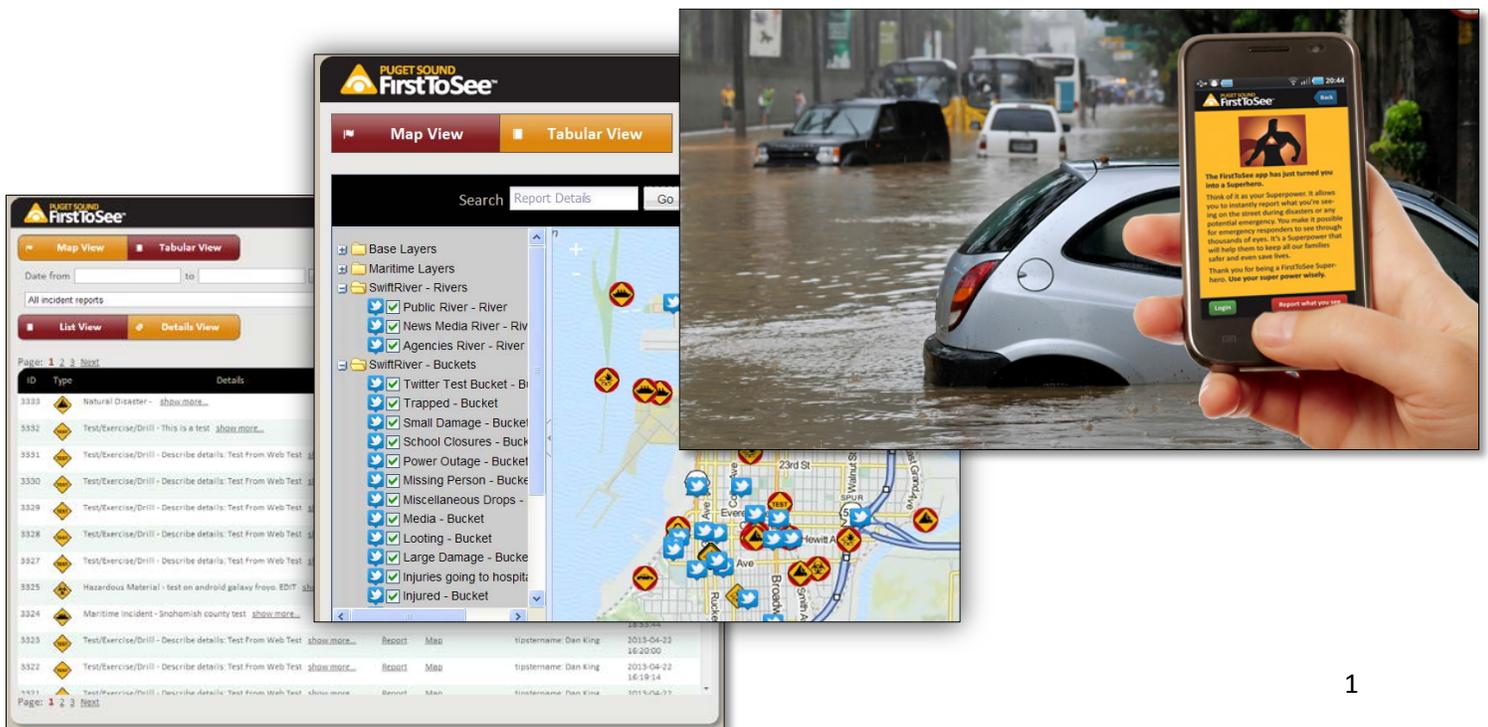




FirstToSee: Leveraging Social Media for Emergency Response

June 21, 2013



Overview

Social media now plays a critical role in how the public communicates during an emergency. The **FirstToSee Emergency Support System** leverages existing social media technologies to greatly improve emergency preparedness and management in the Puget Sound. This regional solution gives Western Washington responders the advantage of adding thousands of more eyes on the street.

Responders can use the FirstToSee portal to gather and view large amounts of data from popular social media sites. FirstToSee uses advanced technology to compile this data into filterable and editable categories. Information can also be viewed in tabular and map format. Tabular view lists abbreviated data in expandable columns and gives the status and priority of each listing. Map view gives a real-time overview of locations and incident types.

