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Sidebars

Cost of Simulators Driven by Development of Digital Databases

by Sandra I. Erwin

Despite a significant drop in the prices of computer chips in recent years, building advanced military simulators remains costly, because most of the expense involves the development of digital databases, said James R. Oyler, president and chief executive officer of Evans & Sutherland Computer Corporation, in Salt Lake City.



“The cost of a simulator remains high, because mechanical systems and software don’t follow Moore’s law,” Oyler told an industry conference in Tysons Corner, Va. “Electronic components are 10 to 15 percent of the cost of a simulator.” Moore’s law is a widely used term in the industry to describe the phenomenon by which computer processors become increasingly more powerful and less costly within 18-month cycles.

Another reason why military systems are expensive is the low-quantity orders, he said. The popular Sony PlayStation 2—a joint venture of Sony and Toshiba—cost \$100 million to develop, said Oyler. “So you can only make it in that business if you have high volume of sales.”

Some believe that a top-of-the-line video game, with Hollywood production-style features is expected to cost \$50 million. “You can only justify that with high volume,” he said. The databases are costly to build. For a PlayStation 2 quality of visual, the database development price tag was estimated at \$10 million.

A high-fidelity image database of the United States, at \$480 per square kilometer, would cost \$4.3 billion, said Oyler. “For ground, close-in training simulations you need more resolution. ... It bothers people to see fuzzy things. That is partly psychological.”

Terrain imagery is far more advanced today than digital representations of buildings, bridges and roads, for example. "It's hard to get 3-D features correctly," said Oyler. "They are not as automated as terrain."

One of the holy grails in the simulation industry is the standardization of visual systems and products, so that they can be shared. But that has been difficult to achieve in an industry that is highly competitive. "The solution to standardization is to create libraries of the desired objects and make them freely available, such as models, 3-D source data, behaviors, tools, entire databases," said Oyler.

The use of commercial images, while less costly than custom imagery, is "not a panacea," he said. "Military needs are not the same in simulators."