# State of Indiana Strengthens Emergency Response Communications

State delivers improved situational awareness from the disaster scene to the Emergency Operations Center

## Executive Summary

### STATE OF INDIANA

- **Industry:** State and Local Government
- **Location:** Indianapolis, Indiana
- **Population:** 6.4 million+

### BUSINESS CHALLENGE

- Need for improved, reliable, and real-time communications system statewide that can bypass terrestrial outages in event of disasters
- Develop an innovative approach to achieve sustained disaster preparedness, interoperable communications, and operational support
- Leverage existing IT infrastructure to support limited financial resources and restricted state budgets

### NETWORK SOLUTION

- Leverage existing Cisco IP telephony call-processing system to provide dial tone to any mobile location
- Deploy satellite-based Wi-Fi technology as carrier transport through Cisco VPN to take advantage of legacy applications
- Provide client connectivity to the web-enabled crisis information management system (WebEOC)

### BUSINESS RESULTS

- Implemented rapid, secure communications and collaboration, allowing agencies to leverage current infrastructure and systems
- Secured interoperability, including access to integrated voice, video, and data solutions
- Effective incident management tooling, emergency response to command and control, and improved continuity of operations

## Business Challenge

The heavy rains of 2008 created many challenges for the state of Indiana. Major flooding in June resulted in 23 counties declaring a state emergency. Some areas received more than 11 inches of rain in less than 12 hours. Damage estimates in the state were in excess of $1billion. In September, strong winds and downpours resulted from hurricane Ike. Again more than 11 inches of rain pummeled the state in a short period of time, resulting in another declaration of a state of emergency. Power outages from downed lines, fallen trees and flooding caused disruptions to tens of thousands of customers in each of these events. Many homes and hospitals required evacuation in both situations.

When disaster strikes, the Emergency Operations Center (EOC) becomes the Indiana Department of Homeland Security (IDHS)'s support base for all state multi agency deployment teams. As a result of these natural disasters, IDHS determined the need for a reliable, real-time communications system that would be independent of ground infrastructure. IDHS's primary goal was to develop a reliable disaster response platform capable of providing communications between affected locations and the EOC. A second goal was to increase the situational awareness of a disaster at the EOC by providing the field responders with the capability to send pictures and video from the disaster scene.

"The ability to deliver real-time video and pictures from the heat of the battle to the EOC gives us a better grasp of the scenario and allows for more efficient deployment of resources," says Shane Booker, the response director for the IDHS.

Teaming with the Indiana Office of Technology (IOT), IDHS was able to leverage technologies and infrastructure already owned by the state to maximize the return on its investment. The two agencies agreed that providing the same tools (phone set, software and video applications) on scene that the field responders use in their offices each day would eliminate the need for specialized training on new equipment. The challenge was now to provide the same day-to-day tools from the disaster location to the EOC when large swaths of terrestrial infrastructure, such as power grids and communication lines, become inoperable.

"In order to remove terrestrial infrastructure from the equation, satellite was our only choice, states Chuck Emsweller, senior project manager for IOT. "By capitalizing on our existing satellite partnerships and Cisco® technologies, we were able to overcome the terrestrial infrastructure challenges. This allows us to deliver voice, radio, data and video services anywhere IDHS requires."

 

## Network Solution

What makes the project unique is that no new technology was introduced. Instead, the state's new emergency response communications system was created by unifying its existing technologies, and using the network as the platform to collaborate and share real-time information throughout the state.

Four satellite-based vehicles were constructed to support field operations and provide information to and from the EOC: two mobile satellite office solutions (SOS) units, a mobile command center (MCC), and an incident response vehicle (IRV) were developed. The entire fleet was designed such that each vehicle has the capability to serve as an alternate for the state EOC or a county EOC.

Each vehicle allows non-terrestrial connectivity back to the state's backbone through a secure connection. IDHS now has the ability to deliver WebEOC, their web-enabled emergency management communications system to any disaster scene. IDHS also connects with several government networks including the state's Homeland Security Information Network, the state's Homeland Secure Data Network, the Critical Infrastructure Warning Network, and the National Alert Warning System. By using these four new vehicles, connections can now be extended from the EOC to the disaster location. This enables IDHS to maintain greater awareness during activations.

Two portable systems were built as a proof of concept to showcase the ability to deliver legacy voice, radio and data systems across non-traditional infrastructures. Each of these systems consists of a portable satellite dish, controller, router, modem, 15 IP phones and 15 laptop computers. The wireless access points were included in the configuration to allow extension of public Internet connectivity to others who might be assisting in disaster. These systems are contained in trailers complete with generator for emergency power and are termed as satellite office solutions (SOS).

"Due to their existing familiarity using the same tools at their desks, our field responders on disaster scenes have quickly adapted to this new, yet familiar, technology," says Arvin Copeland, director for the Emergency Response and Recovery Division for IDHS. "Real-time video and communications from the disaster site allows the EOC to better respond to citizens in times of need."

With the success of the proof of concept, IDHS and IOT then agreed to retrofit their existing MCC, a 53-foot semitrailer response vehicle that supports up to 20 state operations personnel and has the same features and capabilities as the portable SOS units.

