2007 NASCIO AWARD NOMINATION

Government: Government to Citizen

Oklahoma Department of Emergency Management's Weather Notification System

Title of Nomination:	Oklahoma Department of Emergency Management's Weather Notification System
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Executive Summary

The Oklahoma Department of Emergency Management's (OEM) Weather Notification System is a FREE service that allows citizens of Oklahoma to receive weather notifications sent directly to an e-mail or mobile phone/pager. The OEM Weather Notification System is located at https://www.ok.gov/notifications/index.php and is the first comprehensive weather notification system to be sponsored by any state government. The system provides a rapid, efficient notification of urgent weather information. The application utilizes satellite fed data obtained from the National Weather Service (see more details in the Notifications: Automated section). Recipients are no longer required to be tethered to a radio or television to receive timely weather information. Subscribers have the option to receive weather notifications for up to five counties, and are able to specify by weather occurrence including: winter, flash floods, severe thunderstorms and/or tornado watches and warnings.

Communication plays a critical role before, during, and following any disaster, natural or otherwise, and public safety should not be compromised by delays in information. Nor should these situations be complicated by attempting to locate and direct residents – repeatedly – to safe areas. As a government service, Oklahomans can be assured that this is a reliable system and provides subscribers with many options to keep their families safe. With the National Weather Service as the primary source, the OEM Weather Notification System consistently sends out alerts prior to other media outlets and city sirens.

The user experience is enhanced by the fact that the weather notification system has sent out warnings several minutes before an intended storms arrival and before prominent weather personalities were able to warn citizens through traditional media outlets. On March 29, 2007, a tornado touched down about 4:20 p.m. in the area of North West Oklahoma City. With this particular tornado, no weather broadcaster was able to predict the occurrence until it was already on the ground creating damage. However, at 4:12 p.m. a notification was sent out to all subscribers warning them to immediately take cover. A few minutes later, about 4:15 p.m., the tornado sirens began to sound (see *notifications: automated* to view why the notifications are able to alert subscribers prior to sirens and media outlets). This is just one real life example of the effectiveness of the system and improved service delivery for subscribers.

Clearly stated title

Oklahoma Department of Emergency Management's Weather Notification System

Concise description of the business problem and solution

The mission of Oklahoma Emergency Management (OEM) is to minimize the effects of natural disasters upon the people of Oklahoma by preparing, implementing and exercising plans that support public safety. Oklahoma has a reputation for dangerous weather and this system was built through a partnership with OEM and OK.gov to protect Oklahomans in case of natural disaster occurrences. The system was built to address OEM's mission, and is now the most comprehensive, FREE weather notification system available in Oklahoma.

"In Oklahoma, hazardous weather is the primary threat so staying informed is vital," said OEM Director Albert Ashwood. "This system provides an essential tool to help keep Oklahomans safe."

The system has been in operation since December 2002, but in October 2006 enhancements were made to improve service delivery to subscribers. Subscribers can now include Winter Weather Warnings and Watches to their notifications and can add their mobile phone or other PDAs to their subscription.

The OEM Weather Notification System outperforms all competing weather notification systems in Oklahoma. The system is delivered across several platforms including desktop, laptop, personal digital assistants, and wireless devices and includes many notifications (see Executive Summary on previous page). With wireless device access, citizens of Oklahoma can be aware of dangerous weather even in transit, when they are away from their televisions and other media outlets.

Weather notification systems are provided by many third party vendors, however, these systems are normally limited in scope and sometimes require the user to sign up for a subscription fee. With the OEM system, Oklahomans are provided a reliable system at no cost to the subscriber. The main competition includes:

- *Newsok.com I-News and Weather Podcasts:* Users can download an application, called I-News, to their hard drive, or listen to weather updates from their MP3 players.
- *Kfor.com 4 Warn Alert Desktop and 4 Warn Alert Email/Wireless:* Users may download a free small, simple application and install on a Windows-based personal computer or apply to an email or wireless alert that is limited to one county.
- *Koco.com Desktop Alerts and E-News Weather*: Users can sign up for free desktop alerts or the basic sign up module, E-News Weather. It only allows users to sign up for one county and has no options for multiple weather occurrences.

