

## First Demonstration Of Air Force C2 Constellation Architecture Showcases Net-Centric Capabilities

*Simulation Achieves Significantly Reduced Targeting Cycle with Real-World Systems*

PRNewswire

HANSCOM AFB, Mass.

The U.S. Air Force and an industry-wide team led by Lockheed Martin has successfully demonstrated a service-oriented architecture with elements of the Command and Control (C2) Constellation, the Air Force's global network of C2 and intelligence, surveillance and reconnaissance (ISR) systems and platforms. In an operational simulation that linked major C2 Constellation elements and services over a network, the Air Force achieved significantly reduced sensor- to-shooter timelines in a time-critical targeting exercise.

The Constellation architecture consists of both a systems framework and a set of standards and business rules that govern how different sensors and platforms will exchange information across the battlespace. This demonstration showed not only that the architecture is capable of supporting net-centric operations, but also that a wide range of legacy systems could be quickly and seamlessly integrated into the larger framework. In just six months the team was able to integrate four major legacy applications into service-oriented framework, transforming them from stovepipes to network nodes. Critical to the success of the Constellation will be its ability to quickly and efficiently welcome new and existing C2ISR systems into the larger network.

"With the Air Force setting the vision and the major industry players providing domain expertise, we've developed a working architecture that is truly open and all-inclusive," said Doug Barton, Lockheed Martin's director of network-centric systems. "Today's network looks like an organizational chart, with stovepiped systems reporting vertically up the decision chain but unable to communicate horizontally. The Constellation architecture will look more like a round table, with dozens or even hundreds of systems, sensors and warfighters logging in to a common network. Establishing that 'battlefield Internet' is key to the Air Force's vision for net-centric operations."

The Air Force effort is supported by a broad industry team that includes Lockheed Martin, Boeing, Raytheon, IBM, L-3 Communications, Gestalt and MITRE. Together, the team works directly on 10 of the 13 primary nodes of the Constellation. Key to the success of the program is the collaborative effort of both government and industry to determine the framework, standards and business rules that govern the Constellation's architecture itself.

The time-sensitive targeting scenario was ideal, explained Denny Agin, Raytheon's Integrated Product Team leader for the demonstration, because it is a true test of both the technical and operational challenges of net-centric operations. "Effective time-sensitive targeting requires everyone working together in real time towards a common goal," said Agin. "We successfully demonstrated that the Constellation architecture can bridge traditional stovepipes, enable machine-to-machine data exchange, work across security domains, generate automated courses of action and ultimately reduce the

timeline for finding and engaging targets. This is a tremendous step forward for Air Force transformation."

One example of the power of the C2 Constellation's net-centric framework was the role of L-3 Communications' Net-Centric Collaborative Targeting (NCCT) application, a key enabler in accelerating the target engagement timeline. By itself, NCCT can find, locate and identify targets in a matter of seconds, but by plugging it in to the larger Constellation network, its effectiveness was amplified even further. "The primary role of NCCT is in finding and tracking targets, and in assessing battle damage," said Phil Yates, L-3's director of C2 programs. "When integrated with the Constellation, NCCT was able to exchange information automatically with systems such as Theater Battle Management Core Systems and the Distributed Common Ground System. With that connectivity we were able to significantly accelerate the target engagement process, further reducing the sensor to shooter cycle."

Commercial applications also played a key role in enabling the transformation of legacy systems into net-centric services, explained Joseph Wotten, IBM's C2C program manager. "We applied leading-edge middleware for services orchestration and business process rules to demonstrate the merits of this service-oriented architecture," said Wotten.

The C2 Constellation Architecture Support and Engineering Analysis program is being conducted under a potential three-year, \$50 million contract awarded in August of 2003 by the Air Force Electronic Systems Center. The demonstration was held at the C2 Enterprise Integration Facility at Hanscom Air Force Base.

Headquartered in Bethesda, Md., Lockheed Martin employs about 130,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2003 sales of \$31.8 billion.

For additional information, visit our website:

<http://www.lockheedmartin.com/>

SOURCE: Lockheed Martin

Web site: <http://www.lockheedmartin.com/>

---

<https://news.lockheedmartin.com/2004-09-29-First-Demonstration-of-Air-Force-C2-Constellation-Architecture-Showcases-Net-Centric-Capabilities>