links to live feeds, situation reports from the field, and have the information shared through technical governance codes mapped for situational access. This information could even be displayed on a map. However, EOCs don't necessarily have the manpower to perform this function at this time.

The issue of governance could be a working group for later actions.

What is the Best Way to Authenticate Requests?

Once the technology and people are in place to parse incoming social emergency data, we'll need to authenticate and verify that information so it becomes actionable. When it comes to authenticating social requests for aid, we should look for solutions that balance the operational need for verified facts with the community's social integrity. The affected community is united by its social fabric and community members may share people and infrastructure specific information, quirks, and knowledge via their online posts that proves valuable outside of the traditional verification process. That is, just because information posted on a social media site is not verified does not mean it's not real, and responders should not automatically discount information that comes from local and social network sources. At the same time, it is important to have a way to verify whether a person requesting help definitely needs help, the urgency of the need, and whether they have already been helped.

At the Summit, we agreed to believe that most people act earnestly during emergency situations, posting information they believe to be accurate and asking for help when they actually need it. But, as notable blogger Robert Scoble said at the Summit, several widely publicized online events have been staged and certainly spammers would target a much-used phrase, like the suggested e911 to send irrelevant messages. There would have to be a filter for all of this. Overall, people felt that videos and pictures carry more validity, and location-based reports can be triangulated with multiple reports and filtering (including crowd sourced filtering). As one Summit

roundtable group noted: “Trust but verify with GPS triangulation, multiple reports, and visualization tools.”

Attendee Alexander Howard noted, “The crowd that is used to source information about a crisis can in turn be leveraged to verify information. That dynamic was aptly described as ‘crowdfeeding’ by Patrick Meier, director of crisis mapping and strategic partnerships at Ushahidi. Meier also acknowledged the need for real-time information filtering, a crucial need for first responders, government and media trying to authenticate and validate crisis reports [and allocate precious resources]. One method for addressing this challenge may be through using Swift River, an open source platform for validating crisis data.”

Another aspect of validation concerns the legal ability of government entities to correct misinformation during emergencies. In Maryland’s Montgomery County, officials have determined they cannot legally remove publicly provided information on their sites even if it’s false. In San Francisco, on the other hand, they’ve determined that they can remove incorrect posts. As a solution, participants at the Summit suggested all local emergency management entities and aid agencies publicly disclose their comment policies.

How Do We Manage Citizen Expectations for Response?

With a significant difference currently between public expectations on responses to emergency social data postings and the ability to monitor and respond to those posts, one necessary step must be to manage public expectations about what will really happen during a disaster or emergency. For example, the Los Angeles Fire

Department's Brian Humphrey suggested a notification system that alerts those posting social media requests about the number of requests in front of theirs could empower them to make an informed decision to evacuate or seek aid elsewhere through neighbors. This kind of decision saves time, and possibly lives, instead of leaving people at home waiting for 911 responders to come to their aid. If a new system is established, efforts should be undertaken to inform the community about how to interact with responders BEFORE an emergency or disaster situation occurs.

One Summit roundtable reported: "Once expectations, even in the U.S., are raised that people can use social media to receive assistance, then you really have to be able to manage it… NGOs calling out for social media information have to acknowledge that social media information doesn't go to the top of the government's (the main first responder) priority list - this is key to managing expectations."

Additional public outreach needs to be done before the disaster hits so organizations that respond to emergencies can articulate their expertise and their procedures for handling requests for help in large disasters. "You won't be able to manage the public's expectations in the middle of a disaster, it has to be done beforehand," a Summit roundtable group noted.

Training people and communities to have a plan of action in case of an emergency and lack of response will be a critical part of the disaster response. People need to know where to go for help, and what to do. Creating systems such as an online queue and estimated time for response would be helpful endeavors. One aspect of training communities and educating the public could be facilitating person-to-person aid

vis-a-vis a web-based action board, which would enable nearby neighbors to be the first to respond to immediate needs.

Promoting ways for communities to help each other can reduce reliance on emergency responders and improve a community's response. Public support exists for this kind of community response where people help each other.

John Solomon wrote in a follow-up to the Summit, "An extensive survey done by the Citizen Corps found that almost two-thirds (64%) of Americans say they would be willing to take a 20-hour training class to assist their community to recover from disasters. The 64% figure was striking to me, because it points out an interest of many Americans to become more knowledgeable in an emergency. There could be a more coordinated effort to train the population so that some of the first community members on-site can be incident commanders until the official responders arrive."

This notion is consistent with FEMA Administrator Craig Fugate's goal to have people see themselves as survivors and not victims of a disaster, "Social media can empower the public to be part of the response, not victims to be taken care of."

One early example of trained community responders is the federal Community Emergency Response Team (CERT) program, which educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills. Participants at the Summit suggested integrating CERT members with a social media response activity, but several participants thought this would be a challenge because people interested in CERT activities might not necessarily be social media savvy.

