

## Taking troop training to a new level

*by Bruce V. Bigelow*

When Australian military forces gather in May and June for training exercises at the Shoalwater Bay Training Area north of Brisbane, Australia, the troops and aircraft will be wired with sensors and laser-based gear that enable units to simulate combat.

U.S. forces equipped with the same technology will participate in the war games, called Talisman Sabre 2007, which mix the realism of combat field maneuvers with "virtual" electronic training simulations.

The blend of virtual and real-world combat simulations represents the latest trend in military training, which has grown into the biggest business segment for San Diego's Cubic Corp. Moreover, experts say that combining such technology in joint exercises with forces from different countries is taking such training to a new level.

More than 15,000 Army, Navy and Marine Corps personnel are expected to participate in Talisman Sabre, along with 12,000 Australian ground, naval and air force personnel.

While U.S. and Australian military forces often train together, this is the first exercise to link the electronic training systems of two countries - and the implications are far-reaching.

Under the march of progress, war games have become increasingly sophisticated. In the early 1980s, the Army began using laser modules mounted on real guns to enhance the realism of combat training. More recently, training is moving to incorporate "constructive simulation" in which real people interact with computer-simulated events.

Much of the technology in the upcoming Talisman Sabre exercise was supplied by Cubic's defense applications business. Cubic has long provided U.S. forces with its training systems. Sales to the Pentagon

account for about 75 percent of the company's defense business, said Jerry Dinkel, president and chief executive of Cubic Defense Systems.

In 2003, Cubic won a \$45.6 million contract to provide "Land 134," a ground-combat training system for Australia's armed forces, Dinkel said. In February, Cubic announced it also would provide a \$10 million air-combat training system in time for the joint war games, scheduled for June.

"One thing that makes it unique is how much integration will take place," Dinkel said. "Talisman Sabre will be a first in terms of the extent of air and land forces, and to some extent naval forces, that are involved in the exercise." If all goes according to plan, the technology will enable military command centers throughout Australia and in Hawaii, Virginia and Florida to monitor the training exercises as they unfold.

The system also will be sophisticated enough to enable troops on the ground to call in simulated airstrikes by ground-support aircraft.

The 1,000-square-mile military training area north of Brisbane features diverse terrain, including mountainous areas, rain forests, coastal dunes, mangrove swamps and an extensive coastline for amphibious operations. During the training, each soldier wears a harness that features a GPS electronic tracking device and a host of laser sensors.

Laser transmitting devices are mounted on Army-issued weapons, which are equipped to fire blanks to add realism to the training. Each time a soldier fires his rifle, the laser emits a burst of coded data that enables the system to determine who fired and whether the shot was a hit or miss, and assess casualties. The system can even assess personnel casualties based on their proximity to simulated hand grenades, artillery rounds, bombs and missiles.

Under a smaller contract awarded in February, Cubic said it also is installing its training instrumentation system in a new urban-operations training facility that the Australians built at the Shoalwater Bay Training Area.

In most cases, air-support missions will actually be flown by F-18 Hornet strike fighters equipped with electronic pods that enable the computer network to simulate the effects of the jets' bombs and other weapons. In some cases, though, planners intend to use "virtual" airstrikes in which U.S. pilots using ground-based flight simulators in Florida will "fly" AC-130 gunships on simulated missions in Australia. Some virtual missions also will be flown by Australian pilots in F-18 Hornet flight simulators at a Royal Australian Air Force facility near Canberra.

Demonstrating the interoperability of the distributed simulation networks is an important objective of the biennial training exercise.

Successfully integrating the systems would win kudos for Cubic, as well as L-3 Communications, Raytheon Australia and other defense contractors that developed the underlying technologies.

Cubic's defense sales increased to \$143.3 million in the company's fiscal first quarter that ended in December, and represented 70 percent of the total revenue. Sales of military training equipment is by far the biggest segment, accounting for nearly 70 percent of Cubic's defense business.

The initiative to link Australia's electronic training system to the U.S. Joint National Training Center in Suffolk, Va., began in 2004 with talks between then-U.S. Defense Secretary Donald Rumsfeld and then-Australian Defence Minister Robert Hill.

"What came out of these high-level discussions was a directive to improve the interoperability of our combined operations," said Lt. Col. Peter White of the Australian Defense Forces. "Our goal is to make sure that interoperability between the two is as effective as possible."

Training Australian Defense Forces to use the ground-strike protocols followed by U.S. military aircraft is a major goal of the exercise, White said. Today, allied ground forces operating in Afghanistan and Iraq often must rely on U.S. military aircraft for ground support. "Using the Cubic systems, we'll have a fully integrated, live training and simulation event, which means we can have a fuller and clearer operating picture of what's happening," White said. "It's very nice to be able to practice these things before you get in (the war) theater."

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