

Air vigilance

Boeing's most advanced command and control solution is set to revolutionize global air defenses—and comes from Australia

By Karinne Logan

Welcome to Royal Australian Air Force Base Tindal, about 1,800 miles (2,900 kilometers) northwest of Sydney. Inside a Defence Operations Centre, the air is thick with tension. RAAF operators manning consoles intently watch and process the surveillance images on the monitors in front of them. The screens show the airspace thousands of miles to the north, east and west of their location and all aircraft within it.

Overhead, a Wedgetail Airborne Early Warning & Control aircraft identifies a potential hostile threat north of Australia. The tactical data information is displayed in near real-time on the console operator's screens. With a click of the mouse and without a word spoken, commands appear on an encircling Super Hornet's head-up display instructing the pilot to change course. The Super Hornet is now on target to engage the threat and prevent a potential strike on Australia.

While this is a fictional scenario, the technology being used isn't. This is Vigilare, one of the world's most sophisticated command and control (C2) systems. It has the potential to change the face of air defense C2 systems—and enhance Boeing's reputation as a truly global developer of advanced defense technology.

Vigilare is the name given to the integrated air battle management system Boeing Defence Australia is delivering to the RAAF. The system not only provides better capabilities than existing C2 systems, but it's a product that Boeing hopes will fuel growth in international sales—which Integrated Defense Systems envisions as a major area of expansion. Together with the strategic high frequency communication system Boeing is delivering to the Australian Defence Force, Vigilare is Boeing's first significant defense product developed outside the United States for international sale.

"Later this year, the team will present to the Australian warfighter a system that will greatly increase the security of this country," said Steve Parker, Boeing vice president of Network & Space Systems Australia. "Australia may not have been known internationally for its cutting-edge developmental projects, but Vigilare will change that."

WHAT MAKES VIGILARE REMARKABLE

Vigilare works by combining information in near real-time from



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a wide range of platforms, sensors, tactical data links and intelligence networks to deliver tactical- and strategic-level surveillance operations and battlespace management in the air and joint domains. The live inputs from these sources are then fused at two Regional Operations Centres manned by RAAF personnel—one at RAAF Base Tindal, and another on Australia’s east coast at RAAF Base Williamtown. Each ROC contains sophisticated information and communications systems, including consoles that display to RAAF operators a recognized air picture of the battlespace from the various ground- and air-based defense sources. It is from here that the RAAF will control and command the skies above them.

What makes Vigilare so remarkable and more advanced than other C2 systems currently on the international market is a combination of cutting-edge technology, fully integrated tactical data links within a single operational human-machine interface, easy customization, and a unique “record and replay” training capability.

As the most recent addition to the C2 domain, Vigilare boasts advanced technology not available elsewhere. Its operator interface is one of the market’s most user-friendly and can be customized. There also is significant automation within the system, meaning fewer operators and maintenance staff are needed.

Vigilare also can integrate with all Boeing products, from F/A-18 Super Hornets to P-8s and AEW&C aircraft, which is an obvious draw card for countries that are existing Boeing customers.

In addition, Vigilare provides an interactive “record and replay” capability that enables both real and fictional scenarios to be replayed multiple times. Changes can be made to each scenario to create a different outcome. This innovative feature offers significant benefits by enabling customers to enhance both operator training and strategic planning.

The complexity of Vigilare is something that isn’t lost on Air Commodore Steve Sheedy, director-general of the Surveillance and Control Branch of the Australian government’s Defence Materiel Organisation. “It is an extremely complex system-of-systems type project requiring the merging of data from a large number of dynamic and disparate sources,” he said. “It is of vital importance to the capability of the Australian Defence Force and, once delivered, will be a key foundation stone of Australia’s air defense and network-centric capabilities.”

WORLDWIDE INTEREST

Although the system isn’t scheduled for delivery to the RAAF until 2010, it’s already generating significant international interest. That was evident at the International Defence Exhibition and Conference held in Abu Dhabi, United Arab Emirates, in February.

“We showcased Vigilare for the first time outside Australia to an attentive audience intrigued to know more,” said Nan Bouchard,

vice president and general manager of Command, Control and Communications (C3) Networks, the U.S.-headquartered IDS division under which Vigilare falls. “With national security high on the global agenda, a number of Middle Eastern countries asked for demonstrations during IDEX, and as a result, we have received several requests for additional briefings.”

Vigilare’s appeal goes beyond the Middle East. Asian nations already are knocking on Boeing’s door and the company sees the region as a future market.



“As IDS increases our global presence, we will look for other opportunities to do similar developmental projects while managing the inherent risk. We will leverage these projects to gain access to new markets, global talent and sponsorship around the world for Boeing,” said Steve Goo, vice president, IDS International Operations. ■

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PHOTOS: (LEFT) Vigilare design engineer Hugh Webster (seated) and tactical data links test engineer Jason Brennan review a battlespace management test mission that demonstrates the integration of simulated surveillance data from aircraft flying in Australian airspace. **HEIDI SNOWDON (ABOVE)** Hugh Webster (left) and Lee Davis, deputy Vigilare program manager, give a presentation on Vigilare’s capabilities during the recent International Defence Exhibition and Conference in Abu Dhabi, United Arab Emirates. **LORENZO CORTES/BOEING**