

# PUBLIC SAFETY TECHNOLOGY



Photos courtesy Brett Drury Architectural Photography/Intergraph

integrated software at the municipal and federal levels, responders and dispatchers had a clear picture of the location of all response resources, as well as the status, state and location of potential threats. The agencies used Intergraph's technologies for establishing CAD-to-CAD (C2C) interoperability between the district's municipal public-safety answering point (PSAP) and USCP federal dispatch facility. This effort laid the foundation for complete C2C interoperability between the two agencies and other agencies in the region to build relationships and expand overall C2C interoperability in and around the nation's capital.

A decade has passed since the Association of Public-Safety Communications Officials (APCO) International first introduced the C2C Interconnectivity Project 36, which sought to research and develop universal standards for CAD and C2C exchanges. The project is a legacy blueprint found in APCO's historical files. Since its inception, there have been numerous pilot programs and other offerings in support of C2C interconnectivity. These projects, led by many federal, state and local agencies, continue to push forward in hopes of one day making CAD interoperability a public-safety standard. APCO's Project 36 helped spawn several emergency management and public-safety data exchange standards. Most, if not all, are supported by some type of XML notation (National Information Exchange Model/Global Justice XML Data Model (NIEM/GJXDM), Emergency Data Exchange Language (EDXL),

## D.C.'s CAD Connection

Washington links different agencies' CAD systems for the State of the Union address.

By James L. Callahan

**D**uring President Barack Obama's first State of the Union address in late January, Washington's Office of Unified Communications (OUC), in a joint venture with the United States Capitol Police

(USCP), successfully secured the event site and responded to incidents through the use of integrated technologies that provided situational awareness and optimized response resource management. By employing



The Washington Unified Communications Center (UCC) opened in 2006.

National Incident Management System (NIMS) and others).

These building blocks and initiatives have taken on a life of their own, all in an effort to support C2C interoperability. Still, the implementation of the technologies in a real-world environment, along with the challenge of jurisdictional consensus and inter-agency cooperation, encumber the full C2C vision. This makes the recent accomplishments achieved by the OUC and USCP in the district, as well as the efforts made by all others who push forward in the world of C2C interoperability, all the more exceptional.

Washington's OUC is tasked with call-taking, dispatching, radio communications and first responder command-and-control functions from the Unified Communications Center (UCC). The UCC, which opened in 2006, is one of the nation's premier call centers and emergency response facilities, encompassing the Metropolitan Police Department (MPD), Fire and Emergency Medical Services (FEMS) and other public services. At the federal level, the USCP has jurisdiction within a 47-square-block radius in and around the U.S. Capitol to protect and support Congress.

"During special events such as the State of the Union, the OUC,

along with MPD and USCP, are responsible for performing additional security measures, including ensuring secure motorcade routes, moving pedestrian and vehicle traffic off the route, and acquiring suspicious packages or items," says Robert Sutton, operations manager for the OUC. "These measures involve a great deal of radio communications and interactions. Intergraph's interoperability solution has the potential to reduce a number of these interactions, as was demonstrated during the State of the Union live trial."

#### The Project Phases

"We began our preparation about three months prior to the State of the Union address, after the administrative phases, such as the signing of memoranda of understanding (MOUs)

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between the agencies, were completed," says Stephen Williams, Intergraph OUC resident engineer. "Work began immediately after we received the requirements to share data between the OUC, USCP and MPD. Working with multiple agencies within a single city limit may appear to be a straightforward process. However, it proved to be challenging on many levels. In the end, we successfully established connectivity between federal and local agencies whose jurisdictions overlap."

The first step was to establish network connectivity between the OUC and USCP. Because each side had its own unique security requirements, the OUC and USCP relied on their respective LAN engineers to ensure adherence to two strict network protocols.

"We had to open a route through the district network firewall so that our two networks could talk," says Philippe Gregory, telecommunications manager for the OUC. "The network challenge for the project was to add a route between two closed networks and make changes so that one of the two network elements could communicate back to the Terminal Access Controller Access-Control System (TACACS) server. The decision was made to configure a static route for a specific subnet to point to the USCP. The challenge was not as much technical as it was procedural to gain the proper authorization from the MPD."

The second phase entailed the installation of the Intergraph interface, which consists of the company's interoperability framework, Williams says. The solution allows multiple CAD systems to pass data between systems using standard XML protocols that can be configured to match each agency's needs. These XML forms allow for events, units and other information to be shared.

Ethan Goldberg, OUC CAD administrator, worked with Williams and Intergraph to reconcile agencies within the OUC CAD system. "This was our third phase, and we needed to create an agency in OUC CAD to

represent USCP, which meant creating a new agency in our system along with the corresponding tables such as the event types, dispatch groups, vehicles and units,”

Goldberg says. “For the two CAD systems to communicate, we couldn’t just plug them into one another without normalizing and, in a sense, reconciling the two. To make the interoperability tools function, we had to recreate parts of the USCP’s CAD on our system and vice versa. Intergraph engineers working for the USCP had to do the same thing on their side to reproduce the OUC’s CAD.”

The final phase was configuring the system to meet operational requirements. In this case, USCP had jurisdiction in and around the U.S. Capitol grounds, which overlaps with the MPD’s First District (1D). The MPD is the primary responder for E9-1-1 calls within the area, whereas the USCP receives its calls internally. The USCP and MPD were willing to share CAD data, but the CAD teams had to restrict sharing to only those areas where the two agencies had common ground for the interoperability solution to be operationally viable.

