Lockheed Martin

AEGIS OPEN ARCHITECTURE WEAPON SYSTEM

"AOA will modernize the Navy's surface force and enable rapid insertion of future technology upgrades. RTI's Data Distribution Service supports this mission through its open-standards design and ability to insulate each subsystem from changes in adjacent subsystems."

Orlando Carvalho
VP & GM SMBD Systems, Lockheed Martin

HIGHLIGHTS

- Lockheed Martin's Aegis Weapon System is the leading naval surface defense system, used by 78 ships globally across 6 countries.

- The U.S. Navy wanted to modernize its legacy systems with a standards-based open architecture to promote technology reuse and decrease costs.

- RTI Connext DDS met the advanced requirements of this complex, mission-critical system.

COMPANY OVERVIEW

Lockheed Martin is a premier systems integrator principally engaged in the research, design, development, manufacture, integration, and sustainment of advanced technology sys-tems, products and services. Lockheed Martin has more than 3,000 programs in the United States and worldwide. Lockheed Martin typically accounts for about 19 percent of global defense exports and about 40 percent of all U.S. defense exports.

The U.S. Navy has awarded Lockheed Martin a $208.7 million contract to produce three Aegis weapon Systems. Aegis Open Architecture (AOA) is the foundation for the modernization of the Navy's Aegis-equipped cruisers and destroyers. The open architecture approach will allow the Navy to readily incorporate software and hardware updates into its Aegis systems. This allows those systems to be maintained at the highest level of capability while employing low cost, off-the-shelf solutions with high Quality of Service parameters, yet without expensive and time-consuming maintenance requirements.

APPLICATION

The Aegis Weapon System, developed by Lockheed Martin, is the world's premier naval surface defense system and is the foundation for Aegis Ballistic Missile Defense, the primary component of the sea-based element of the U.S. Ballistic Missile Defense System.

The Aegis Weapon System includes the SPY-1 radar, the U.S. Navy's most advanced computer-controlled radar system. When paired with Lockheed Martin's MK-41 Vertical Launch-ing System, it is capable of delivering missiles for every mission and threat environment in naval warfare.

The Aegis Weapon System is currently deployed on 78 ships around the globe, with more than 25 additional ships planned. In addition to the U.S. Navy, Aegis is the maritime weapon system of choice for Australia, Japan, South Korea, Norway and Spain.

SOLUTION

The Aegis Open Architecture team selected RTI after a nine-month evaluation of commercial implementations of the Object Management Group's (OMG's) Data Distribution Service (DDS) for Real-Time Systems standard. Factors considered in this extensive evaluation included standards compliance, performance, lifecycle costs and customer support.

RTI will help meet the need to share time-critical and mission-critical data across a highly-distributed system while maximizing future scalability and flexibility. According to Orlando Carvalho, vice president and general manager of Lockheed Martin's Surface-Sea Based Missile Defense (SBMD) Systems business, "AOA will modernize the Navy's surface force and enable rapid insertion of future technology upgrades. RTI Connext DDS supports this mission through its open-standards design and ability to insulate each subsystem from changes in adjacent subsystems."

CHALLENGE

The Navy wanted to do away with decades of old proprietary combat-system software and replace it with modern open architecture solutions. This transition could be costly, but in the long run could save billions of dollars. Officials claim that an open architecture environment would help the Navy improve the capabilities of the Aegis combat system for future missile-defense missions.

The ideal solution was to have an open standards-based messaging middleware solution with the ability to insulate each subsystem from changes in adjacent subsystems.

BENEFITS

Lockheed Martin required a standards-based data distribution system that met the realtime needs and scalability requirements of a comprehensive shipboard weapon system. Connext DDS delivered a middleware solution that met the stringent requirements of the AOA weapon system, enabling Lockheed Martin to meet its commitments to the U.S. Navy for cost and performance.

ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connext® is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connext shares data directly, connecting AI algorithms to real-time networks of devices to build autonomous systems.

RTI is the best in the world at ensuring our customers' success in deploying production systems. With over 1,500 designs, RTI software runs over 250 autonomous vehicle programs, controls the largest power plants in North America, coordinates combat management on U.S. Navy ships, drives a new generation of medical robotics, enables flying cars, and provides 24/7 intelligence for hospital and emergency medicine. RTI runs a smarter world.

RTI is the leading vendor of products compliant with the Object Management Group® (OMG®) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, California with regional offices in Colorado, Spain and Singapore.

Download a free 30-day trial of the latest, fully-functional Connext DDS software today: https://www.rti.com/downloads.

**Your systems.
Working as one.**

rti.com
company/rti
rti_software
connextpodcast
rtisoftware
rti_software