Significance of the project to the improvement of the operation of government

The ability to disseminate information to the public about weather related events is the main reason this system was developed for the Oklahoma Department of Emergency Management. With the Weather Notification System, the Oklahoma Department of Emergency Management significantly improved their ability to satisfy the public demand for easy access to weather related information that in many cases can be life saving.

Other significances to the improvement of the operation of government include:

- The ability, if needed, to immediately reach all subscribers at once.
- The reduction of the risk of miscommunication.
- The power of real time communication and historical reporting.
- The minimization of communication interoperability issues.
- The increased amount of time for coordination of disaster relief efforts.
- The capacity to free up key personnel and reduce risk of error during a weather event.

Public value of the project

User Benefit
This innovative online service was needed to help safeguard Oklahomans from the volatile weather that is common in Oklahoma. As a government service, subscribers can be assured that this is a reliable system and provides them with many options to keep their families safe. With the National Weather Service as the primary source, the OEM Weather Notification System consistently sends out alerts prior to other media outlets and city sirens. Citizens are able to receive weather related information on their own terms and outside of standard business hours. Oklahomans can choose from a variety of different weather related occurrences including, winter, flash floods, severe thunderstorms and/or tornado watches and warnings and up to five counties.

Taxpayer Benefit
OK.gov's self-funded model allowed this application to be provided at no cost to taxpayers. The cost avoidance is realized under this business model whereby an application built in the government-to-public user category is free and allows a public user (usually a citizen) to benefit from an online service provided by the agency.

Agency Benefit
Despite an estimated development cost of $9,086, OEM was able to receive this application for free because OK.gov's transaction based applications help defray all costs of applications built under the government-to-public user structure. OEM has realized significant cost benefits from building this free system with OK.gov rather than hiring an outside party to build a similar notification system at a higher cost. No annual maintenance fee is applied to the system as well. Similar systems run upwards of over $13,000 or more a year to maintain. The agency has also realized the benefit of increased awareness through the weather notification system.

State Benefit
In addition to saving the agency money, the OEM Weather Notification System allows the state to service a wider range of constituents 24/7/365 to increase safety for Oklahomans. As mentioned above, this system is the first comprehensive weather notification system sponsored by any state government, making Oklahoma a leader in emergency notification innovations.

Return on Investment
Since this project was provided at no cost to the agency, the return was immediate. Its value can be measured in the amount of recognition and awareness the agency has received through the system itself with prominent placement on the state's portal homepage for severe weather marketing. In addition, the application has provided a reliable free service to citizens of Oklahoma. The service value is measured in terms of potential lives saved.

Current Adoption Rate

The program has produced subscribers though word of mouth advertising and placement upon the OK.gov portal and OEM homepages. Marketing for this project has not been done because the weather notification system would compete with other media outlets weather safety programs. Despite no extensive marketing efforts, after a button graphic was placed on the portal homepage in early April for severe weather season marketing, 248 subscribers signed up in a two-month period. Through word of mouth and placement on key homepages, there are currently 1,076 total subscribers to the Oklahoma Weather Notification System.

This solution for OEM's mission and the safety of Oklahomans was developed using PHP 5.1.2 and is supported by an Oracle 10g database. It runs on the Apache 2 Web server. The equipment used to house the application is an IBM Blade Center. The specific activities and operations of the program are listed below in chronological order.

