GIS on BlackBerry® Increases Accuracy and Efficiency of Storm Damage Survey Operations for US National Weather Service

Breakthrough Freelance™ Mobile software is poised to streamline and standardize data collection in the field for national government agency

Keith Stellman stood in front of department heads from the US National Weather Service (NWS) and the National Oceanic and Atmospheric Agency (NOAA) and took a picture with his BlackBerry smartphone. Seconds later, he demonstrated that the picture was uploaded on NWS's ESRI server, complete with time-stamped GPS point.

In the audience, the Chief Information Officer from NOAA and the Head of Science and Technology from NWS were impressed. It was NOAA's Technology Demonstration Day, when administrators gather to learn about new technology initiatives that support government agencies.

The application that enabled the live GIS data upload to NWS's server is Freeance Mobile. With that live "field" survey, Stellman demonstrated the ability of Freeance Mobile software on BlackBerry smartphones to streamline and standardize the field operations of weather damage surveyors across the country.

Stellman is a Warning Coordination Meteorologist with the National Weather Service. His regional office location is the first to use Freeance Mobile on the BlackBerry platform to replace pen, paper and standalone digital camera for post-weather event survey collection.

Surveying damage from severe storms is an important mission of the National Weather Service, but one that is labor and paper intensive. It involves mobilizing people and equipment, which requires planning, preparation and considerable time.

Freeance Mobile enables all necessary damage survey documentation to be performed on a BlackBerry smartphone, right at the scene of the storm event, with data uploads to the server virtually in real time.

Freeance Mobile Improves Accuracy of Mission-Critical Data
When meteorologist survey the effects of storm events, they're ultimately updating a database that is used by government agency scientists, insurance companies and other interested parties throughout the country. With an interwoven web of stakeholders relying on, and impacted by, that data, accuracy is critical.

Freeance Mobile software is helping to improve this accuracy.

"We're used to recording data on a notepad," says Stellman. "Surveying a 15-mile tornado track can involve pages of handwritten notes, GPS coordinates, and calculations. Then, surveyors must travel back to the office to enter all of that data manually." Naturally, slippage occurs, in terms of the amount of data ultimately recorded. Detailed notes made at the scene are summarized, and any details that weren't written down immediately can be forgotten.

Streamlining of Operations and Data Flow Saves Time
"Entering the collected data is a laborious activity involving re-reading notes, transcribing them at the keyboard, uploading images from a digital camera to the server, then, sorting through the images and matching them to the field notes. These activities take hours," says Stellman.

"Freeance Mobile makes the data collection process much easier, and virtually eliminates the need for any post-collection reporting to be done manually," he says. "I personally saved five hours of data collection and reporting time on a single survey of a tornado event by virtue of having the Freeance Mobile software on my BlackBerry. All I had to do was enter data at the site."

Surveyors on Stellman's team use a custom-built form that was designed by NWS in under one hour to collect the survey data. The form was designed to streamline the collection of pertinent information that surveyors need to rate damage in the field. On the form, surveyors use drop-down and list menus for selectable data items like damage indicator type and wind speed range, as well as free form comment fields for entering relevant notes at the surveyor's discretion.

Leveraging the automatic time-stamped GPS coordinates, calculations pertinent to the storm event can be done faster or automatically.

"In most instances when you use Freeance Mobile, once you leave the event site, your collection and reporting tasks are done," says Stellman.

Stellman says the Freeance Mobile application has introduced a major leap forward in standardizing the collection, storage, management and dissemination of field information. Indeed, the application will soon be deployed at all 123 NWS office locations across the country, meaning the time and productivity savings that Stellman's regional office has achieved will be amplified on a grand scale.

This will involve an enterprise upgrade to Freelance Mobile – Pro Edition and roll out to more than 300 BlackBerry smartphone users within NWS.

Scalable, Versatile Technology Wins Executive Favor
When asked about the relatively swift acceptance of the technology within NSW, Stellman says the effectiveness of the Freeance Application during the live demonstration had a lot to do with harnessing executive support. Bearing witness to that live demonstration resulted in the Head of Science and Technology approving the adoption of Freeance Mobile on BlackBerry across the agency.

In government agencies, where resources are under constant scrutiny and strain, budget dollars are often reserved for technology resources that show significant potential for broad application of the core technology. Stellman believes this is the case for Freeance Mobile on the BlackBerry platform.

"We're taking things one step at a time, but certainly I see the potential where Freeance Mobile can be used elsewhere in the agency for other field operations. In hydrology, for mapping of water marks; in climatology, for photo documentation and data collection; and in field service for photo documentation of damage or disturbances to field assets," Stellman suggests.

Freeance Mobile has also won the support of the (NOAA) Chief Information Officer, who sees the application as a sign of things to come in public service.

When asked about this effort to implement Freeance across the NOAA Enterprise, Sandra Giger from the Office of the CIO said, "The CIO sees great opportunity and value in moving to a mobile computing platform. Using smart phones to capture images and pictures on the ground, while performing site inspections and visits, is the next generation of mobile-based data dissemination and public service.

"The mobile/phone/internet architecture expedites a job into minutes, automating what formerly took from 5 hours to one day to accomplish. For example, to send a geo-coded picture from the field that can verify a severe storm track, and to deliver it to the public in near real time will save time, and might help save lives."

Office of the CIO, National Oceanic and Atmospheric Agency

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