

BY PHILIP LEGGIERE, BUSINESS EDITOR

Keeping Up with the Crowds

An October 2010 rally on the National Mall in Washington DC. Mass gatherings such as this present major communications challenges.



THE NATIONAL MALL IN WASHINGTON, DC, ONE OF THE WORLD'S PREMIER PUBLIC VENUES, IS THE SITE EACH YEAR OF ALL SORTS OF DEMONSTRATIONS, FESTIVALS, PARADES, CONCERTS, AS WELL AS A HUGE ANNUAL JULY 4TH CELEBRATION.

For most of us these events are symbols of a vibrant, open democracy. For the United States Park Police (USPP) responsible for keeping them secure, however, they are also fraught with big communications challenges.

"We've been in the business of handling large-scale events for a long time," Capt. David Mulholland, commander of technology services for the USPP, told *Homeland Security Today* in an interview. "It's always been challenging, but we've moved into a brand new world.

"Nowadays, using social media, a person holding a rally can reach a lot more people very quickly and generate a bigger crowd than ever before. At the same time the number of police personnel isn't growing nearly as fast as the crowds are," he explained.

A big part of Mulholland's job during large-scale events is to leverage technology to overcome this gap by orchestrating response capability across the many

different emergency agencies in the Washington, DC, metropolitan area.

While voice communication plays a pivotal role in this, Mulholland said, the real key to coordinating efforts across agencies is shared video feeds.

"One thing we've realized is that if a picture is worth a thousand words, a video is worth a whole book," he observed. "If a responder can see visually in real time what's going on in a big scene, they can better understand what's happening and what's needed. The big challenge, though, is how to capture video feeds and get them out to as many remote locations as needed."

In this regard, he said, the commercial wireless networks that agencies normally used to transmit video have proven inadequate.

"Traditional cellular infrastructure gets clogged," Mulholland said. "If you have a park with 100,000 to 200,000 people in it, all with cell phones, all using the same cell tower, it quickly gets to the point where the video feed degrades. What tends to happen is when you set up cameras early in the day, the images transmit easily and clearly. Then, by early afternoon as people begin to pour into the Mall and start using their phones, the camera feeds start getting more erratic. Then, by late afternoon or early evening, there's so much bandwidth being used by cell phones that camera feeds become even more difficult."

Mulholland recalled a scene about a year ago where a speaker at a rally in the Mall told everyone in the crowd to send a text message at the same time.

"If a bomb had gone off right then there would have been mass chaos, and all our video feeds would have been unusable," he said.

A promising answer to this challenge, surprisingly, is based on a far older technology than the Internet—broadcast television—and involves the transmission of high-bandwidth data over digital TV (DTV) airwaves, a process known as datacasting.

"With datacasting you're not dependent on cellular infrastructure," Mulholland said. "You're not dependent on the electric grid. As long as you've got battery power in your laptop and an HDTV [high-definition television] antenna, you can communicate."

"What datacasting does," Mulholland added, "is enable you very easily to send images to multiple agencies. Unlike a wireless system, where if you transmit video to 10 people you use 10 times as much data as transmitting to one person, with TV broadcast it doesn't matter how many you're transmitting to."

LAUNCH DAY

July 4, 2011, the date of the first ever deployment of DTV signals for a major public security event, will go down as a significant date in the history of emergency



BROADCAST TV HAS AN INCREDIBLY ROBUST AND FLEXIBLE INFRA-STRUCTURE. IT'S RELIABLE IN ALL SORTS OF CONDITIONS.



communications, Mulholland believes.

During the July 4th festivities in Northern Virginia and on the National Mall, the USPP successfully used spectrum from WETA TV, a local public TV station, to securely deliver data directly to emergency responders positioned in multiple command centers and police cars.

Utilizing a broadcast signal allocated by the station, cheap high-definition TV receivers and USB (universal serial bus) toggles, USPP law enforcement officers were able to share not only continuous live video feeds from the park but also blueprints, evacuation maps and crisis plans with remote units and mobile devices within the 50-mile radius covered by the signal.

The deployment was done in partnership with SpectraRep, Chantilly, Va., a technology services company that, according to its executive vice president Mark O'Brien, got into public safety technology somewhat by accident.

"We came at the public safety space from a different angle," O'Brien said. "We've been focused on broadcast for many years, working with radio and TV stations. So when TV went digital a few years ago, one thing we saw was the ability to send computer data over TV signals."

"Broadcast TV has an incredibly robust and flexible infrastructure," he added. "It's reliable in all sorts of conditions. We realized it's a great public resource and

has characteristics which closely match public safety needs. Yet it had never been leveraged for the community. So we basically asked our broadcast partner if they would allocate a very small portion of spectrum for public safety to send data."

Reviewing the July 4th experiment, Mulholland said the ability to scale video across multiple agencies without fear of bandwidth constraints was a breakthrough. A key benefit of datacasting, he said, was that it enabled the USPP to stream real-time video feeds to remote agencies such as a search and rescue unit in Fairfax County, Va., which, though not directly involved in event security, would need to be brought in quickly in the event of an emergency.

Mulholland said the USPP will follow up its July 4th experiment with further DTV deployments later in the year and in 2012. He also believes the technology will become a mainstay of interoperable video communications at large-scale events nationally in the near future.

Nonetheless, he was quick to add that datacasting is not a replacement for broadband Internet.

"Datacasting is important. I'd call it a game changer," he said. "But I don't see it as competitive with dedicated public service radio frequencies. You still need the ability to pull video out of an incident and distribute it, which datacasting doesn't do. Going forward, I see them working hand in hand." **HST**

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