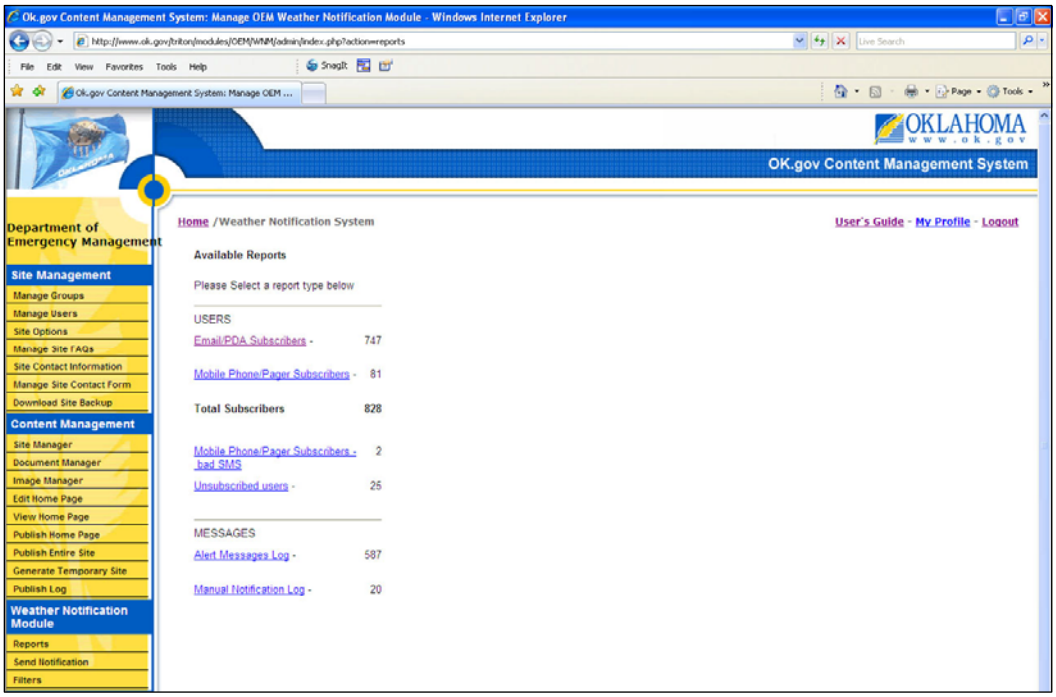
Upon their initial visit, all visitors can view the following options in the left navigation menu:

- Login and Password entry fields
- Forgot Password utility
- Create an Account link
- Unsubscribe to the Weather Notification Module option

USER SIDE:

- Public user logs on to https://www.ok.gov/notifications/index.php and selects create an account in left navigation bar.
- The public user then creates an account and selects save.
- The public user will receive an e-mail which he/she will need to access to follow the link within that e-mail to set up the rest of the account.
- After the public user follows the link, he/she will be directed to a Web page to set up two security questions.
- The user must set up a password and confirm it.
- The user can now select the notification that he/she wishes to receive. *(Currently only weather notifications are available)*
- After the user selects the Weather Notification button, the user will then be prompted to choose notifications to be sent to E-mail/PDA or Mobile Phone/Pager.
- Next, the user will choose the types of alerts to be notified about including; winter weather, flash flood, severe thunderstorm and tornado watches and warnings. *(Within the severe thunderstorm and tornado types, the user has the option to be only notified when there are warnings or both watches and warnings.)*
- After selection of types, the user may now select up to five counties to be notified when weather occurrences are taking place.
- Once completed, the weather notification account has been activated. The user will now receive alerts once the specific notifications the user selected are issued.
- The user can now log-out or view/change subscription settings. At the user's discretion, he/she may change the settings at any time and/or unsubscribe to the service. If a user utilizes the unsubscribe function, he/she also has the option of reactivating the subscription at any time. The user also has access to changing the initial account settings through the left navigation bar.

ADMINISTRATION SIDE:
For ease of use on the agency side, the administrative piece was integrated into OK.gov's award winning Content Management System (CMS). This system allows agencies in Oklahoma to build and maintain a Web site without the technical knowledge of programming codes. The weather notification system is located within the left navigation bar of the CMS system. Below is a screen shot of the 'Reports' section within the CMS system.



