Northrop Grumman Successfully Demonstrates Interoperability Between Manned and Unmanned Platforms

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BETHPAGE, N.Y., Aug 24, 2009 (GlobeNewswire via COMTEX) -- A leader in intelligence, surveillance and reconnaissance (ISR), Northrop Grumman Corporation (NYSE:NOC) successfully demonstrated Joint STARS and E-2 Hawkeye interoperability between manned and unmanned platforms during a recent virtual joint military demonstration involving U.S. and coalition forces.

The demonstration, Empire Challenge 09 (EC09), was executed by U.S. Joint Forces Command (USJFCOM) and aimed at demonstrating how U.S. and coalition forces can better work together to collect, analyze and share relevant reconnaissance information.

"The ability to collect and share real-time ISR at the theatre and the tactical level quickly and accurately is crucial to ensuring battle commanders have the enhanced situational awareness required for successful mission completion," said Tom Vice, vice president of Battle Management and Engagement Systems division for Northrop Grumman Aerospace Systems sector. "During Empire Challenge, we successfully demonstrated how manned command and control aircraft can direct and manage unmanned aircraft to enhance image collection and target identification. We will take what we've learned through this collaborative exercise to continue to mature our ISR capabilities to ensure our warfighters have the mission critical information they need when they need it."

During the month-long exercise, virtual physics-based and operational flight program simulations of multiple Northrop Grumman platforms, including the E-8C Joint Surveillance Target Attack Radar System (Joint STARS) and E-2 Hawkeye Airborne Early Warning and Control (AEW&C) aircraft, worked collaboratively to achieve interoperability between multiple manned and unmanned aircraft via an airborne Web services architecture.

One key element to the success of this interoperability was an E-2 Hawkeye developmental test bed. The test bed is based on the robust capability of the U.S. Navy's E-2 Hawkeye mission computing system which enabled it to successfully operate the Electrical Optical (EO) sensor onboard both manned and unmanned aerial vehicles (UAVs) in response to requests from ground commanders. Using machine-to-machine command interfaces, the E-2 test bed was able to cue each UAV simulator to provide imagery of both static and dynamic ground tracks for target identification. The image request messages were transmitted via machine-to-machine interfaces, replacing the need for voice and manual chat resulting in an increased response time.

The virtual Joint STARS integrated the Battle Management Command and Control (BMC2) architecture providing constellation management along with UAV control and multi-level security capability sets which enabled the platform to demonstrate an expansion of its current ISR role to include automated UAV image collection and development of target quality solutions to support strike engagements.

Sensor imagery received from the UAVs via Joint STARS was provided to an image analyst who examined each image and determined which should be included in the image product library (IPL). Images in the IPL were used to populate the Global Command and Control System (GCCS). Once threats were identified, the E-2 test bed managed airborne attack assets, including F-18s and EA-6Bs, to conduct precision strike missions against those threats, based on Joint STARS ground tracks and correlated imagery supporting threat identification. The net effect of this ISR sensor tasking and command and control network was a reduction in both the 'kill-chain,' the time it takes to find, identify, and engage a target, and the operator workload required to accomplish the task.

In addition to the virtual Joint STARS and E-2 Hawkeye platforms, other Northrop Grumman assets participating virtually in Empire Challenge 09 included the RQ-4 Global Hawk unmanned aircraft reconnaissance system, MQ-8B Fire Scout vertical takeoff and landing unmanned system, and the MQ-5B Hunter medium altitude unmanned aerial system.

The virtual, human-in-the-loop wargaming environment utilized in Empire Challenge was built by Northrop Grumman and developed with the company's Cyber Warfare Integration Network (CWIN). Based at the USJFCOM Joint Intelligence Laboratory (JIL) in Suffolk, Va., the virtual platforms were linked to the "live-fly" exercise at the Naval Air Weapons Station (NAWS) in China Lake, Calif., as well as the Combined Air Operations Center-Experimental at Langley Air Force Base, Va.

"By providing this virtual modeling and simulation environment, Northrop Grumman added an increased level of complexity to the demonstrations," said Chris Frangos, chief architect, Systems Engineering Integration & Test (SEIT) director for Northrop Grumman Aerospace Systems. "The ultimate goal of the exercise was to gain a better understanding of the challenges that irregular warfare brings to our warfighters and how Northrop Grumman platforms, technologies and architectures provide solutions to these challenges."

Northrop Grumman Corporation is a leading global security company whose 120,000 employees provide innovative systems, products, and solutions in aerospace, electronics, information systems, shipbuilding and technical services to government and commercial customers worldwide.

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