ENABLING THE INTERFACE

CAD-to-CAD solutions are blooming, but agencies struggle with financial and bureaucratic roadblocks to the lifesaving technology.

By John Chiaramonte, Morgan Sava and Stephen Martini

There's no question that interoperability between computer-aided dispatch (CAD) systems should be pursued by most emergency communications centers (ECCs). There's also no question that significant obstacles are in the way, though alternative options to incident data sharing are starting to bloom.

CAD interfaces (CAD-to-CAD) connect disparate hardware or software and are used to share incident response data between two agencies to improve interoperability on a local or regional basis. There are many reasons an agency would pursue such an interface, including:

- Significantly reduced response times
- Improved accuracy of transmitted information
- Real-time information sharing
- Increased situational awareness across several agencies
- Enabling field units to be directly dispatched from a neighboring ECC

Emergency calls are frequently transferred from one ECC to another for many reasons. Manual transfers consume valuable time when every second counts during emergencies and lives are at risk. Often, these transfers lack information about the emergency, which could be critical to ensuring a well-informed dispatch decision.

During transfers, the caller may need to repeat the information again that was already provided to the first public safety
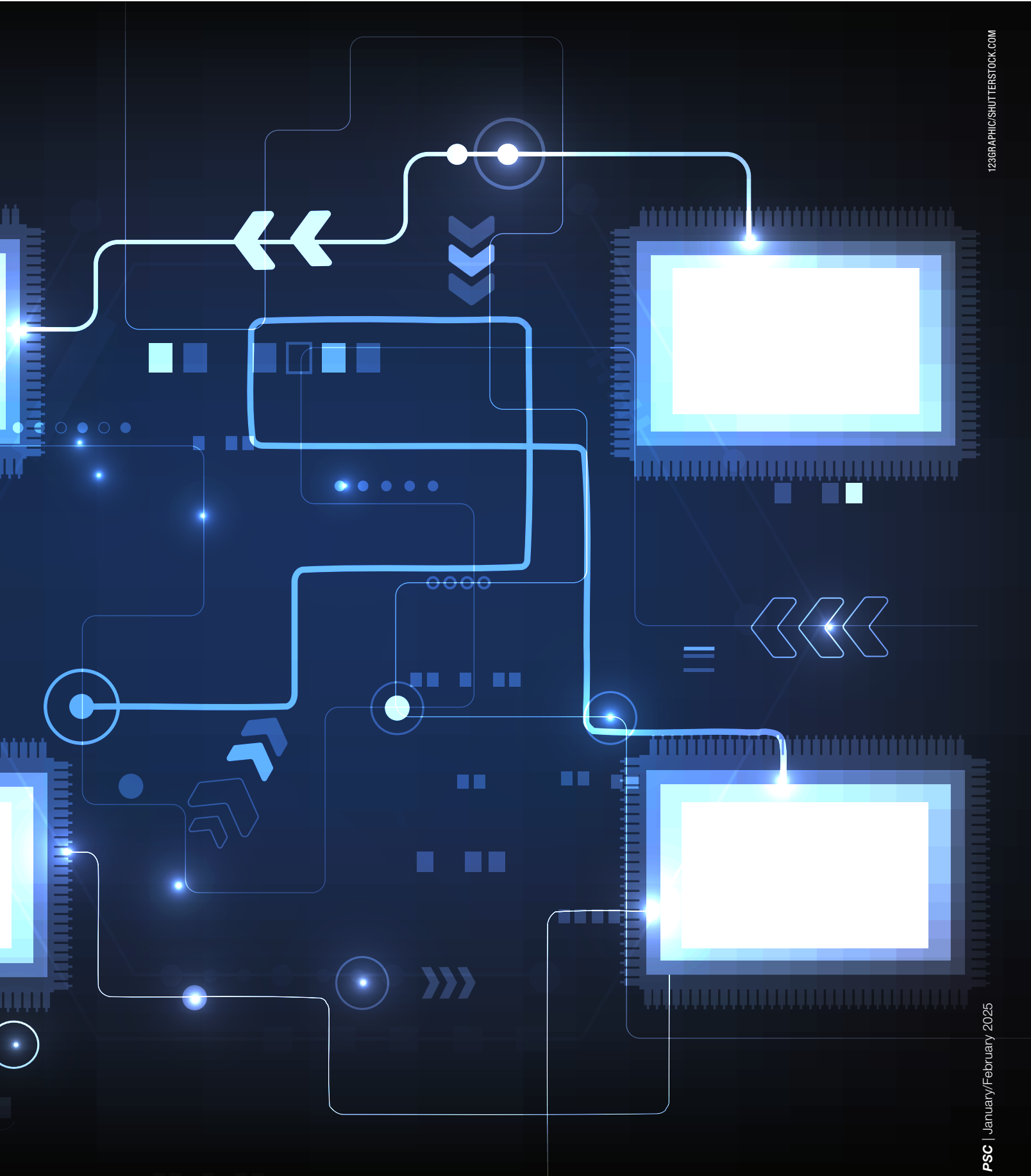
telecommunicator, consuming even more time. It's also error-prone because the caller, who generally is experiencing the worst day of their life, may become more flustered with each passing second, potentially misremembering or even omitting critical information shared in the initial call. This missing or inconsistent information could, if accurate, enable the second telecommunicator to make the most effective response decisions.

