

Video Beyond the Conference Room

Innovative Solutions for Public Safety, Crisis Management and National Security



Enhancing Public Security and Disaster Management with New Generation Video Applications

As U.S. Navy SEALs crept into Osama Bin Laden's compound in Pakistan, President Barack Obama and other officials monitored the mission in real time, thanks in part to 25 sophisticated, miniature digital video cameras placed in the helmets worn by the SEALs. When Japan's earthquake-damaged Fukushima Daiichi nuclear plant required damage assessment, robots equipped with computerized 'eyes' and automated video capability handled the perilous task, achieving situational awareness for those in charge without risking human lives. National Broadband Network initiatives and 4G rollouts (Wi-Max, LTE) are making high speed wired and wireless networks more common — and untethering video from the conference room table. Wearable operational video (such as helmet cams), mobile cameras and sensors, and other visual technologies can provide crucial intelligence, which then can be gathered, communicated to personnel in disparate locations, and integrated to enable unified collaboration for public security responses. The possibility is emerging for a new generation of video applications that will enhance public security and disaster management.

The Art of the Possible: How Video Can Be Used in Emergency Management

In a post-911 world, there's a need for interagency cooperation to combat threats of global terrorism. Video makes unified collaboration between dispersed participants possible. Global climate change is expected to lead to more tumultuous weather events (tornados, typhoons and floods), disruptions in water supply, famine, disease and resultant political and economic instability — eventualities that will require prompt response to ensure public safety and security. This comes at a time of increased pressure on governmental budgets around the world, including budgets for public safekeeping programs, police, fire departments and health. For example, in the United States, falling tax revenues as a result of the recent recession have many states facing shortfalls. (At least 44 states project budget deficits for fiscal year 2012 totaling \$112 billion, according to the Center on Budget and Policy Priorities.)¹ Such budget shortfalls have affected police and fire department staffing levels across the country. Video technology can be a way to save money while still achieving a more efficient, unified and productive emergency response. Throughout the emergency management process, video technology is increasingly playing a critical role.

Emergency Management Workflow and the Role of Video

Readiness Stage

Risk mitigation and preparedness is the first stage in emergency management, making sure responders are able to react to any situation. This can include daily briefings and meetings, emergency planning, and other types of internal and external communication. In addition, emergency staff need to be trained in the latest tools, techniques and procedures. This type of staff training — as well as planning conferences and meetings — can be handled at a distance, using video conferencing and video immersive telepresence solutions. These measures save travel costs as well as travel time for employees.

Detection and Early Warning Stage

Video monitoring and surveillance takes place using stationary security cameras as well as via mobile camera applications. In the near future, 911 and other types of emergency calls will be made using video and other multi-media technologies. This type of visual next-generation 911 (visual NG911) calling is already being tested in the United States. Many 911 centers are being equipped with broadband-capable lines, while at the same time an increasing number of citizens use smartphones with video cameras and are able to transmit real-time video. Once visual emergency calling (ie. NG911) is enabled, a citizen will be able to notify authorities about crimes and other emergencies in action. Law enforcement will be able to see, in real time, an intruder — and determine if he or she is armed. Emergency operators handling a fire call can see the precise location of a blaze to better direct firefighters and potentially save crucial seconds. Citizens who lack the ability to speak can still make the nature of their emergency known, by showing operators what is happening using their phone-cams. Streaming video will also be linked with GPS coordinates to help responders locate victims or offenders.

Analysis and Incident Response Stage

Those who are equipped with the most up-to-date and detailed information, and are able to collaborate in a unified manner with others involved — so that everyone is on the same page — are better able to respond effectively. Is a fire that has been called in merely a brush fire, or is it a chemical fire? Is the damage from an earthquake minor or major? What other types of agencies need to be called in to assist? Which agencies will do what? How will the emergency response be coordinated? Real-time video conferencing and immersive telepresence between those in the field and other responders, plus decision-makers, helps everyone involved better understand an emergency situation as it is happening. When both time and accurate information are of the essence, video collaboration can be a key tool for the effective handling of any crisis. Emergency responders who can see for themselves what is happening — even if they aren't physically present — are better armed with knowledge than those who are reporting from other sources. They can achieve situational awareness, which allows them to better plan an effective response.

Recovery and Reconstruction Stage

After an emergency, initial care and early triage can be helped by accurate communication from those in the field — which can be made easier when all involved can collaborate in real time via video. In addition, valuable evidence can be collected and preserved through video, which can help determine the cause of a crisis, methods for its possible prevention and ways to improve future response. Officials armed with information can better coordinate an ongoing response to any disaster or public security situation, whether it is transporting victims to available medical service providers, arranging for the rebuilding of damaged infrastructure or coordinating the re-establishment of public works.

