

# RTI in Aerospace & Defense

RTI – Addressing the Challenges of Building Critical Systems. RTI is the world leader in delivering fast, scalable communications software. Based on a decentralized software data bus, RTI allows real-time applications to communicate with each other and with enterprise and legacy applications. RTI’s solutions feature a unique combination of high performance and broad standards support. RTI provides integrators of demanding applications with an alternative to custom middleware that is off-the-shelf and employs an open architecture. You’ll find RTI in all kinds of real-world applications. Some sample applications include defense, industrial control, simulation, unmanned vehicles, and transportation, healthcare and finance systems.



Since 1991, Real-Time Innovations, Inc. (RTI), has been a strategic supplier of software technology to the majority of the world’s leading defense agencies and systems integrators, as well as their subcontractors. RTI’s standards-compliant software technology is designed to meet the stringent performance and integration demands required for defense agency programs.

## Open-Standards Leadership

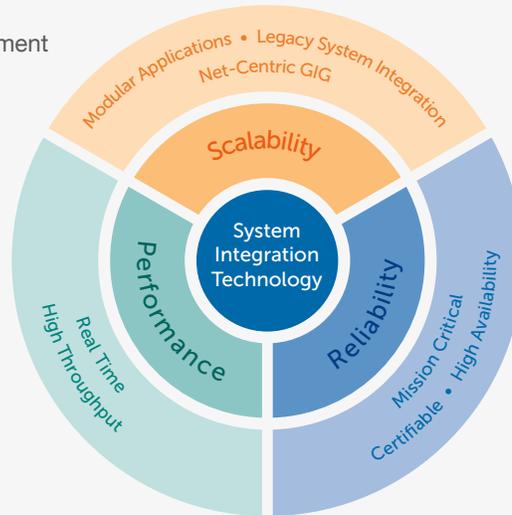
A key factor in controlling the costs of development, integration and testing for large programs is honoring and leveraging open standards. Large defense programs, which are comprised of systems of systems, reap significant benefits from software portability, reuse and interoperability. The larger the program, the greater the potential for cost savings. This is true not only at the initial development stage, but also — and more importantly — throughout the life of a program as it is upgraded.

## Defense Initiatives Supported by RTI

- OACE** Open Architecture Computing Environment
- GVA** Generic Vehicle Architecture
- FORCE** FORCEnet
- VSI** Vehicle Systems Integration
- DISR** DoD IT Standards Registry
- UCS** UAS Control Segment
- NESI** Net-Centric Enterprise Solutions for Interoperability

## Our defense customers say it best.

RTI has supported the successful design and development of more than 400 defense systems, meeting both the complex functional objectives and the stringent performance demands of the strategic programs these systems support. RTI customers work with the industry's best and brightest minds to ensure programs are delivered on time and within budget.



## Scalability

### BASE TEN Systems Electronics GmbH Modular, Scalable Ground Control Stations for Unmanned Ground Vehicles



“RTI Data Distribution Service is at the core of our capability to rapidly develop a modular and highly scalable real-time application environment.”

Josef Schröttle  
Head of Design & Development

### Lockheed Martin Aegis Open Architecture Weapon System



“Aegis Open Architecture 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  
Vice President and General Manager, Surface-Sea Based  
Missile Defense Systems Business

### Northrop Grumman Common Link Integration Processing (CLIP)

“Working with RTI has been both effective and productive. We were able to design and build a system that meets the demanding goals of the CLIP Program while also adhering to NESI requirements.”

Jim Miller  
Program Manager for the CLIP Program

## Performance

### Advanced Fusion Technologies Open-Systems Interface Converter

“The integration of OSIC with RTI Data Distribution Service enables multiple applications to receive consistent, synchronized data in real time, greatly improving overall system integration.”

Dave McKean  
Chief Technology Officer

### CASSIDIAN (EADS) UAV Ground Control Station



“RTI's implementation of the DDS standard is the best-performing and most robust solution we have tested.”

César Castro Gómez  
Head of UAS Ground Segment

**Naval Sea Command****Dahlgren Division****High-Performance Distributed Computing Project**

“Using RTI, the communications link performance was better than that measured in the fleet system.”

Advanced Computing  
Test Bed Demonstration

**Plath GmbH****Signals Intelligence/Communications Intelligence (SIGINT/COMINT) System**

“Our SMS2040 required a fully scalable publish-subscribe messaging middleware environment to provide a modular integration backbone for real-time data management and distribution. The COTS-based RTI Data Distribution Service offered the ideal solution as the most mature, easy-to-use and best-performing real-time middleware product available.”

Martin Ostendorf  
*Director, Software Development*

**Reliability****Autonomous Vehicle Systems****UGV Distributed Sensor Integration**

“We selected RTI because of their proven track record in synchronized, distributed communications and their understanding of the critical design requirements of autonomous vehicles.”

Dan Komaromi  
*Vice President, Sensor Development*

**Lockheed Martin****Advanced Platform Control System**

“RTI provides a scalable real-time COTS middleware that is easy to integrate and has proven to be very reliable in the field.”

Sea SLICE Lead Software Engineer

**Raytheon Integrated Defense Systems****Total Ship Computing Environment Infrastructure**

“The incorporation of RTI Data Distribution Service into TSCEI is a great example of how DDG 1000 is executing the Navy’s Open Architecture strategy. From a technical perspective, DDG 1000 uses a modular architecture that is based on open standards. The RTI Data Distribution Service fits well with that architecture, providing data ubiquity and real-time distribution.”

Bob Martin  
*Raytheon DDG 1000 System Software Development Director*

**Saab Systems****Naval Systems Division**

“RTI middleware with Ada integration is helping our developers build complex applications that require real-time data availability and response across large distributed systems. A major advantage of this approach is our ability to support and develop applications in a heterogeneous COTS-based environment requiring simple and straightforward integration of legacy code with newly developed systems.”

Thomas Jungfeldt  
*Senior Systems Engineer*

**Ultra Electronics****Modular Sonar System**

“Our extensive testing showed that RTI Data Distribution Service is the most robust and field-proven implementation of the DDS standard available.”

Sean Bell  
*Chief Software Engineer*

## Innovation and Cost-Control with Mitigated Obsolescence

By using open standards to drive integration solutions, defense agencies are able to ensure that systems integrators focus their innovation efforts on program objectives. Adoption of Service Oriented Architecture (SOA) principles helps defense agencies manage their application requirements. By adopting SOA-compliant open standards for system integration, defense agencies can maintain an open and competitive system requisition capability. In addition, by directly managing the integration mechanism through open standards, defense agencies mitigate the impact of system obsolescence.

## Supporting Defense Agencies

RTI technology and expertise play a key role in many mission-critical defense systems. RTI enables defense agencies to realize critical objectives such as:

- Accelerated development of increasingly complex programs
- Interoperability between competitively sourced systems
- Legacy system integration
- Reduced cost of ownership
- Adoption of SOA across mission-critical systems

## Enabling Systems Integrators

Through the development and delivery of open-standards Commercial off-the-Shelf (COTS) integration solutions, RTI supports systems integrators with leading technology that enables them to create systems with these essential characteristics and more:

- Extremely scalable
- Modularized
- Net-centric
- Very high performance
- Highly available

## Programs for Government Research

Please visit [www.rti.com](http://www.rti.com) for more examples of RTI in aerospace & defense applications. Also on our website are details about our active government research programs, including SBIR projects, government research and IRAD software grants, and more.



Your systems. Working as one.

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