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Production Test Lab Up and Running

The Texas Commission on State Emergency Communications (CSEC) has established a new production test laboratory at the Texas Department of Information Resources (DIR) facility in Austin, and testing of various components of the CSEC State-Level Emergency Service Internet Protocol (IP) Network (ESInet) is scheduled to begin there in September.

The first wave of testing was conducted successfully at the Texas A&M University (TAMU) Internet2 Technology Evaluation Center (ITEC). Logistics were a factor in making the move, according to Kevin Rohrer, CSEC's chief technical officer.

"The DIR facility, CSEC and CapGemini, which is supporting the testing program, all are located in Austin, while TAMU is in College Station, about 90 minutes away," Rohrer said. "Relocating the lab will enable us to move faster and become lighter on our feet."

Another important reason for the transition is that the lab located at the DIR facilities provides a production environment compared with an academic environment.

"It takes a lot to pull together a Next Generation 9-1-1 (NG9-1-1) system because there are so many moving parts, and the TAMU testing gave us a chance to see how it all will work," Rohrer said.

"In theory, the DIR lab will be testing actual NG9-1-1 core components. It will give us a boots-on-the-ground perspective."

A complete end-to-end NG9-1-1 environment has been created in the production test lab. The initial phase of testing will focus on call-routing elements such as the Emergency Call-Routing Function (ECRF), the Border Control Function (BCF), and the Emergency Services Routing Proxy (ESRP).

Equipment in CSEC's racks at the Texas DIR facility in Austin.

"Each will be evaluated not only to understand their capabilities, but also to determine how well they align with industry standards," said Ryan Chandler, manager, state and local government for CapGemini.

Eventually the production-environment NG9-1-1 system's call-handling and call-delivery capabilities will be assessed, Chandler added.

"We'll be able to see whether the calls appear properly on the map display, with all of the associated data," he said.

CSEC plans to keep the production test laboratory up and running even after its State-level ESInet goes live.

Multi-Sourcing Systems Integrators Explained

Systems integrators (SI) long have served an important role in the public-safety sector, particularly in the implementation of large and complex communications systems, especially those deployed on a regional or statewide basis.

Now a new type of integrator is emerging, the multi-sourcing systems integrator (MSI), which will play a different but equally important role once CSEC's State-level ESInet is operational.

There are a few fundamental and significant differences between the SI and the MSI.

The SI is focused solely on implementation. Because the SI is vendor-agnostic, it has the ability to deliver a best-of-breed solution. However, the SI only is involved in the project for a finite period of time, with defined beginning and ending points.

Meanwhile, the MSI focuses solely on system operation, managing all of the various components and subsystems implemented by the SI. The MSI's work is ongoing, as long as the system is operational.

"The MSI will ensure that all of the CSEC State-level ESInet's systems are integrated effectively, and that each individual system is performing as expected and contracted," said Jon "Sammy" Samuelson, senior manager at CapGemini.

The MSI for CSEC's State-level ESInet won't be chosen for awhile, but once the selection has been made, it will oversee the entire ecosystem—a task made considerably more challenging given the complexity of the network.

"The ecosystem will consist of numerous solutions being provided by numerous vendors—for example, there likely will be multiple suppliers for the call-handling and call-aggregation components—and the MSI will be the single source that manages all of it, the proverbial 'one throat to choke,'" Samuelson said.

In addition to ensuring that the CSEC State-level ESInet is operating effectively and efficiently, the MSI will make sure that all vendors are living up to the relevant service-level agreements (SLAs) and that their help desks are resolving issues within the appropriate timeframes given the severity level. The MSI also will keep tabs on system configurations, specifically, whether any changes are being contemplated.

"How will any changes to the system configuration—or component upgrades for that matter—affect other areas of the network?" said Kevin Rohrer, CSEC's chief technical officer. "All of that has to be managed, and the MSI will work to avoid any unintended consequences."

Rohrer added that the production test laboratory that CSEC recently implemented in the Texas Department of Information Resources (DIR) facility in Austin will be a huge help in this regard. CSEC intends to keep the lab operational even after the ESInet is operational in order to test configuration changes before they are implemented.

Change management is particularly important when operating a network as large and complex as an ESInet. Consequently, the 9-1-1 Strategic Alignment Committee was formed to oversee the creation of the myriad policies and standards that will be needed to ensure that the CSEC State-level ESInet operates as expected.

Future issues of *Connections* will provide more depth on the MSI's role and how it will benefit the CSEC State-level ESInet ■
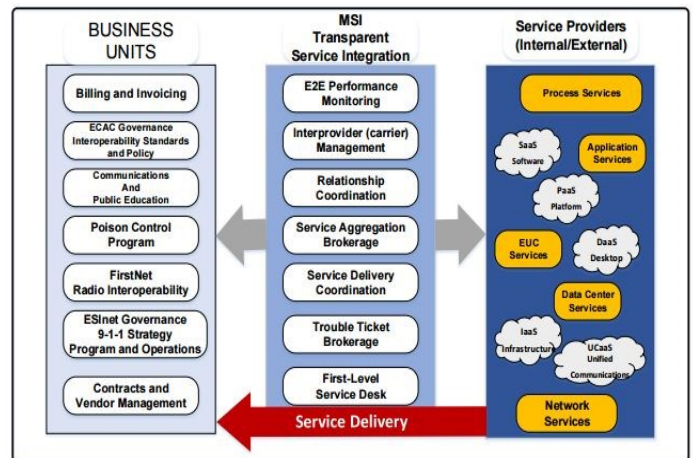
The role of the multi-sourcing systems integrator. (CSEC)

CSEC, ACC Partnership a Win-Win

Sean Moran, the director of the geographic information systems (GIS) department at Austin Community College (ACC), had a problem. Or more specifically, his students had a problem.