Best Practices Around the Globe

Oklahoma Army National Guard

When Hurricane Katrina devastated New Orleans in 2005, the Oklahoma Army National Guard went to the area to help and brought a video teleconferencing package with them. This enabled communication between commanders and managers in Oklahoma and personnel in downtown New Orleans. “It’s important that our generals and colonels here in Oklahoma City can see officers that are down-range,” said Chief Warrant Officer Welly Gibson, activity manager for visual information and distance learning for the Oklahoma Army National Guard. “They can see the looks on their faces to understand what they need. It makes a big difference; it’s better than phone calls and it’s a lot better than radios.” The Guard’s helicopters are equipped with video cameras, used for counter drug operations, finding missing people (such as during flooding and other disasters), and other missions. The images from the helicopters can be viewed over

video conference, so that managers can talk to pilots and give instruction. Service members are trained by the Guard using distance learning systems (about 144 systems state-wide), which lets members stay home to learn without having to travel. Audio conferences and video conferences also can be called on the spur of the moment, allowing the Guard to be more immediately responsive to events.

North Atlantic Treaty Organization (NATO)

NATO’s alliance of the United States, Canada and European countries is geographically widespread, making video conferencing an ideal alternative to costly travel between regions when NATO members need to meet. NATO forces deal with delicate security concerns — currently on its plate are conflicts in Afghanistan, Darfur and Kosovo. Members need to be able to have reliable, instantaneous communication to ensure effective field operations. Where face-to-face meetings are not possible, high-definition, large-screen



immersive telepresence systems provide an alternative that lets participants detect facial nuance and other nonverbal communication, thereby achieving a relatively sophisticated level of interaction.

Immersive telepresence systems are enhanced virtual meeting rooms, which create a more lifelike meeting environment. These enhanced virtual meeting rooms in Brussels, The Hague, Norfolk, Virginia and elsewhere are set up with identical tables, chairs and wall paint, helping participants feel like they are in the same conference room. Video is displayed on three 60-inch high-definition screens to create near-life-size images. Audio is by surround sound, further enhancing the “you-are-there” sensation.

The benefits of replacing a quarterly in-person meeting among NATO participants with an immersive telepresence conference include \$51,000 in direct travel costs, not to mention saving 500 hours in travel time for members (plus a significant amount of carbon emissions from planes not taken and cars not driven: 21,000 kg). More staff members are able to participate in teleconferenced meetings, resulting in increased collaboration and efficiency.

High-definition video conferencing and immersive telepresence technology, whether in the virtual meeting rooms or not, is used daily by NATO for Central Command communications, emergency management, critical needs assessment, crisis communications, interagency and intra-agency collaboration, workgroup collaboration and project management.

Jeollanamdo Province, Republic of Korea

Residents of the Republic of Korea’s Jeollanamdo Province are scattered among 2,000 islands in the southwestern portion of the country — a country hard-hit by global warming (temperatures have risen at double the global average), and vulnerable to the tropical cyclones and floods associated with climate change. Korean officials have aggressively sought to both control emissions and beef up emergency response capabilities. One such measure: Installing one of the largest video conferencing networks in the country in the Jeollanamdo Province, connecting 22 cities and 295 regional offices through the high-definition network.²

The high-definition video conferencing system also meets the country’s green standards by reducing travel,

and therefore emissions. (The province is fully compliant with the government’s Low Carbon Green Growth Policy.) The project, which is part of Korea’s e-Government Network Service, allows public officials to respond rapidly to emergencies and communicate with other officials and agencies as needed, no matter where the emergency is located within the 2,000-island province.

Identification of Resources for Grants and Funding

Grants and funding options exist from governmental agencies and other sources. In the United States, emergency management funding is considered relatively secure, with some analysts projecting 2.9 percent growth rates for the next five years. Indeed, Federal Emergency Management Association (FEMA) state and local grant programs alone total \$4 billion for 2011.

Some of the key grant sources for fiscal year 2011 include:

Domestic Preparedness and Antiterrorism Programs

- Homeland Security Grant Programs - \$8.7 billion
- Urban Areas Security Initiative - \$1.53 billion
- Homeland Security Preparedness Technical Assist Program - \$710.9 million
- State & Local Homeland Security Training Program - \$265 million

The State and Regional Preparedness Program

- State Homeland Security Grant Program - \$890 million
- Firefighter Assistance Grants Program - \$810 million
- Emergency Management Performance Grants - \$340 million
- Emergency Operations Centers - \$60 million

Metropolitan Statistical Area Preparedness Program

- Urban Area Security Initiative - \$887 million
- Transit Security Grant Program - \$300 million
- Port Security Grant Program - \$300 million
- Buffer Zone Protection Program - \$50 million

Advice in Building the Business Case and ROI Presentation

Using video conferencing and telepresence technology can save government agencies time and money. For example, the White House Office of Management and Budget estimates more than \$25 million can be saved in FY 2012 by three agencies using video conferencing, with additional cost savings in the coming years.³

- The Environmental Protection Agency plans to increase its video conferencing locations and also pilot video conferencing interface on desktops. Estimated cost savings for 2012: \$4 million. Projected savings from 2011 through 2015: \$25 million.
- The National Institutes of Health plans to continue holding grant application review meetings electronically, which includes via video as well as via telephone or Internet. Savings for FY 2012 from this measure are projected at \$12 million (\$62 million for 2011 through 2015).



