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Sidebars

PC-Based Training Boosts First-Responder Readiness

by A. Duffy Baker

The use of computer-based training should help enhance the preparation of first-responders in cases of terrorist attacks with weapons of mass destruction, officials said. One such technology is the Virtual Emergency Response System (VERTS).

Traditional live training for first responders and soldiers is costly and labor-intensive, said Lt. Col. Tom Coffman, product manager for OneSAF (Semi-Automated Force) at the Army's Simulation Training and Instrumentation Command. PC-based simulations, he said, are more cost effective and can be used on a more regular basis.

"We were charged, about two years ago, to begin to develop capabilities to respond to terrorist attacks using weapons of mass destruction. ...That response will take capabilities from across the nation, from local, state and federal response agencies that have to begin to work together," explained Air Force Col. Jay Steinmetz, program manager for VERTS at the office of the director of military support.

VERTS was developed as an Advanced Distributed Learning (ADL) tool to help integrate the various agencies. Steinmetz said that ADL met the diverse training needs of geographically dispersed response teams. It also would make training more available to reservists who only train one weekend a month, or firemen who work on a volunteer basis.

One of the biggest benefits of VERTS is the realism of the virtual environment, he said. VERTS can simulate cities from all over the United States in a digital setup. In the real world, training with that much detail could not be done without compromising the security of the response teams and possibly causing disruptions to civilian authorities, according to officials.

The Institute for Defense Analyses (IDA) Simulation Center has created a program called Virtual Cities. IDA uses Geographic Information Systems (GIS) data to create models of real U.S. cities, according to Bob Clover, technical director for the simulation center at IDA. "The city is modeled with a combination of geo-specific and geo-typical buildings and textures. ...The

building interiors are, again, a mixture of geo-specific—from computer-designed files and site visits—and geo-typical—to support various training scenarios," explained Clover. Currently, Philadelphia and Chicago have the most detailed data available, with Los Angeles, New York and Washington D.C., not too far behind. The GIS data is used to generate SEDRIS (Synthetic Environment Data Representation and Interchange Specification) data that is then run through SEDRIS tools "to verify a valid transmittal and to identify possible errors."

Once the city environment is created, a database is generated, which still has some "unwanted dirt." For instance, a soldier can be shown standing on what is actually an open subway entrance. "These dense urban environments are much more complex than the battle spaces both the SEDRIS and SAF communities were used to working with. There is a constant iteration with both SEDRIS and SAF communities to be able to handle these complex virtual environments," said Clover. "Some [buildings] are so complex that we have to use a combination of detailed imagery—often six-inch is available—and site visits to determine whether a building is extremely complex or a conglomeration of simple buildings," which cannot always be determined from the GIS data.

The details get down to specific street poles, fire hydrants, sewer drains and subway entrances. For an example, Clover used a 1-kilometer by 2-kilometer section of Philadelphia. That area has 2,165 street poles (lights, directional signs, etc.), 482 fire hydrants and 911 sewer drains. "Fire hydrants are a source of decontamination for the CSTs [civil support teams] and determine where decontamination sites will be located when responding to an incident," explained Clover. The sewer drains have not been added to the simulation yet, but Clover hopes to put them in, to "incorporate affluent run-off."