In contrast, CAD-to-CAD interoperability enables ECCs to share system-generated data seamlessly and without human intervention. The result is dispatching the most appropriate response resources more quickly, which is incredibly impactful. It's estimated that reducing response times by just one minute will result in 10,000 more lives saved annually.[1]

Funding, which always seems to be in short supply in the public safety sector, can be a primary obstacle in purchasing and implementing a solution. The good news is that state and federal grant programs may exist to help shoulder the load. However, it's important to consider how participating entities will share the procurement, implementation, operation and maintenance costs of the interoperability solution. Will it be based on the population served, the number of emergency calls handled in a specific timeframe or something else?

In September, the U.S. Department of Transportation announced that the Charleston County (South Carolina) Consolidated Emergency Communications Center will use grant funding to establish CAD-to-CAD interoperability with neighboring Berkeley and Dorchester counties. Their reported goal is to reduce call-transfer times by as much as 80% and, ultimately, reduce deaths associated with roadway crashes.

Interfaces represent an effective way to connect disparate CAD systems, and several providers exist in the marketplace. That's the good news. The bad news is that not all providers leverage commonly accepted technical standards followed by the emergency communications industry for network, device and IP connectivity. Simply put, any CAD-to-CAD solution should enable interoperability that is standards-based rather than proprietary.

Implementing the technological means of achieving interoperability is only one factor in a complicated equation. Another concerns governance. More specifically, the intergovernmental agreements needed to enable data transfers and sharing, and to identify the entities responsible for ensuring the interfaces perform effectively and troubleshoot when they don't. Such agreements can be tricky to negotiate even when a history of collaboration and cooperation exists within a region. Governance is the first thing that should be addressed, but it is often placed on the back burner because it is a difficult process that many officials don't want to deal with.

The Jefferson County Communications Center Authority (JeffCom911) in Lakewood, Colorado, engaged a CAD-to-CAD solution to enable the dispatching of a neighboring agency's units.

When an ECC needs emergency response help from a neighboring jurisdiction, it typically calls to inquire whether certain resources are available for dispatch. This can take several minutes when saving seconds is essential.

> " **CAD-to-CAD interoperability enables ECCs to share system-generated data seamlessly and without human intervention.**

JeffCom911's public safety telecommunicators use automatic mutual-aid support through a CAD-to-CAD interface to dispatch a unit while updating the other jurisdiction's CAD system in real-time. If the selected unit isn't available, the CAD system simply selects the next closest-available unit and automatically dispatches that one. JeffCom911 representatives say this automatic mutual-aid incident initiative resulted in an average three-minute response time reduction per call.

Once the technology is procured and configured, the work isn't over. Several operational obstacles must be navigated. Supervisors and telecommunicators need to be trained, mutual-aid and data-sharing protocols need to be developed, and common operating procedures need to be defined.

Then there's the matter of nomenclature. ECCs tend to describe the same event, e.g., a traffic crash with injuries, using a plethora of conflicting terms — vehicle crash, motor vehicle crash, auto crash with injuries, without injuries or unknown injuries. Some agencies even continue to use ten codes! In some cases, the vast range of possible CAD incident types can range into the thousands. All of those disparate incident type names need to be sorted and aligned, matching incident types between agencies. The process is often complicated and, at times, contentious as it may require one or both agencies to change how they've operated for many years.

In some cases, these conflicts are too much to overcome, and an alternate solution is necessary. In some areas, very small ECCs don't use CAD at all but could still benefit from the situational awareness of a common operating picture informed by shared incident data.

Fortunately, alternate options are blooming around less traditional methods of incident data sharing. While traditional CAD interfaces rely on a one-to-one configuration, others are exploring a one-to-many approach.

