

Sheriff's Department Increases Situational Awareness During Fires

San Diego County used the Network Emergency Response Vehicle to more effectively manage response to the Harris Fire.

EXECUTIVE SUMMARY
<p>SAN DIEGO COUNTY SHERIFF'S DEPARTMENT</p> <ul style="list-style-type: none"> • Public Safety • San Diego, California • 4000 employees
<p>BUSINESS CHALLENGE</p> <ul style="list-style-type: none"> • Protect lives and property • Collaborate effectively with other local, state, and national agencies
<p>NETWORK SOLUTION</p> <ul style="list-style-type: none"> • Mobile vehicle with multiple communications technologies • Communications interoperability system and Unified IP phones
<p>BUSINESS RESULTS</p> <ul style="list-style-type: none"> • Increased situational awareness • Effectively managed people and resources • Improved first-responder safety

Business Challenge

On October 20, 2007, a series of severe wildfires swept across Southern California, fueled by drought conditions, hot weather, and unusually strong winds. Multiple state and national agencies joined San Diego County first responders to fight the fires and protect area residents' homes and lives.

Among those agencies was the San Diego County Sheriff's Department, the county's chief law enforcement agency. With approximately 4000 sworn officers and professional support staff, the department provides services to a population of 850,000 people living in a 4200 square-mile area. During fires, the Sheriff's Department coordinates neighborhood evacuations, provides security in evacuation centers, supports first responders on the fire line, and assists the Highway Patrol at traffic-

control points. "We count on effective communications within our department and with other agencies to achieve our mission," says Lieutenant Margaret Sanfilippo. "In particular, we need early awareness of which way the fire is headed so that we can put evacuation plans in place."

San Diego County public safety agencies have honed their fire response from long experience. But communications remains a challenge. For daily operations, Sheriff's deputies communicate with each other and with command using 800-MHz radios and personal cell phones. During emergencies, they can communicate with other county agencies on a shared frequency, but not with state and national first responders, which use incompatible radio systems. Therefore, when the fires began, the Sheriff's Department and other county agencies could not communicate directly with the California Department of Forestry and Fire Protection (Cal Fire), which provided operational incident command.

To work around the limitation, Cal Fire set up a communications center with dispatchers from the various agencies. When Cal Fire wanted the Sheriff's Department to evacuate a neighborhood, they radioed the communications center, where a dispatcher relayed the message to the Sheriff's department operations center. "Even during a single fire, relaying communications through a dispatcher typically takes 5 to 10 minutes, and for the San Diego fires, it took 20 to 40 minutes," says Captain Guy Chambers, San Diego County Sheriff's Department. To receive updates from the California Department of Forestry Firefighters, the Sheriff's Department had to assign a deputy to ride in a fire truck and relay relevant information back to the department.

"I can unequivocally say that the NERV was instrumental in helping us manage the Harris Fire properly. Without it, we probably would have lost structures and lives."

—Captain Guy Chambers, San Diego County Sheriff's Department

Network Solution

The day after the fires began, the Sheriff's Department received a call from the Cisco Tactical Operations Support group, which offered the use of its Network Emergency Response Vehicle (NERV). The vehicle, one of several that Cisco dispatches to emergency sites throughout the United States, is equipped with multiple advanced communications technologies, has a conference area that seats eight comfortably, and can serve as a central communications center for an incident. Cisco also provides the know-how to rapidly set up the NERV at the incident site, applying lessons learned from other emergency incidents. The Sheriff's Department readily agreed to the offer.

The NERV was parked beside the Harris Fire Mobile Command Vehicle. Within 30 minutes, Cisco had provided wired and wireless connectivity for voice, video, and data. Communications technologies aboard the NERV include:

- Cisco IP Interoperability and Collaboration System (IPICS): This allows personnel from different agencies to join the same talk group using any radio system, cell phone, traditional phone, or laptop with appropriate software.
- Landline Cisco Unified IP phones: When their cell phone batteries died or the network was congested, department personnel used the Cisco Unified IP phones in the NERV to communicate with sergeants in the field as well as operational chiefs from other commands. Deputies stopped in during their breaks to call home and reassure their families that they were safe.
- Cisco Wireless Unified IP phones with a North Carolina area code: Field personnel could make and receive calls with these phones when the local cellular network was congested.
- WiFi network: The Sheriff's Department made the network available to all agencies on the scene so that first responders could check email from their laptops.
- Cisco Video Surveillance Solution: The Sheriff's Department used digital video surveillance cameras mounted on the vehicle's mast to monitor comings and goings at a nearby evacuation center set up at a high school. The live video provided early awareness of potential safety threats.
- Videoconferencing capabilities.

- Satellite communications: Personnel could watch network news on a large-screen TV in the NERV conference area to stay current on the other fires.
- Inbound and outbound fax.
- A built-in PC accessible from the outside of the vehicle: National Guard personnel used the PC to check email.
- Cisco TelePresence. When the NERV was first deployed, Captain Chambers and his team used Cisco TelePresence to meet “face-to-face” with the Cisco Tactical Operations Support group in North Carolina to discuss the NERV communications capabilities that would help support the department’s mission.