- The General Services Administration plans to save \$10 million in 2012 by using telepresence instead of traveling. In another study, Wisconsin's Office of Justice Assistance in 2003 found that video conferencing in 11 counties would pay for itself in less than one year. In Winnebago County, a required investment of \$18,750 was projected to save \$184,501 annually — a return on investment for the first year of 958 percent.⁴

Other counties in the top 11 were projected to have ROI in the first year ranging from 122 percent to 384 percent. Other studies show cost savings for private business, which likely can be replicated by the public sector as well.

A 2011 survey by CDW of more than 630 U.S. executives looked at ROI for video conferencing and found that 62 percent of respondents saw cost savings due to travel avoided.⁵

Using video conferencing instead of traveling also helps employees be more productive by saving time. The CDW survey, for instance, reduced meeting time for 45 percent of respondents and cut employee downtime by 34 percent.

Similarly, a 2009 survey by Wainhouse Research of 300-plus companies found that video conferencing saved 30 percent on travel costs, reduced downtime by 25 to 27 percent, and saved 22 to 25 percent of time on training.⁶

Additional benefits found by Wainhouse included the ability to improve teamwork (cited by 71 percent of respondents) and to maintain communication with partners (61 percent).

Other benefits of video conferencing include reducing the impact on the planet by cutting the carbon footprint. The more people meet virtually, using online and video communications rather than traveling by cars and airplanes, the less carbon emissions are produced.

And, finally, when emergency response and public security is improved through the use of efficient, real-time video communication tools, the public benefits simply by being better prepared should disaster strike.

Resources

Emergency Video Calls - A simulation of what can happen once visual NG911 is enabled

<https://sites.google.com/site/emergencyvideo/>

Oklahoma National Guard

<http://www.youtube.com/watch?v=59Vok8XpgUw>

Defense Acquisition University

http://www.polycom.com/company/customer_success/by_industry/government.html

Greene County Office of Emergency Management

http://www.polycom.com/global/documents/company/customer_success_stories/government/springfield-greeneco-eom.cs.pdf

NATO

http://www.polycom.com/global/documents/company/customer_success_stories/government/nato_telepresence.pdf

Jeollanamdo Regional Government

http://www.polycom.com/global/documents/company/customer_success_stories/government/jeollanamdo-cs.pdf

Emergency Preparedness Lowers Death Toll in Korea

<http://www.futuregov.asia/articles/2010/sep/21/emergency-preparedness-lowers-death-toll-korea/>

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Endnotes

1. "States Continue to Feel Recession's Impact." Center on Budget and Policy Priorities, March 9, 2011. <http://www.cbpp.org/cms/?fa=view&id=711>
2. "Emergency preparedness lowers the death toll in Korea," Sept. 21, 2010. <http://www.futuregov.asia/articles/2010/sep/21/emergency-preparedness-lowers-death-toll-korea/>
3. "Fiscal Year 2012 Terminations, Reductions and Savings - Budget of the U.S. Government." www.whitehouse.gov/sites/default/files/omb/budget/fy2012/assets/trs.pdf
4. "The Potential Cost Savings from Further Investment in Videoconferencing Technology Within Wisconsin's Justice Community." <http://oja.state.wi.us/docview.asp?docid=3723&lclid=97>
5. "Three Quarters of Companies Will Adopt Video Conferencing Within Two Years, CDW Report Finds," April 25, 2011. <http://newsroom.cdw.com/news-releases/news-release-04-25-11.html>
6. "Benchmarking the Benefits of Videoconferencing Deployments." Wainhouse Research, July 2009.

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Polycom, Inc. is a global leader in unified communications solutions with industry-leading telepresence, video, voice and infrastructure solutions built on open standards. With Polycom, emergency response teams connect and collaborate with one another from anywhere at any time through their training rooms, desktops, situation rooms, command and control centers, home offices, and a variety of ruggedized systems or mobile devices. Through highly visual immersive experiences, emergency responders and government officials can quickly assess situations and securely communicate face-to-face whether on-base or in the field ensuring rapid and informed decision-making for greater mission success. Polycom solutions for Collaborative Government enable greater readiness, response, recovery and reconstruction through smarter conversations.

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