One industry solution offers a "hub" device, allowing several agencies to configure their CAD to the device, which then navigates various data translations to deliver incident data to multiple CAD solutions. Complex nomenclature differences are translated within the hub, delivering accurate and relevant data to the receiving ECC in the language they use daily to send help to the scene. In the same way that a translation app allows two individuals speaking different languages to communicate in their native tongue, neighboring agencies can coordinate help on a jurisdictional border while operating within their standard operating procedures.

Yet another industry solution currently deployed broadly across California offers incident and resource sharing to a cloud-hosted tactical map, which facilitates mutual aid response across wide areas impacted by wildfires that have little regard for jurisdictional boundaries. In this configuration CAD incident data such as location, incident type, caller information, narrative, and requested or assigned units are sent to the neighboring agency within a predetermined geographical boundary. Incidents are created in a shared web-based map displaying the same information for both agencies. Like the hub solution, this allows multiple agencies to share a single common operating picture, and request and commit resources to the scene all without making one more telephone call or tying up radio traffic.

Engaging the right option to send accurate incident data between ECCs without a phone call is the right approach to saving precious time, dramatically reducing the possibility of error and reducing stress on the caller and the telecommunicator, which should be the goal of every ECC. ●

John Chiaramonte is President of Consulting Services for Mission Critical Partners. Email him at JohnChiaramonte@MissionCriticalPartners.com. *Morgan Sava* is Senior Vice President of Marketing and Support for Mission Critical Partners. *Stephen Martini* is President of APCO International and the Director of Metro Nashville Department of Emergency Communications. Email him at Stephen.Martini@Nashville.gov.

REFERENCE

1 FCC Fact Sheet, Location-Based Routing for Wireless 911 Calls, PS Docket No. 18-64, pages 24-25.

CDE EXAM #73779

1. CAD interfaces (CAD-to-CAD) connect disparate hardware or software and are used to share incident response data between two agencies to improve interoperability on a local or regional basis.
   a. True
   b. False

2. An agency might consider a CAD-to-CAD interface because it:
   a. Significantly reduces response times.
   b. Improves accuracy of transmitted information.
   c. Allows real-time information sharing.
   d. Increases situational awareness across several agencies.
   e. Enables field units to be directly dispatched from a neighboring ECC.
   f. All of the above

3. What is one risk mentioned in the text that can occur when calls are manually transferred between ECCs?
   a. The call is processed too quickly.
   b. The caller is clearly understood when communicating information.
   c. Callers may misremember or omit critical information when repeating their requests to a second telecommunicator.
   d. Accurate and consistent information is always shared between agencies.

4. According to estimates, reducing response time by one minute could save how many lives each year?
   a. 10,000
   b. 200,000
   c. 500,000
   d. 1 million

5. Grant funding may be available to support, at least in part, the procurement of a CAD-to-CAD solution.
   a. True
   b. False

6. Charleston County, South Carolina, emergency communications professionals want to use a CAD-to-CAD interface to reduce:
   a. Deaths associated with roadway crashes
   b. Hot-air balloon incidents
   c. Noise complaints
   d. Incidents involving stray cats

7. Data sharing solutions should leverage commonly accepted technical standards followed by the communications industry for network, device and IP connectivity enabling interoperability that is standards-based rather than proprietary.
   a. True
   b. False

8. JeffCom911 overcame governance challenges to implement a CAD-to-CAD solution enabling them to create an automatic mutual aid response between agencies.
   a. True
   b. False

9. A "hub" device can be used to share data among several agencies without having to engage the tedious task of manually navigating:
   a. An interstate highway
   b. Various data translations and complex nomenclature differences
   c. Governance issues
   d. A formal funding request

10. Data sharing to a cloud-hosted tactical map can improve situational awareness across several agencies by displaying specific incident data within a predetermined geographical boundary while facilitating mutual aid requests without any phone calls or additional radio traffic.
    a. True
    b. False

FOR CREDIT TOWARD APCO RECERTIFICATION(S)

Each CDE article is equal to one credit hour of continuing education

1. Study the CDE article in this issue.

2. Answer the test questions online (see below for online exam instructions) or on the exam page from the magazine article (photocopies are not required).

3. Add/upload your CDE article information and certificate of achievement in the "My Classes Taken" section of APCO's Training Central at www.apcointl.org/trainingcentral.

Questions? Call us at (386) 322-2500.

You can access the CDE exam online! To receive a complimentary certificate of completion, you may take the CDE exam online. Go to http://apco.remote-learner.net/login/index.php to create your username and password. Enter CDE in the search box, and click on "CAD," then click on "enroll me" and choose **"CAD (73779)"** to begin the exam. Upon successful completion of the quiz, a certificate of achievement will be available for download/printing.