An alternative to this suggestion may be to seek social media communities and train them for preparedness and response via a CERT-like program or through nonprofits such as the Red Cross. Volunteers can help facilitate message boards and online requests for help. Further, networked responders can offer these support services from afar when critical local technology infrastructure is down and not available.

Another issue occurs during disasters when people are not certified to help, but want to engage – truly, a situation where neighbors can help neighbors. Can they help via an open source system? How can such a system enable willing connections so there are no legal implications for errors during a disaster? No one wants to get sued for an accident that occurs while providing help.

Another way volunteers can help is by parsing the incredible volume of data collected in an open social response system – organizations can provide the backend resources and the public can help to to compile the information. As one roundtable put it, "When it comes down to it, a social network allows others to take action - others can verify and put pressure on authorities to respond. They also can provide psychological support and information updates to those in need of assistance."

Conclusion and Next Steps

The hope of the attending participants was that the Emergency Social Data Summit would be the impetus for a new collaboration between responding agencies, government, NGOs and the public in handling the emerging pleas for assistance through mobile, digital, social, and web-based channels. Although finding consensus on which

approach organizations and individuals can take to implement a system that will process emergency social data will be a challenge; the continued open dialogue is absolutely necessary to meet the need to incorporate social media in crisis response. The desired result is a social data system that can be tapped in times of emergency or crisis.

The important work started at the Emergency Social Data Summit will continue forward through working groups that will resolve the critical issues identified as priorities at the summit. This white paper proposes the establishment of the following groups:

- **Public Awareness and Education –** This team will work to develop an effective protocol for informing the public about the best use of social media and traditional channels, such as 911 during an emergency. It will explore ways to educate the public, over time, to provide the most accurate and helpful information to responders. The public and media want help – and they want to provide help – but more realistic expectations need to be set about how quickly someone will respond to their call for help using social data.

  Potential outcomes:

  - Development of consistent messages to the public about the best way to get help in an emergency and how social media can play a role in that.
  - A team of trained volunteers to manage external communication with the public and serve as ambassadors, educating the public on the best way to get and give help through social media- especially if a new system is implemented.

- **Next Generation of Emergency Management Tools –** Representatives that work on information technology in a variety of fields such as governmental, nonprofit, and emergency management can help define and scope out the next generation of emergency management tools. This group will also tackle the technological needs for establishing a central system to aggregate and distribute requests coming in from social networks. This group could also look at the technical obstacles surrounding finding the use of a common phrase, like e911, that might be used in social technology platforms.

  Potential outcomes:

  - A technology working group that refines a process for the evaluation of current technological capabilities in various sectors, as well as putting together the needs assessment, aggregation tool and/or process to capture and use this crisis data. This group would also help determine the most efficient and effective syntax for crisis data fed into the common system.

- **Collaboration, Processes, Governance –** This working group will find ways to better coordinate among local responders, government and NGOs in order to better serve the needs of the public. They will facilitate discussions between the various agencies and organizations that have a hand in disaster response. This group will also address questions of governance: Who or which groups should govern the management of emergency social data? How should redundancy be built in so access is guaranteed in case of failure? How do groups give access to

volunteers? How is data authenticated? The standards discussed in the previous section titled “Can We Codify a Solution?” would be best addressed by this group in coordination with the group discussing “Next Generation of Emergency Management Tools.”

Potential outcomes:

- A crisis data protocol for using and escalating calls for help from social media – this includes the common language for asking for help. A workable governance structure that meets federal, state, local and volunteer organization needs.

- **Citizen Helping Citizen** – This group will address these questions: How do we empower citizens to help each other in a crisis, utilizing social media as an effective platform for connecting those in need and those willing and able to help? How do we encourage a certain level of quality and ensure that citizen responders are not held liable for their actions the same way a professionally trained responder is?

  Potential outcomes:

  - This working group will develop processes and tools for utilizing local citizens for emergency response when traditional channels and e911 responders are overloaded. The goal is to have a system for organizing would-be spontaneous volunteers so they can provide information and get help to populations affected by disasters.

- **Overcoming Barriers to Access -** This group will address issues of accessibility to emergency social data tools for people with disabilities, language differences or socioeconomic factors that impact their ability to ask for and receive help online. It is essential that this workgroup include members from these communities and direct service providers.

  Potential outcomes:

  - Using direct feedback from the public, this working group will develop ways to overcome these barriers, reach out to segments of the population with limited digital access, and insure that the other working groups take their needs into account.

The American Red Cross will continue to discuss these issues online through the **#crisisdata** hash tag on Twitter. Chats in the coming weeks may be guided and facilitated by the Red Cross, but the hash tag will also continue to be used for general, community-led discussion. The Red Cross will endeavor to aid in the formation of the above mentioned working groups and will identify discussion leaders to guide the progress of each working group. We encourage all interested parties to participate in the conversation online or contact us at the information below.

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