Lockheed Martin To Develop Modeling Tool For U.S. Department Of Homeland Security For Rapid Analysis Of Infrastructure Disruption

Lockheed Martin Space Systems Company's (LMSSC) Advanced Technology Center (ATC) has won a 5-year $7 million contract with the Department of Homeland Security's (DHS) Science & Technology Directorate for the Complex Event Modeling Simulation and Analysis (CEMSA) project. Under the CEMSA contract, SSC will develop a new modeling, simulation and analysis infrastructure that can be integrated with existing DHS systems to provide advanced capabilities to assess, within a short decision window, the interdependencies and cascading effects on Critical Infrastructures and Key Resources (CIKR) when dealing with multiple, concurrent disruptions.

The Lockheed Martin tool, called Rapid Analysis of Infrastructure Disruption (RAID), is a new modeling and simulation environment that will be more adaptive than current systems and will allow DHS and national leaders to analyze the impact of multiple disruptions at local, regional and national levels in a time frame required to make effective decisions. Future system requirements will build upon the work of the CEMSA contract.

Lockheed Martin will specify, and deliver to DHS, a system design with all associated aspects including hardware and software architecture, interface specification, network throughput, operations concept, model identification process and a model maintenance/updating approach. Lockheed Martin's deliverables also include a working prototype of the CEMSA system within the first 12 months of the project.

"The strength of our RAID tool is the scientific qualifications of the team we have assembled and the specialized modeling and simulation techniques we employ to develop the environment," said Dr. Steve Hall, principal software engineer at LMSSC, and RAID capture manager. "In addition, we have extensive experience with key technologies including: system of systems engineering, complexity theory, modeling abstraction and adaptive planning; and specific experience in the national infrastructure disturbance impact modeling domain."

Any single event of infrastructure disruption can have significant consequences as effects ripple outwards. Multiple disruptions - whether human-caused or the result of natural disasters - can spawn further failures as effects intersect and multiply. For example, the possible consequences of a terrorist attack during or following a hurricane are being investigated.

Intelligence or other threat reporting suggests an adversarial organization might attempt to exploit vulnerabilities resulting from the dislocation caused by a severe weather event. Government leadership requires information about the high consequence scenarios that could evolve from such an attack. CEMSA/RAID will provide the capability to model the combined disruption of a hurricane with different attack scenarios to give a complete picture of the possible national impacts associated with different overall threats.

The ATC is the research and development organization of Lockheed Martin Space Systems Company (LMSSC). LMSSC, a major operating unit of Lockheed Martin Corporation, designs and develops, tests, manufactures and operates a full spectrum of advanced-technology systems for national security and military, civil government and commercial customers. Chief products include human space flight systems; a full range of remote sensing, navigation, meteorological and communications satellites and instruments; space observatories and interplanetary spacecraft; laser radar; ballistic missiles; missile defense systems; and nanotechnology research and development.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 136,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation's 2009 sales from continuing operations were $44.5 billion.

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