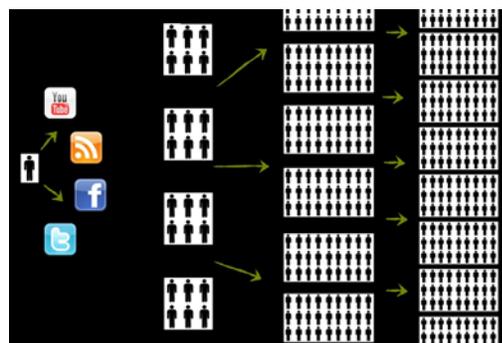
Meanwhile, the FirstToSee mobile app provides the public with new tools for communicating directly with responders. Often it is the public who are the first to sense danger or help survivors immediately following a disaster. The app allows users to send emergency reports and photos from their smartphones or tablets. These reports are available in the FirstToSee portal in near-real time. Furthermore, the app has a “trusted user” function that will highlight reports submitted by public employees or vetted volunteers.

In summary, the FirstToSee system helps federal, state and local government create a clearer operational picture and provide a more targeted response during a crisis. **Note:** the system does not replace 911. Reports are used for disaster evaluation and coordination only.

Trends in Social Media Use and Emergencies

Social media has become one of the most popular ways for the public to network, share information, or promote user-generated content. The public now relies on social media sites such as Facebook, YouTube and Twitter to communicate during an emergency. According to the American Red Cross, 80% of people expect agencies to use social media to make announcements or respond to public concerns during disasters. It’s also important that government recognizes the benefits that social media can provide in terms of emergency response.

Official messages can be repeated again and again, broadening an agency’s reach. Two-way communication allows responders to gather intelligence and measure sentiment. Responders can use social media to view eyewitness reports, photos and videos, as well as request specific information.



The following examples demonstrate how the public and responders have used social media during recent disasters:

- When Hurricane Sandy struck the East Coast in October 2012, the American Red Cross reviewed over 2 million posts and tweets using keyword searches. Of these posts, 229 were sent to mass care teams and 88 resulted in responders shifting the focus of on-the-ground operations.
- During a 2010 blizzard, the mayor of Newark, NJ, regularly used Twitter to respond to citizens' concerns. In one case, the mayor diverted snow trucks to clear the way to a local hospital based on social media feedback. Over 1.3 million people began following the mayor on Twitter.
- Queensland, Australia, used Facebook and Twitter extensively to make official announcements and quell rumors during 2011 flash flooding. Queensland had built trust with social media users before the disaster, but the numbers of Facebook followers increased from a few thousand to over 100,000 at the height of the crisis.

The Need for Better Communication Tools

The Puget Sound region is at risk from catastrophic natural disasters such as earthquakes, tsunamis and volcanic activity. Additionally, local cities, ports and military bases are known target for terrorists. During a regional emergency, even well-prepared agencies can face difficult choices over what information can be trusted and which situations need the most attention. Technology is needed that will let Puget Sound agencies better communicate with the public in case of a terrorist threat or natural disaster. Emergency agencies also need better tools to quickly and accurately gathering real-time information and sharing it with regional partners.

The FirstToSee emergency system gives citizens a new way to directly communicate with responders, as well as provide information beyond the traditional 911 phone call.

The FirstToSee Solution

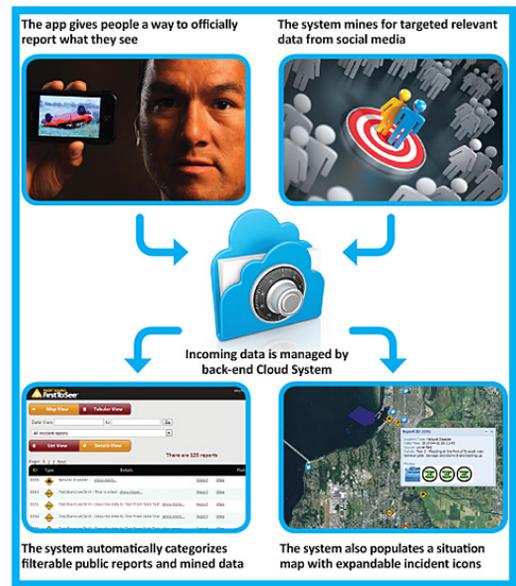
FirstToSee is a revolutionary system that makes it easy for responders to gather and review information from multiple social media outlets. This interagency resource allows federal, state and local agencies to freely share information during a large scale disaster. The system uses open-source technology such as SwiftRiver and CrowdMap for data collection and interactive mapping. These technologies were successfully used to monitor elections in Kenya, human rights abuses in Syria, and disasters ranging from the 2010 Haitian Earthquake to Hurricane Sandy to the Boston Marathon Bombings.

