

Innovation and Cooperation in the Lone Star State

Texas Council of Governments: Regional Partnerships

The Dallas region's locally driven approach and commitment to partnerships have proven invaluable to overcoming the challenges of implementing a regional communications framework. Since September 2002, Texas has leveraged 24 Councils of Government regions to ensure that homeland security planning and execution occurs on a regional basis, with local officials working together closely across all jurisdictions and disciplines. During the Dallas Love Field Wireless Integration Project, the North Central Texas Council of Governments (NCTCOG) was actively involved to ensure that new emergency responder communications supported regional interoperability goals. The NCTCOG serves a 16-county region of North Central Texas, which is centered around the two urban centers of Dallas and Fort Worth. NCTCOG was established to assist local governments in planning for common needs, cooperating for mutual benefit, and coordinating for sound regional development. NCTCOG's purpose is to strengthen both the individual and collective power of local governments and to help them recognize regional opportunities, eliminate unnecessary duplication, and make joint decisions.

The City of Dallas, Texas, has achieved interoperable communications for the region's emergency responders—all for less than the cost of a new squad car. This milestone represents a significant step toward implementing a statewide interoperable communications system.

Through regional cooperation and an innovative, service-based approach, Dallas successfully established a communications framework that uses existing equipment and spectrum. The new system provides aviation officials, industry partners, and the region's emergency responders—including more than 5,000 law enforcement officers, firefighters, and emergency medical service responders—with the capacity to exchange voice, video, and data across diverse networks.

"It is important that I have the ability to communicate not only with my firefighters but also with other agencies—we are the first line of defense when it comes to man-made and natural disasters," said Dallas Fire Chief Eddie Burns, Sr. at the Dallas Love Field (DLF) press conference, held September 14, 2006. "Having the ability to talk with other cities, other departments, and other agencies will enhance the capabilities of all first responders."

Interoperability progress in Dallas gained momentum in May 2005 through the partnering of the State of Texas, the City of Dallas, the Texas congressional delegation, the North Central Texas Council of Governments (NCTCOG), the U.S. Department of Homeland Security (DHS), and a Seattle-based technology company in order to implement a communications framework at DLF. Initiated in collaboration with the State of Texas Governor's Office of Homeland Security, the DLF Wireless Integration Project was funded by a \$979,100 grant from the DHS Information Technology and Evaluation Program, which is co-administered by the Department's Office of Grants and Training and Office of the Chief Information Officer.

The project was designed with the goal of implementing a communications framework for a national interoperability service model that could be cost-effectively duplicated throughout Texas and the Nation. As Dallas is the first city in the Nation to use this national interoperable communications service, DLF project leaders see their city as a working model for regions nationwide.

DLF airport was chosen for the project because of the site's critical infrastructure, location in a major urban metropolitan area, and high concentration of diverse responder agencies and private-sector organizations.

"After this system was implemented at DLF, all participating local, state, and Federal agencies were interoperable—using their existing equipment for communications, and capable of sharing digital data and live video originating from the airport," says Terry Mitchell, Assistant Director of Aviation

Operations for the City of Dallas.

Mitchell added that the communications framework also has strengthened information sharing and coordination among participating agencies and partners.

These participating agencies include:

- Dallas Fire Department
- Dallas Police Department
- Dallas Aviation Department
- Southwest Airlines
- Texas Department of Public Safety
- Texas Department of State Health Services
- U.S. Customs and Border Protection
- U.S. Centers for Disease Control
- U.S. Department of Health and Human Services
- U.S. Transportation Security Administration

The DLF project supports the interoperability goals of Texas leaders, who have long understood the gravity of ineffective communications. In keeping with their commitment to achieving interoperability, in 2004 the state released its Texas Homeland Security Strategic Plan, which included a roadmap for ensuring interoperable emergency communications. With the implementation of the DLF communications framework, the state made great strides toward establishing a statewide network of interoperable radio systems.

The DLF project also addresses communications breakdowns that compromised local response operations during recent large-scale disasters—including Hurricanes Katrina and Rita, and last year's Panhandle wildfires.

Service-Based Approach

Project participants began developing the interoperability service network in fall 2005. The project used an innovative technology developed and implemented by the Seattle technology company. This overlay software encryption technology is referred to as a Cryptographic Overlay Mesh Protocol. It creates a "network of networks" that enables emergency responders operating on different frequencies to seamlessly and securely exchange communications. The technology passed all qualification tests for certification under the Department of Defense's (DoD) Interoperability Communications Exercise 2006, certifying adherence to DoD interoperability standards.

In addition to enabling voice and data exchange, the software protocol provides Dallas agencies with real-time access to live video from existing cameras installed in airports, government buildings, police cruisers, and fire trucks. Network access and voice and data transmissions are secured by the Advanced

Lessons Learned from the Dallas Love Field Wireless Integration Project

- Consider a software-enabled service approach.
- Develop a plan and standard operating procedures to govern how, when, where, why, and who uses an interoperability system.
- Emphasize a regional, stakeholder-driven approach.
- Encourage innovative thinking and cooperation.
- Leverage existing infrastructure and resources.
- Practice frequent training on and use of an interoperability system; this is a must for a viable system.