Administrative Users have the ability to:

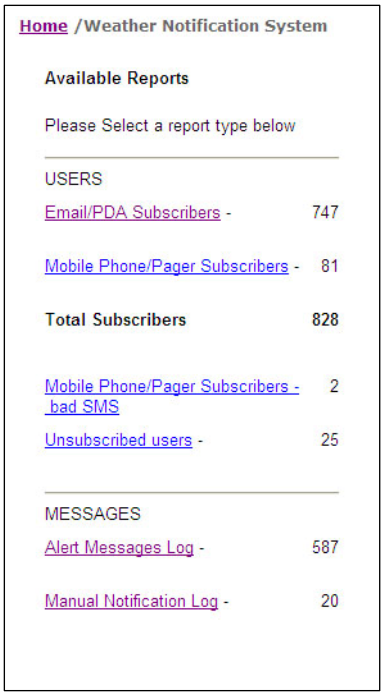
- Create and Maintain User Accounts
- Edit Own User Account
- Search through Reports
- Change Preferences
- Restrict Viewing Options (such as report availability)
- Reset Subscriber Passwords
- Produce Email Blasts to Subscribers

NOTIFICATIONS: AUTOMATED
Oklahoma Department of Emergency Management provides OK.gov with e-mail products composed from a data feed to send out alerts to subscribers. The sources for the data feed are two satellites, GOES 8 and GOES 10. OEM also has a backup feed that uses Byte Blaster, which is an Internet based feed that can access Emergency Managers Weather Information Network (EMWIN) data in case of satellite failure. Should EMWIN fail, the National Weather Service has it listed as a primary feed and will restore it no matter what time of day. The application strips the appropriate information from these e-mail products in less than 90 seconds, recasting the data in a format appropriate for e-mail, PDA, mobile phone and pager use, and subsequently broadcasts the message to subscribing users. The process in which it takes is explained on the next page.

1. Leaves the local NWS Office
2. Travels through the NWS WAN to Maryland
3. Travels through Maryland system
4. Uplinked to the EMWIN Satellite
5. Downloaded to OEM's system
6. Processed by OEM's system
7. E-mail sent to OK.gov
8. Processed by OK.gov's system
9. Transmitted to the recipients across all platforms.

NOTIFICATIONS: MANUAL

Administrators have the option to manually broadcast messages, in case of emergencies. Administrative Users are able to send customized alerts to subscribing e-mail, PDA, mobile phone and pager accounts.

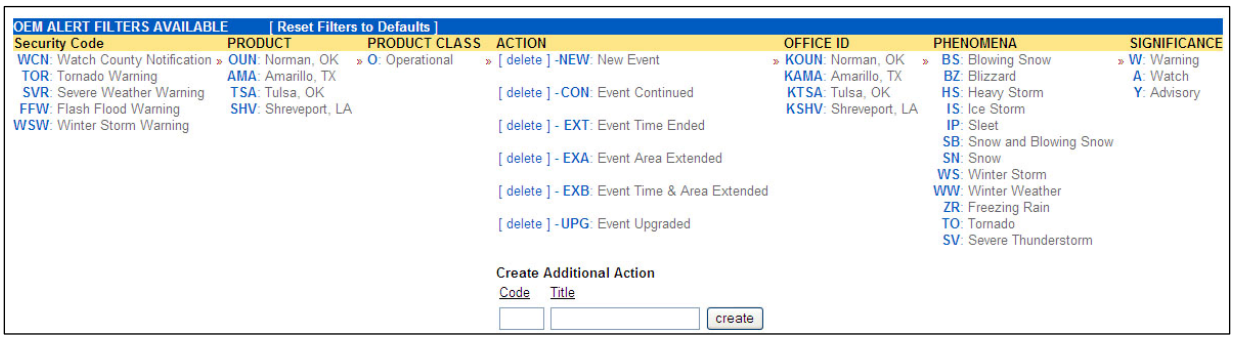


REPORTS

Super Users and Administrative Users can view reports including the number of E-mail/PDA subscribers, and mobile phone/pager subscribers, mobile phone subscribers-bad SMS and unsubscribed users. The mobile phone subscribers - bad SMS link shows users who did not receive a message, therefore allowing administrator users to correct the problem. The system also allows for an internal auditing system of all automated and manual messages sent out to users.
(See picture to the right)

FILTERS

The 'Filters' section allows administrators to change settings for the alerts that are sent out to subscribers. Administrative Users are also able to add/delete actions, in case of new events. (See picture below)



From end-to-end, the Oklahoma Emergency Management's Weather Notification System provides for the ability to warn citizens of potential hazards and threats while they are in transit. This is its greatest benefit of this free government-to-public system to Oklahomans.