CAPABILITY BRIEF

Military Avionics

USING OPEN ARCHITECTURE TECHNOLOGIES TO ACCELERATE AIRBORNE SYSTEMS DEPLOYMENT

HIGHLIGHTS

COTS RTCA DO-178C and EUROCAE ED-12C DAL A certification evidence

Unparalleled Modular Open Systems Approach (MOSA) expertise

Rapid technology insertion, maintainability and extensibility capabilities

Open avionics standards expertise including DDS, FACE, ARINC-653, POSIX, SOSA, OMS and UCS

Robust safety, security, interoperability and resiliency solutions

RTI Connext® DDS enables the real-time data connectivity that runs modern airborne systems. Its military-grade connectivity framework reliably and securely exchanges real-time data from ground to air, from system to system. Built on the OMG® Data Distribution Service™ (DDS) standard, Connext DDS provides COTS RTCA DO-178C and EUROCAE ED-12C DAL A certification evidence for streamlined development and deployment.

SECURE, REAL-TIME CONNECTIVITY FOR MILITARY AVIONICS

As global adversaries continue to accelerate their airborne capabilities, there is a growing demand for continuous military avionics upgrades. These upgrades are hindered by the ability to achieve both commercial and military airworthiness certification, and the challenge of deploying systems at scale.

Meeting these military avionics operational demands requires three capabilities:

1. To develop, acquire, and consolidate a unique and competitive set of the latest airborne capabilities that are based upon proven avionics standards
2. To rapidly integrate capabilities and achieve airworthiness for both military and civilian airspace
3. To assure that all levels of mission communications are secure

RTI Connext DDS supports open architecture military avionics systems by providing fast, scalable, reliable, and secure connectivity within and between land, sea, air and space-based systems. Based on the Object Management Group (OMG®) DDS standard, RTI Connext DDS is conformant with military avionics standards, including the Open Group Future Airborne Capability Environment (FACE™). RTI developed the first certified conformant FACE Transport Service Segment (TSS) solution to enable rapid insertion of new FACE avionics applications. Connext DDS provides support for open standards, enabling rapid integration of both new and legacy airborne assets.

In addition, RTI Connext DDS conforms to the US DoD / SAE AS-4UCS Unmanned Systems (UxS) Control Segment (UCS) architecture and data model. The UCS Open Architecture (OA) enables an open business model based on Service Oriented Architecture (SOA) principles. UCS prioritizes interoperability as a primary business attribute, which promotes innovation and competition for military avionics capabilities.

RTI Connext DDS' inherent loose-coupling is ideal for updating critical military avionics systems that need to insert updated or new capabilities while minimizing the impact of safety and security certification. This accelerates mission-readiness and time-to-deployment while reducing program cost and risk.

STANDARDS-BASED, CERTIFICATION-READY SOFTWARE

To accelerate airworthiness, RTI Connext DDS offers commercial-off-the-shelf (COTS) RTCA DO-178C and EUROCAE ED-12C DAL A certification evidence containing over 5,000 hyperlinked files audited by a third party for rapid and reliable review. This evidence contains design documents, high- and low-level requirements, project documents, SOA audit memos, test results, and more, which drives down the airworthiness risk in programs requiring safety certification.

RTI Connext DDS is also the first solution to comply with the recent OMG DDS security specification. These security plug-ins provide authentication, access control, encryption, data tagging and event logging without modifying the existing DDS network infrastructure. These capabilities ensure data confidentiality and integrity while protecting information from multiple security domains from unauthorized access and tampering.

RTI Connext DDS includes a rich set of tools that accelerate module- and system-level development, debugging, testing, integration and optimization. These tools provide developers and system integrators with the ability to visualize the health and interconnectivity of system modules as well as to introspect and inject data.

PROVEN IN MORE THAN 1,200 AEROSPACE & DEFENSE DESIGNS

RTI is the market leader in DDS technology, with systems deployed at leading organizations including:

General Atomics Aeronautical Systems, Inc.
General Atomics Advanced Cockpit Ground Control Stations deliver real-time data acquisition, analysis and response for unmanned aircraft systems. GA selected RTI Connext DDS to simplify application code and speed development. The solution was delivered in less than 14 months, significantly faster than with alternative software or in-house development.

Aurora
Aurora Flight Sciences ALIAS (Aircrew Labor In-cockpit Automation System) is a minimally-invasive robotic copilot. It combines manipulation and machine vision to actuate aircraft controls and perceive aircraft instruments. RTI Connext DDS integrates advanced software and controls into an open, adaptable architecture.

Boeing
Boeing's AWACS provides airborne surveillance, command & control for battle management. The company used Connext DDS in the AWACS upgrade design, which is more open and supportable. Open and extensible connectivity software lowers maintenance costs.

US Army
The US Army Ground-Based Sense and Avoid (GBSAA) system enables UAS to safely operate in FAA-controlled U.S. National Air Space (NAS) with other commercial, private and military aircraft. Connext DDS is used to separate UAS flights from Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) aircraft. The system is certified using RTI's RTCA DO-178C DAL A safety certification evidence for Connext DDS.

ABOUT RTI

Real-Time Innovations (RTI) is the Industrial Internet of Things (IIoT) connectivity company. The RTI Connext® Databus is a software framework that shares information in real time, making applications work together as one, integrated system. It connects across field, fog and cloud. Its reliability, security, performance and scalability are proven in the most demanding industrial systems. Deployed systems include medical devices and imaging; wind, hydro and solar power; autonomous planes, trains and cars; traffic control; Oil and Gas; robotics, ships, and defense.

RTI lives at the intersection of functional artificial intelligence and pervasive networking℠.

RTI is the largest vendor of products based on the Object Management Group (OMG) Data Distribution Service™ (DDS) standard. RTI is privately held and headquartered in Sunnyvale, Calif.

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.

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