To meet the video requirements, three wireless cameras were developed to capture and send live video feeds to the MCC from distances of 200 yards away. In addition, a wired camera on top of a 40-foot mast and perimeter cameras around the MCC were incorporated into the same package with the other EOC security cameras, creating one comprehensive video platform.

"Having worked in firefighting and emergency management, the value that video streaming brings to our efforts to save thousands of citizens is critical," adds Copeland. "We are thrilled to see we can bring the images of the disaster to those supporting the effort with this project."

With lessons learned from the first three vehicles, IDHS and IOT next needed to decrease response and set-up time. This resulted in the development of an incident response vehicle, a 35-foot freightliner box truck that is ready to begin delivery of voice, radio, data and video capabilities within 15 minutes of arrival to a disaster scene.

"The state's new communications platform empowers disaster responders with the right information at the right time," states Shane Booker, response director for IDHS. "With all 92 county EMA offices and many other response agencies already using and familiar with WebEOC, these vehicles greatly enhance our ability to respond to a disaster scene and integrate with local responders".

 

# State of Indiana Strengthens Emergency Response Communications

State delivers improved situational awareness from the disaster scene to the Emergency Operations Center

## Product List

### UNIFIED COMMUNICATIONS

- Cisco Unified Communications*
- Cisco VoIP phones including wireless phones*
- Cisco IP Interoperability and Collaboration System (IPICS) Push-to-Talk Management Center (PMC)*

### SECURITY AND VPN

- Cisco Catalyst® 6500 Series Firewall Service Module
- Cisco ASA

### VIDEO

- Video Conferencing (Cisco/Tandberg)*
- Video capabilities in VoIP phones*

### WIRELESS

- Cisco Aironet® 1130 AG Access Point*
- Cisco 4400 Series Wireless LAN Controllers

### ROUTING AND SWITCHING

- Cisco 3845 Integrated Service Routers*
- Cisco Switching POE*

**Added or bought more Cisco licenses*

Cisco enabled the state's communications to be fully integrated under one unified platform, and also provided technical support. Cisco was the "glue" in this project helping the state's communications be fully integrated under one platform, and also provided technical support. Cisco gold partner Netech installed and configured Cisco® technologies. Skycasters provided the satellite connectivity. Supreme Specialty Vehicles assisted with the integration of the incident response vehicle and retrofitting of the mobile command center, and ESI is the provider of the WebEOC.

## Results

With the new emergency communications platform, the state of Indiana is better able to protect its more than 6 million citizens, care for its property and the environment, and preserve the social, economic, and political structures of jurisdictions affected. The state is continually training with the fleet to prepare for future floods and other disasters within or outside Indiana.

In 2008, the state and Cisco conducted a training exercise using the two SOS units. The first unit provided Internet connectivity for 35 laptops and up to 20 concurrent phone conversations. The second unit was used for incident command and provided Internet connectivity, phone support and video reporting back to the EOC.

One of the SOS units was deployed to provide IP phone and data support to a training exercise. Together with the United States National Guard, the United States Department of Health and Human Services, and the United States Department of Homeland Security, the ability to provide basic phone and data needs in the event of infrastructure failure was demonstrated.

The other SOS unit was deployed in two field training missions with the state's disaster portable mortuary unit. The ability to provide voice services, pass dental and medical x-ray information to and from a disaster location greatly enhances body identification during potential mass casualty or mass fatality incidents.

Among the special event deployments, one of the SOS units and the MCC were deployed at the Thunder Over Louisville event in support of the Indiana State Police crowd control mission. Also, the IRV was deployed for three days at the Indianapolis Final Four NCAA Tournament to provide phone and video support throughout Indianapolis. The cameras provided live video feeds back to the EOC and the Unified Command Post during the NCAA event. Following the success at the event, the Marion County's Division of Emergency Management requested the IRV for

# State of Indiana Strengthens Emergency Response Communications

State delivers improved situational awareness from the disaster scene to the Emergency Operations Center

use as an incident command vehicle during the Indianapolis 500 event in 2010. The IRV also supported Indianapolis Metropolitan Police Department's SWAT team and Indiana State Police Emergency Response Team call-outs in and around Marion County in Indiana.

Each deployment has showcased functionality that, while available inside the EOC, was previously nonexistent on scene, including the WebEOC, dial tone and live video sent back to the EOC. Continued use of these vehicles to support events and training scenarios will help ensure IDHS and IOT will be ready to provide rapid response when the next emergency or disaster occurs in Indiana.

## Next Steps

Indiana continues to improve its video capabilities and explore the security monitoring and notification capabilities of its interoperable communications systems. The success of this deployment is making it a replicable model for other agencies at the state and local levels. For example, the Indiana Department of Health teamed with IOT to build a trailer of its own following the standards set by IDHS and IOT. Other agencies and local entities have also expressed interest in greater involvement, as well as the expansion of their vehicle fleets statewide.

## For More Information

To find out more about Cisco K-12 video surveillance solutions, go to: http://www.cisco.com/web/strategy/education/SafeSecure_RiskSchools.html.