

Lockheed Martin's Successful Experiment Alpha Furthers Collaborative Net-Centric Experimentation

Networked Systems Can Dramatically Compress the Time Between Threat Discovery and Response

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Lockheed Martin has completed a successful experiment at the Center for Innovation that demonstrated the power of networked warfighting in driving critical, time- sensitive intelligence data to combat commanders in minutes instead of hours, enhancing operational results and safety of deployed troops.

The experiment involved the use of "non-traditional" intelligence, surveillance and reconnaissance (ISR) data acquired from loitering missiles. In a net-centric environment, the sensors on-board a loitering missile or a missile en route to a target can be used to gather battlefield information. An estimate of how long it would take for the intelligence to be accessed by an analyst was compared to actual data generated in the experiment. In one scenario a Littoral Combat Ship supporting a special operations force deployed in coastal waters might be able to respond to a threat identified by a loitering missile-and do so in minutes rather than hours. The experiment validated the ability of networked systems to dramatically compress the time from initial discovery of a threat, to being able to act upon it.

In a non-networked, conventional environment, the data gathered might have to be relayed by e-mail, by telephone, by instant messaging or by personal communication, taking possibly hours to reach people who need to know.

"From an operational view, the experiment proves the increased awareness of the battlefield acquired by these loitering munitions, while they seamlessly interface with the Global Information Grid (GIG) and interact with operational commanders on the ground," Glenn Kuller, program management director, said.

The experiment also accomplished three objectives that pave the way for future collaborative experimentation at the company's state-of-the art laboratory that opened in April.

These include: development and validation of an experiment process that customers for future collaborative work; implementation of prototype net- centric enterprise services; and integration of the Center's operational analysis capability to qualitatively assess experiment hypotheses and objectives.

"The successful completion of Experiment Alpha validated our proof-of- concept ideas and provided a foundation for new development work with our customers," said Buck Marr, vice president of the Center for Innovation. "We've validated the Center's readiness for collaborative projects and set the stage for further experimentation with our customers."

From a process standpoint, Lockheed Martin began with the Department of Defense Command and Control Research Program's "Code of Best Practices for Experimentation" publication that provided a management framework for warfighting experimentation in a net-centric environment and created a new engineering and technology support process.

The lessons learned from this early experiment will allow the company to quickly and systematically build experiments for customers. "Discovering what's available on the Global Information Grid is a tough challenge," explained Tom Haser, director of net-centric integration. "Finding services on the GIG should be as simple as finding a plumber or electrician in the Yellow Pages. The technology is not quite there, but we're definitely making progress."

The experiment leveraged the corporation's Net-Centric Enterprise Services (NCES) prototype as part of the experiment infrastructure. Lockheed Martin has already emulated the transport layer at the Center with its GIG testbed. This combination of capabilities enables experimentation with unprecedented interdependence of systems across the future battlespace.

"The experiment demonstrates a vast improvement in the speed of discovery made possible by the ability to collect, transport, and share information quickly and intelligently," Haser said. "Experiment Alpha and other initial experiments at the Center represent a powerful foundation for experimentation to support effective and repeatable collaborative experimentation with customers."

Headquartered in Bethesda, Md., Lockheed Martin employs about 135,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2004 sales of \$35.5 billion.

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