There was a time when employers hired students directly out of school with no professional experience, with the understanding that it was their responsibility to train those new employees to work in their organizations.

"That's gone," Moran said. "The entry-level jobscape today requires at least a year of experience, and that's a little frustrating for students, who can't compete immediately after leaving school."

The problem isn't unique to GIS students or ACC—according to Moran, students of all kinds at colleges and universities across the country find themselves in the same circumstances. So, Moran and his colleagues at the college set out to do something about that. Their solution was to create the "ACC Incubator for Professional Skills," which works to help students find internships that will give them the experience that employers crave.

"We were looking for projects that we know our students will be successful in, and will provide good value to the client," Moran said.

Serendipitously, CSEC was looking for a source that could provide third-party validation of the 9-1-1 data being generated by service providers, as well as the state's Councils of Governments (COGs) and Regional Planning Commissions (RPCs). CSEC was well aware of Moran and his reputation, as he previously had been the planning director for the Capital Area Council of Governments (CAPCOG) and had firsthand knowledge of 9-1-1 data.

Consequently, CSEC and ACC launched a pilot project that involves two students assessing the spatial accuracy of structure address points. Initially, they focused on two counties each in Brazos Valley COG (BVCOG) and East Texas COG (ETCOG).

"It's a natural partnership," said Vonda Payne, CSEC's implementation program manager.

BVCOG's 9-1-1 data quality is regarded as among the best in the state program, but the pilot project revealed that even it had some work to do.

"Overall they said that our data was very clean and accurate, but that there were some areas that needed clean up," said Anita Pitt, BVCOG's program manager. "It is very good to get another perspective."

Based on the experience, Pitt has asked CSEC to allow the ACC students to assess BVCOG's other five counties. She added that such an assessment is needed in part because of the way technology has advanced.

"We've been taking address points using GPS since 1995," she said. "But GPS has become much more accurate since when we first started driving roads."

Francis Crate, BVCOG's GIS coordinator, added that another factor is that people often do the unexpected.

"Some of our rural roads have shifted over the years," Crate said. "People who have large amounts of land reshape their roads, and the only way we can discover that is through aerial images.

Crate offered an example involving a property that featured a small pond. The owners wanted the road that cut through the property to be on the other side of the pond. So they moved the road—which changed all of the addresses for the structures on that road.

Stephanie Heffner, ETCOG's director of public safety, believes that the pilot program is serving a vital function for a couple of reasons and would like to see it expanded.

"We place our structure address points on the driveway, because a house on a rural property can be a mile and a half down the road," Heffner said. "So, it's better to put them on the road so the first responders know where to turn.

"Consequently, we need to know if those

"We think that this project will encourage students who are looking for jobs to take a look at 9-1-1."
— Vonda Payne, CSEC

"We needed to know whether we're getting our money's worth on our data cleanup"
— Stephanie Heffner, ETCOG

CSEC, ACC Partnership a Win-Win

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address points are in the right place, or whether they need to be adjusted."

In addition, every COG in the state program is in various stages of 9-1-1 data cleanup, in anticipation of the State-level ESInet that CSEC is implementing which will provide the transport medium for Next Generation 9-1-1 (NG9-1-1) services.   But such data cleanup is a time-consuming task, so ETCOG contracted with an outside firm to perform the task for them.

"We needed to know whether we're getting our money's worth on our data cleanup. The pilot program is providing a way to verify whether our vendor is meeting this deliverable," Heffner said. "So this definitely was a good idea."

According to Payne, the pilot project already is expanding, with the addition of Middle Rio Grande Development Council and Rio Grande COG, with all five of the latter's counties participating. In addition to the now obvious value that the pilot program is providing , Payne hopes that it will provide a springboard to other things.

"It is very difficult right now to replace GIS people in the 9-1-1 world, much less add to their ranks," Payne said. "We think that this project will encourage students who are looking for jobs to take a look at 9-1-1"

ACC's Moran agreed. "Any industry that has information that's tied to a location uses GPS," Moran said. "Students typically are drawn to the banking industry, which uses GIS to track where they are providing loans, and mapping application vendors like Apple and Google," he said.

In the municipal sector, GIS professionals usually are focused on urban planning, zoning and the like—but not public safety. Moran wans to change that, and is willing to share the workflows developed by his students with other colleges and universities interested in starting their own incubator programs.

"This program will help students start thinking about public safety as a career path," Moran said. "We think this program will get them thinking about working as emergency managers, flood-plain managers, or even for 9-1-1 vendors, when they wouldn't have before."∎

The address   point in the image above is 336 meters southwest of the identified structure, and 138 meters from the identified driveway. (Austin Community College)

Production Test Lab

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"Technology is constantly evolving, so doing so will provide an opportunity to evaluate new products, as well as component upgrades, that come to market, before they are implemented in the State-level ESInet," Chandler said.

"Most of the NG9-1-1 core functionality is software-based, and keeping the lab open will make it quick and easy to test new releases—and new releases come fast and furious," Rohrer said.∎