

Lockheed Martin Successfully Demonstrates Open Architecture For U.S. Navy's MK 41 Missile Launching System

Lockheed Martin recently demonstrated how the application of open architecture to the U.S. Navy's MK 41 Vertical Launching System (VLS) can reduce life-cycle costs while perpetually maintaining its state-of-the art capabilities.

The successful demonstration is part of an overall VLS modernization effort, which also will make the system compliant with the Navy's Open Architecture Initiative. Open architecture systems exploit commercial computing technology, allowing the Navy to install software and other technology upgrades faster and more cost effectively throughout the life of a ship, aircraft or submarine.

Since the initial delivery of MK 41 VLS in 1985, Lockheed Martin has developed a series of system upgrades that have added new missile launching capabilities, and incrementally replaced outdated custom hardware and software with modern, commercial-off-the-shelf (COTS) technology. The VLS configuration currently fielded on new U.S. Navy destroyers (DDG 91 and later) features COTS processors, a modern real time operating system and computer programs written in the C++ software format.

The current emphasis of MK 41 VLS modernization is to achieve software application portability, so that if elements of the system's computing environment -- such as processors or operating systems -- become obsolete, they can be replaced with minimal impact to the overall system. During the recent demonstration, Lockheed Martin validated this portability by using the MK 41 VLS application software on various platforms.

The next step in the VLS modernization effort is to achieve software modularity. By designing software with standardized components, the flexibility of applying this software to other applications increases.

"Software reuse, reduced maintenance cost and deployment flexibility translates into cost savings for the customer," said Mark Zimmerman, MK 41 VLS Systems Engineer Lead at Lockheed Martin's Littoral Ships & Systems business.

The MK 41 VLS open architecture enhancements will be fielded as part of the U.S. Navy's cruiser and destroyer modernization programs.

Lockheed Martin's approach to open architecture is built on nearly a decade of "open system, rapid capability" deliveries to the Navy, including combat system, sonar, communications and electronic warfare capabilities. For example, since 1998, Lockheed Martin's Acoustic Rapid Commercial Off-The-Shelf Insertion (ARCI) Program has provided open architecture solutions for the Navy's submarine force. In 2008, Lockheed Martin will deliver the Navy's first fully-open architecture Aegis Weapon System to the cruiser USS Bunker Hill (CG 52).

Headquartered in Bethesda, MD, Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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