“By providing us with comprehensive communications capabilities, the NERV enabled us to allocate our resources properly, deploy them more quickly, and conduct our mission in a safer manner. The NERV made it much easier for me to manage people and resources.”

—Lieutenant Margaret Sanfilippo, San Diego County Sheriff’s Department

Business Results

Enhanced Mission Effectiveness

Captain Chambers credits NERV with helping the department to effectively manage the Harris Fire. “I can unequivocally say that the NERV was instrumental in helping us manage the Harris Fire properly,” he says. “Without it, we probably would have lost structures and lives.”

Lieutenant Sanfilippo agrees: “The comprehensive communications capabilities in the NERV enabled us to allocate our resources properly, deploy them more quickly, and conduct our mission in a safer manner. It made it much easier for me to manage people and resources.” NERV increased situational awareness by providing email, wireline phones, the ability to monitor Cal Fire and National Guard frequencies, and satellite news feeds.

Earlier Awareness of Evacuation Requirements

Cisco IPICS enabled the Sheriff’s Department to use its own radios to monitor the Cal Fire and National Guard talk groups, gaining earlier awareness of the fire line and attitude. Cisco IPICS provides talk capabilities as well, but the Sheriff’s Department set it up for listen-only privileges to avoid delays in getting permission. “By monitoring the Cal Fire channel, we heard about fire progress and changes to the strategic plan right away instead of waiting for communications to be relayed,” says Sanfilippo. In some cases, by the time the Sheriff’s Department got the relayed message to evacuate an area – 20 to 40 minutes after hearing it on the Cal Fire channel – the department had already requested a reverse-911 to notify area residents and had already deployed resources to conduct the evacuations.

The Sheriff’s Department also took advantage of Cisco IPICS to establish direct radio communications with a U.S. Customs and Border Protection helicopter, whose pilot was looking for flare-ups. The pilot had a much better perspective than spotters on the ground. “By communicating directly with the pilot, we were able to call for fire resources to protect a threatened residence even before the fire department was aware of the danger,” says Captain Chambers.

Faster Evacuation Notifications to Area Residents

The Sheriff's Department took advantage of the PCs and Internet connectivity in the NERV to expedite notification of residents who needed to evacuate. "Emailing the coordinates for a reverse-911 notification to the communications center is much more effective than trying to radio them in when dispatchers are already overwhelmed with calls," says Lieutenant Sanfilippo.

PRODUCT LIST

Routing and Switching

- Cisco Catalyst 3560-48 Switches with Power over Ethernet
- Cisco 3825, 3845, and 2811 Integrated Services Routers

Application Networking Services

- Cisco Wide-Area Application Services (WAAS) module

Voice and Unified Communications

- Cisco Unified Communications Manager Express
- Cisco Unified IP Phones
- Cisco TelePresence
- Cisco DME-2000 Digital Media Encoder

Physical Security

- Cisco IP Interoperability and Collaboration System (IPICS)
- Cisco Video Surveillance

Wireless

- Cisco Aironet 1240 Wireless Access Point
- Cisco Aironet 1510 Lightweight Outdoor Mesh Access Point

Next Steps

The San Diego Sheriff's Department is currently investigating grant opportunities for communications technologies like those used during the Harris Fire. "Solutions like the NERV and Cisco IPICS benefit all public safety agencies responding to any type of incident – not just emergencies," says Lieutenant Sanfilippo. The department can foresee using Cisco communications technologies to enhance its effectiveness at large community events such as the Del Mar Fair and the county's annual sandcastle competition. "If anything goes wrong, having Cisco communications capabilities will greatly enhance our ability to control and allocate first-responder resources," says Lieutenant Sanfilippo.

For More Information

To find out more about the technology on NERV, visit:

- Cisco Catalyst Switches: <http://www.cisco.com/go/catalyst>
- Cisco Integrated Services Routers: <http://www.cisco.com/go/isr>
- Cisco Wide-Area Application Services (WAAS) module: <http://www.cisco.com/go/waas>
- Cisco Unified Communications Manager Express: <http://www.cisco.com/go/unifiedcommunications>
- Cisco Unified IP Phones: <http://www.cisco.com/go/unifiedcommunications>
- Cisco TelePresence: <http://www.cisco.com/go/telepresence>
- Cisco Video Surveillance: <http://www.cisco.com/go/physicalsecurity>
- Cisco IP Interoperability and Collaboration System (IPICS): <http://www.cisco.com/go/ipics>



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

CCDE, CCENT, Cisco Eos, Cisco Lumin, Cisco Nexus, Cisco StadiumVision, Cisco TelePresence, the Cisco logo, DCE, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn and Cisco Store are service marks; and Access Registrar, Aironet, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, EtherFast, EtherSwitch, Event Center, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, iQuick Study, IronPort, the IronPort logo, LightStream, Linksys, MediaTone, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, Network Registrar, PCNow, PIX, PowerPanels, ProConnect, ScriptShare, SenderBase, SMARTnet, Spectrum Expert, StackWise, The Fastest Way to Increase Your Internet Quotient, TransPath, WebEx, and the WebEx logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0807R)