RTI CUSTOMER SNAPSHOT

Airbus

DEFENCE AND SPACE

HIGHLIGHTS

Airbus Defence and Space uses RTI Connext® Professional to integrate real-time data from military and civil air traffic control with dozens of radar sources to build a next-generation Control and Reporting Centre that enables military forces to detect, track, identify and, if necessary, engage targets in real time.

RTI Connext Professional provides a data-centric architecture and multicast capability to enhance system flexibility and scalability to dozens or even hundreds of workstations.

Choosing RTI Connext Professional allows Airbus Defence and Space to reduce cost while delivering the real-time performance that Fortion® 1SkyControl requires.

> Connext Professional gives us the flexibility we need for the future — we can open up systems and rapidly integrate new assets. It's easy to understand why Connext Professional is the market leader in the Data Distribution Service standard."
>
> **— Andrea Bugar —**
> SVP HO Defence Digital Germany & International, Airbus Defence and Space

ABOUT AIRBUS DEFENCE AND SPACE

Airbus is one of the world's largest airplane manufacturers in the world. Next to building airplanes, Airbus also has a division called Defence and Space, which offers a comprehensive C5ISR (Command, Control, Communications, Computer, Cyber, Intelligence Surveillance Reconnaissance) portfolio and related services, to deliver a comprehensive situational awareness picture across multiple domains. This division's mission is to support decision-makers at strategic, operational and tactical levels across Land, Sea and Air environments.

Airbus Defence and Space has been involved in integrating and maintaining military air traffic control and weapons (control) systems for the German Air Force for the past 20 years. Its products include Fortion® 1SkyControl, a field-proven Air Battle Management software suite.

CHALLENGE

Handling military air traffic control to counter national security threats is a demanding, 24/7 job — and this is especially true in larger NATO countries such as Germany. To be truly effective however, this data must be successfully integrated with different military data exchange networks such as Link16 (STANAG 5516) and high frequency, high volume radars to provide a consolidated picture of all air activity across disparate civil and military systems. This need for integration is often further complicated by the need to comply with the latest industry regulations. Therefore, when it comes to scanning the skies, innovation must be continuous to meet requirements that are constantly evolving.

Flagging efforts to build a NATO-wide standardized approach to military air traffic control and surveillance led to Airbus Defence and Space taking the initiative for a purpose-built system. In addition to providing real-time connectivity and scalability, the resulting system would also have to be flexible enough to accommodate the wide range of requirements that it would face when deployed by different military customers across different NATO partners.

Future industry challenges include Multi-Level Security and Zero Trust cybersecurity architectures, microservices architectures and integration of cloud technologies. An additional challenge is the need to meet evolving safety certification criteria, as military air traffic control may face safety certification requirements in

the future. Similar to the EUROCAE ED 153 standard for civil air traffic control, safety certification for military air traffic control is anticipated to become an important project element for air navigation service providers.

SOLUTION

To help its military customers build air traffic surveillance systems that are safe, scalable and efficient, Airbus Defence and Space chose RTI Connext Professional, a powerful software framework that is based on the Data Distribution Service (DDS™) standard. DDS is built on the principle of data centricity, which greatly simplifies design and development while at the same time improving modularity and interoperability for real-time applications. Connext Professional is therefore designed to enable the pervasive availability of data from different sources in real time, feeding data to applications precisely when and where it is needed.

For the last several years, Airbus Defence and Space has been using Connext Professional as the communication infrastructure for an innovative program called Fortion® 1SkyControl which was operationally deployed in 2023. Fortion® 1SkyControl assists military forces in their air policing tasks with a high level of automation.

Specifically, native support for UDP multicast helps to feed data to a large number of workstations. Leveraging this approach, Fortion® 1SkyControl currently offers:

- Multi-sensor tracking for plot and jam strobe data of up to 100 live and simulated radar sensors simultaneously with a high tracking accuracy
- Automatic track correlation for over 25 different types of sources and processing
- Automatic correlation of over 6,000 flight plans
- Automatic identification according to NATO Air Command rules

Using Connext Professional also has the Airbus Defence and Space team well-positioned to address future challenges with confidence. RTI Connext products have completed the highest level of safety certification — DO-178C/ED-12C DAL A. Connext Professional can therefore help provide a seamless transition to a wide range of security options, implementing the latest developments of the DDS-Security™ standard, which was designed for Zero Trust and Multi-Level Security architectures.

The latest releases of the RTI Connext product suite also offer features for running applications in microservices architectures (e.g., Kubernetes) and offer easy integration with cloud infrastructure.

RESULTS

Thanks to its innovative real-time capability, Fortion® 1SkyControl was quickly adopted by the German Air Force to not only handle airspace monitoring and the identification of non-cooperative air tracks, but also for the launching of counter measures when needed. Scanning the skies with this level of speed and accuracy is a significant step forward. The system represents years of technological advancements in airspace monitoring.

The capabilities of Fortion® 1SkyControl follow the ethos of DDS itself — ensuring that disparate devices and systems can communicate with each other, regardless of transport protocols and network types. Because many military customers maintain legacy equipment or data silos that aren't natively DDS, part of the Fortion® 1SkyControl mission is to ensure critical data is moved back and forth between components.

Due to its data-centric design, Connext Professional is instrumental in bridging new and old generations of legacy software that either did not interface with DDS directly or were not part of an established domain. These new interfaces and structures can help accelerate processing time, which helps improve performance and reduce development efforts.

Another important advantage that Connext Professional provides is the flexibility to specify the data model using the interface definition language. This approach not only simplifies the system architecture, but also allows the system to easily evolve and adapt to future requirements. In this environment, tools such as RTI Administration Console help accelerate the development of Fortion® 1SkyControl's broad range of airspace surveillance features.

The overarching goal of the Fortion® product line is to enable air force operators to conduct highly coordinated multi-domain operations with a focus on air battle management. By establishing a highly performant system, these capabilities can now be provided to other NATO countries to integrate reliable military air traffic control and air surveillance across military domains. Moving forward, these capabilities open the door to expanding situational awareness data, delivering innovation that can meet the air traffic control needs of a wide variety of NATO countries.

ABOUT RTI

Real-Time Innovations (RTI) is the infrastructure software company for smart-world systems. Across industries, RTI Connext® is the leading software framework for intelligent distributed systems. RTI runs a smarter world.

RTI is the market leader in products compliant with the Data Distribution Service (DDS™) standard. RTI is privately held and headquartered in Silicon Valley with regional offices in Colorado, Spain, and Singapore.

Your systems. Working as one.

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