The FirstToSee portal gathers data from major information sources such as government reports, social media, and news feeds. Data from these "rivers" is then organized into filterable, editable categories known as "buckets."

System users can create "buckets" based on keywords or hash tags such as trapped, earthquake, fire or injured. To increase efficiency, these buckets can be set as broad subjects (earthquakes) or targeted to a single event (collapsed West Seattle bridge). The system then drops any relevant tweet or report into the appropriate bucket.

FirstToSee also makes it simple to switch between tabular and map views. The tabular view lists abbreviated data in expandable columns and gives the status and priority for each report. A simple click provides key details such as incident type, description, date submitted, attached photos, etc. The map view provides a real-time overview of locations and incident types. Users can simply click on icons to see photos and details of what is happening at a given location.

The FirstToSee public app gives emergency responders the advantage of adding potentially thousands of more eyes on the street. Previously, the public's main method for contacting responders in an emergency was calling 911. With the FirstToSee mobile app, citizens can easily send a detailed emergency report using their mobile device. Users can take a photo, select a type of incident from a pre-defined list, and enter any details. The app automatically maps the user's location and submits the report to the portal's database in near real-time. Citizens can enter their contact information or submit a report anonymously. The app also has a "trusted user" function that will highlight reports sent from responders, public employees, or trusted emergency volunteers.



System Benefits

The information portal offers the following benefits for responders:

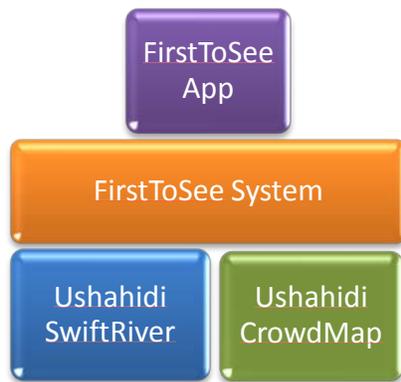
- System is Cloud-based, easy-to-use and non-resource intensive
- Provides responders with tools to quickly gather and sort thousands of social media messages
- Provides information in map and tabular format
- Allows multiple agencies to easily share information during a regional disaster
- Allows new users to be trained in a few hours
- Adds potentially thousands of eyewitnesses during an emergency

The FirstToSee mobile app offers the following benefits for the public:

- Allows users to potentially save lives with a smart phone, tablet or laptop
- Keeps the community safer by reporting anything that looks dangerous or suspicious
- Increases the effectiveness of emergency responders by acting as their “eyes on the street”
- Allows the public to feel helpful and proactive instead of feeling helpless during an emergency
- Trains public users on how to prevent and respond to emergencies

FirstToSee Development

The FirstToSee project is the result of a \$550,000 federal homeland security grant and was developed by a core team of Pacific Northwest Economic Region (PNWER) and Pierce County staff. The project’s goal: create a real-time social media integration system to improve disaster readiness and emergency communications. The project team also worked closely with Ushahidi, a non-profit company that develops free and open source software for information collection and interactive mapping.



The portal was built using Ushahidi's SwiftRiver and CrowdMap open source platforms. These technologies were chosen due to their proven ability to collect, analyze and filter real-time data from social media sources.

The project team worked closely with the Ushahidi community to customize the existing SwiftRiver and CrowdMap platforms for use as a system to establish a regional common operating picture.

The project team also spent several months developing the public app based on industry best practices. In order to reach the largest group possible, the app was designed to be compatible with both Android and Apple devices.

The program was further supported by an advisory group that included the U.S. Coast Guard, Puget Sound Joint Harbor Operations Center, Washington State Fusion Center, Washington Department of Transportation, Washington Ports Association, Port of Everett, and Everett Emergency Management. This group provided much-needed feedback on the system's design, as well as recommendations on how FirstToSee could best meet the needs of Puget Sound responders.

Successes and Next Steps

The system was successfully tested during a major emergency exercise in May 2013. Testers were impressed at how easy it was to submit reports via the app, as well as how the portal’s map and tabular display helped to keep data organized. The system is currently being demonstrated to the Puget Sound

emergency community. Neighboring counties, cities, fire departments, and even public utilities have expressed an interest in adopting the FirstToSee system. In the near future, the mobile app will be promoted to the public through videos, brochures, and online tools.

A Phase Two of the project is planned for 2014. During this phase, the system will be upgraded to support video reports and a wider range of smartphone platforms. The project team plans to build redundancy and cybersecurity components, as well as make system enhancement to the filtering and data segregating tools. The ultimate goal is to make the system available to other maritime and metro areas outside of the Puget Sound.