New "Smart" Network To Reduce Boeing JSF Life-Cycle Costs

Boeing has demonstrated a prototype of its innovative logistics network -- the Joint Distributed Information System -- which will significantly reduce Joint Strike Fighter (JSF) life-cycle costs. The time it takes to deliver aircraft replacement parts will be reduced to hours, compared to weeks or months under current practices.

The JDIS will be the automated information conduit between pilots, maintainers and other JSF "users" and the JSF support system.

Today's support systems for military aircraft rely on stockpiling spares, fuel and support equipment, resulting in mountains of supplies that ultimately can lead to obsolete inventory. The Boeing JSF autonomic logistics system and JDIS will anticipate maintenance and repair needs and ensure equipment and personnel are available precisely when needed. It will drastically cut costs associated with inventory, facilities, impromptu maintenance and repair time, and other expenses.

During the demonstration for government officials, Boeing simulated how a network of computers and aircraft sensors can trigger an autonomic response to a pending maintenance need. If a part failure occurs or is predicted to occur, for instance, the JDIS initiates a series of actions that get the right maintainer the right information or replacement part at the right time. Human interaction is minimized as data flows from the aircraft through the maintenance infrastructure and ultimately to the supplier community.

"Currently, support systems can have delays of up to 50 days for parts turnaround when inventory isn't on hand," said Steve Hutchings, Boeing JSF Integrated Support Systems manager. "Our goal with autonomic logistics is for parts to be deliverable anywhere in the U.S. in 24 hours, or worldwide within 48 hours.

"Reducing logistics operations and support costs is a necessity, and the ability to do so will be a major discriminator in determining who wins the JSF contract," Hutchings said. The Boeing JSF autonomic logistics concept and JDIS leverage commercial-off-the-shelf hardware and software and build on existing autonomic logistics capabilities for the Boeing 777 commercial jetliner.

For example, Boeing 777 customers can monitor the performance of engines in flight and link that data to ground-based receiving stations. There, the data can be analyzed in real time to determine the appropriate course of action. Required maintenance actions then can be forwarded to the 777's destination airport so maintainers are ready with the right parts and tools prior to landing.

"Our autonomic logistics concept will ensure future JSF customers have aircraft ready to fly when required and not be grounded awaiting maintenance or parts," Hutchings said.

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