“Our job was to not simply share CAD data, but to identify and define jurisdictional boundaries. This amounted to an almost surgical approach to interoperability,” Williams says. “To accomplish our objectives in this phase required a great deal of effort in the CAD mapping area.”

The OUC used its existing base CAD map and modified it for use with the new USCP agency, which involved modifying the CAD map to incorporate USCP dispatch areas by creating a separate polygon. “As for the CAD’s GUI, we created two additional monitors, or windows, to display USCP events and USCP units. On the USCP side, they did essentially the same thing but used tab monitors to toggle between the two agencies,” says Goldberg, who also administers the OUC mapping functions.

Implementation was completed

## Interoperability from Within

By James L. Callahan

The day after the president’s State of the Union address, the Office of Unified Communications (OUC) assumed call-taking and dispatching responsibilities for the district’s Protective Services Police Department (PSPD). The PSPD is responsible for managing and providing security and law enforcement at district-owned and leased properties. The mission was executed through patrol operations, contract security guard management and electronic access control/security systems. The PSPD’s operations as a public-safety answering point (PSAP) and police dispatch center for PSPD were transferred to the OUC. PSPD’s previous facility, the Central Communications Center (CCC), ceased operations. This change demonstrated the efficiencies that can be achieved through interagency coordination by consolidating specialized operations within a single location.

Calls to PSPD’s legacy 10-digit numbers were transferred to OUC’s E9-1-1 phone lines. The legacy numbers will continue to be transferred to OUC for about a year, after which time they will be disconnected. The OUC created a separate agency within the CAD system called PSPD that allows the OUC’s E9-1-1 universal call-takers (UCT) to triage these calls in the same manner as traditional E9-1-1 calls currently processed for the Metropolitan Police Department (MPD) and District Fire/EMS (DC/FEMS). The UCTs ask the calling party questions regarding location, call-back number, type of service needed, and other pertinent information as required by the National Academy of Emergency Dispatch (NAED) using its Priority Dispatch Protocol System, integrated into Intergraph’s CAD system. The special address table notes that the caller’s location is a “district-owned” property under the jurisdiction of the PSPD. The calls, however, are entered into OUC’s CAD system in the same manner as MPD or FEMS calls. PSPD calls are given a PSPD sub-type that automatically yields a unique event number and alerts dispatch that PSPD units have jurisdictional priority for this event. The dispatcher simply selects the appropriate PSPD unit from the CAD “PSPD AGENCY.”

“This migration supports interoperability,” says OUC Director Janice Quintana. “The migration of PSPD emergency calls to the consolidated district E9-1-1 center allows for better interoperability between the OUC, MPD, FEMS and PSPD. The move eliminates call transfer from one 10-digit number to another during an emergency call.” Additionally, the migration of PSPD units to the OUC’s CAD system improves situational awareness and enables dispatchers to see and select PSPD units from the OUC CAD system, which allows for better tracking of PSPD units, calls for service, events and improved record keeping, Quintana says. “The benefits are important from both a technological, as well as an officer safety perspective. OUC dispatchers can now make more informed decisions and better use resources. Dispatchers will now be able to view, and in extreme cases, dispatch the closest first responder based on need and proximity as appropriate. This is a huge and potentially lifesaving improvement over ‘stovepipe’ dispatch based solely on jurisdictional boundaries of individual agencies within the district.”

by first running Intergraph’s interoperability application on each agency’s test CAD. The teams created test events and initiated basic messaging, and rollout to production was performed simultaneously between OUC and USCP technical and operations teams one week prior to the State of the Union to mitigate

risks and allow time for application “burn in.”

### The Outcome

“During the State of the Union, the technology functioned great, and was very helpful to both agencies,” says Robert Sutton, operations manager of the OUC. “It provided the ability to



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— Teddy Kavaleri, OUC

view each other’s activities, enabling us to better use our resources.” OUC Assistant Watch Commander Edward Washington says that the system directly contributed to situational awareness during the State of the Union. “I think that the best benefit of Intergraph’s interoperability solution is the ability to see what your neighboring jurisdiction is doing at any given time,” Washington says. “This would be extremely instrumen-

tal during other special events and unplanned emergency situations.”

Teddy Kavaleri, OUC chief information officer (CIO), is hopeful that the OUC and the USCP will continue to pursue interoperability technologies. “We have already demonstrated a working proof of concept; the challenge now is to keep the momentum going,” Kavaleri says. “Within the next few months, we should be positioned both technical-

ly and operationally to move from a view-only mode to actually creating and sharing CAD cases. The OUC already facilitates complete radio interoperability between the involved agencies. Providing the same seamless interoperability and functionality for CAD (C2C) is the next logical step forward.” ■

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James L. Callahan, ENP, is the CAD technology manager for the Washington Office of Unified Communications (OUC). Callahan previously was a consultant for L. Robert Kimball and Associates, where he worked to develop systems for the district’s Unified Communications Center. He also served as captain in the Baltimore City Fire Communications Bureau and manager of information systems for the Baltimore City Police Department. E-mail comments to [james.callahan@dc.gov](mailto:james.callahan@dc.gov).