Encryption Standard 256 (AES-256). AES-256 provides responders in Dallas with confidence they can securely exchange incident-related information without disruptions that could compromise the safety of responders in the field and those awaiting help.

“The Dallas Love Field Wireless Integration Project demonstrated the efficacy of integration technology in achieving radio interoperability,” says Steve McCraw, Texas Homeland Security Director.

By creating a common interface that all available resources can share, the network of networks made the two-way radios of the Dallas agencies compatible with other radios and commonly deployed devices, including cellular phones, laptops, and personal digital assistants. Agencies using the service are able to control their levels of interoperability, and at all times know with whom they are exchanging information.

Leveraging Existing Resources

Like many emergency response agencies nationwide, agencies in Texas typically purchase communications equipment independently of each other. Many of these legacy systems work well only with equipment made by the same manufacturer. Even agencies with the newest equipment find that their radios cannot work with equipment from other manufacturers.

The software technology used for the DLF project addresses this challenge by providing interoperability across multiple, disparate networks. Rather than relying on the costly acquisition of new equipment, the framework leverages existing radio systems. Legacy devices are bridged onto the network through gateways enabled with overlay software. Use of existing resources has not only proven cost-effective for Dallas agencies, but also has reduced the implementation and training time for making the service operational.

The software also has allowed Dallas agencies to efficiently use fixed network resources, such as spectrum. Instead of loading networks with devices that deplete the operating capacity of the networks, the software creates a “mesh” architecture in which every device that accesses the network adds to the network, with each device acting as its own router, extending network reach.

Making Strides

These technologies have had a significant impact on the Dallas region’s emergency response communications.

“In addition to interoperable radio communications, the system has provided us with the ability to share digital data and live video from Love Field among system users, which was previously unavailable,” says Mitchell. “Voice communications between local, state, and Federal responders is now much easier to accomplish, and we no longer must share radios between groups.”

“This is a must-have service. We must have interoperability among our radio communications,” said Dallas First Assistant Chief of Police David O. Brown at the DLF press conference. “This is a potentially life-saving technology.”

The subscription costs each local, state, and Federal agency or critical infrastructure partner \$20,000 per year, which provides all of its responders and key personnel access to the interoperability service network. The service is offered on a nationwide basis.

Commitment to Partnerships

The DLF project’s stakeholder-driven, cooperative approach has proven invaluable to this progress. Recognizing that disasters know no boundaries, emergency response leaders, local government officials, and private sector representatives—many with competing constituencies and communications requirements—joined to lead the DLF project.

The NCTCOG, which represents 16 counties in the Dallas-Fort Worth Metropolitan Area, coordinated the effort. The NCTCOG ensured that implementation supported: State of Texas interoperability plans, the Dallas-Fort Worth-Arlington Urban Area Security Initiative Tactical Interoperable Communications Plan, and the National Strategy for Homeland Security.

“Regional cooperation and partnerships played an important role and contributed to the project’s overall success,” says Mitchell. “A broad range of local, regional, and statewide partnerships provided valuable stakeholder feedback during the design and implementation of the project, ensuring that all stakeholder participant requirements were met.”

The project has helped strengthen a regional interest in and commitment to working together on today’s interoperability challenges.

Says Mitchell, “This [approach] paved the way to successfully fostering information sharing and interagency cooperation on a local, regional, and statewide basis.”

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efforts. Further, as information technology improves, software products may become more proprietary, multiplying the disconnect between the disparate systems.

Since the SWG’s creation, we’ve achieved remarkable progress. One SWG standard has been adopted by the Organization for the Advancement of Structured Information Standards (OASIS), and two standards sets are currently under OASIS review that are likely to result in approximately 20 individual message standards. And we have work on the horizon.

The SWG is working with DM to develop a situational awareness messaging standard (SitReps). SitReps provides practitioners with data about an emergency’s current situation, including what resources are needed.

Many times, the development of more than one standard is underway. So it will continue to be important for SWG members, industry, and the emergency response community to recruit subject matter experts so that resources meet development needs.

SWG members work closely with the DM program’s Practitioner Steering Group (PSG), a practitioner-comprised body that provides input and recommendations regarding programmatic direction. SWG addresses the priorities and emergency response requirements identified by the PSG and collaborates with the PSG on draft standards.

The work of these groups, coupled with partnership efforts across government, industry, and the practitioner community, are essential to progress. Together, we are laying the groundwork for achieving data interoperability for our fellow responders on the frontlines.

Office of Emergency Communications Update

The Department of Homeland Security Appropriations Act 2007 (Public Law 109-295) establishes the Office of Emergency Communications (OEC). The Act transfers SAFECOM from the Office for Interoperability and Compatibility (OIC) to OEC. SAFECOM’s authorities related to research, development, testing, evaluation, and standards will remain in OIC. The Act also transfers the Integrated Wireless Network and the Interoperable Communications Technical Assistance Program to OEC. OIC and OEC leadership are working closely together through the transition to ensure that SAFECOM’s current activities remain on schedule. Once the transition is complete, OIC and OEC will continue to coordinate to successfully achieve SAFECOM’s critical mission. Additional updates will be made in *Interoperability Technology Today* as the transition continues.

