News Release

Defense Advanced Research Projects Agency

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DARPA DEMONSTRATES INTERNET CONNECTION FOR TACTICAL AIRCRAFT

The Defense Advanced Research Projects Agency (DARPA) Tactical Targeting Network Technology (TTNT) program achieved early success in preparation for the Joint Expeditionary Force Experiment 2004 (JEFX) to be held this summer at Nellis AFB, Nevada.

During flight operations at Naval Air Warfare Center Weapons Division, China Lake, Calif., last month, TTNT demonstrated multiple internet protocol applications by connecting four nodes: an airborne tactical aircraft surrogate (U.S. Navy T-39), a mobile field van (surrogate Tactical Air Command Post), a remote Combined Air and Space Operations Center (CAOC) compound and a forwarding relay station installed on a Command and Control Testbed aircraft (a Boeing 707).

TTNT provided the network between the tactical aircraft, mobile van and the Command and Control Testbed aircraft; the link between the Command and Control Testbed aircraft and the CAOC compound used an airborne common data link. TTNT allowed ground station operators in the CAOC compound to select, as needed, electro-optical and infrared video camera feeds from the T-39, collaborate with forward nodes and manage source data rates remotely to control the quality and size of the data received. Using TTNT, ground operators at China Lake also demonstrated the capability to remotely control a video camera installed on the airborne aircraft while concurrently receiving multiple video streams and using both text chat and net meeting applications.

In these tests, DARPA and the TTNT prime contractor, Rockwell Collins (Cedar Rapids, Iowa), demonstrated the first true "plug and play" tactical network extension of the Department of Defense's Global Information Grid (GIG). This airborne networking allowed GIG information applications usually restricted to hard-wired network connections to be interconnected seamlessly to the "last tactical mile" of forward tactical aircraft and mobile ground units

Today's network centric warfighting requirements involve event-driven, rapid response missions such as time sensitive targeting and collaborative enemy geolocation. TTNT enables these capabilities via a robust, high data-rate, fully scalable, self-configuring, low latency network that responds in milliseconds to changing mission priorities.

(more)

In the upcoming July JEFX-04 demonstration, TTNT will show that intelligence, surveillance and reconnaissance analysts can pull network information from forward sensors to correlate and fuse a picture of air and ground threats, allowing commanders in the CAOC to quickly direct strikes on emerging threats. CAOC personnel will be able to be in constant contact with each other and with airborne assets. JEFX-04 will demonstrate key TTNT technologies to potential Service users, and will be a critical milestone toward successful transition of TTNT technology from DARPA into the military Services.

As a software controllable system, TTNT allows near instantaneous autonomous adjustment of class of service and quality of service parameters. Network managers are also able to quickly tweak network capabilities for better service. Both enable all operational users, even those in tactical aircraft, to "push and pull" information from the network as battlefield events unfold. Because the TTNT network is self-adjusting and self-healing, it provides reliable connectivity (both within the tactical network and to the GIG) during battlefield operations, even while nodes simultaneously enter or leave the network. Automatic network awareness and built-in autonomous relay permit transfer of critical data, using standard internet protocol tools, to nodes that are connected to the network beyond line of sight. Unlike legacy networks, TTNT accomplishes these objectives without time- and labor-intensive network preplanning.

Partners in the recent tests included: Air Force Research Laboratory, Rome, N.Y. and Wright Patterson AFB, Ohio; Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center, Langley AFB, Va.; Naval Air Warfare Center Weapons Division and VX-31, China Lake, Calif.; 133 Iowa Air National Guard, Fort Dodge, Iowa; Task Force Paul Revere, Hanscom AFB, Mass.; Electronic Systems Center, Hanscom AFB, Mass.; MIT Lincoln Laboratory, Hanscom AFB, Mass.; Air Force Special Operations Command, Hurlburt AFB, Fla.

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