

CAPABILITY BRIEF

Optimizing Intralogistics Automation

LEVERAGING THE VALUE OF AGV/AMR THROUGH DATA CENTRICITY

HIGHLIGHTS

Provides a data-centric, zero trust and high-performant software connectivity framework

Enables plug-and-play interoperability from the factory floor to the warehouse management system (WMS)

Speeds time to market and lowers development and maintenance costs

Establishes secure cloud-based communications to enable and support over-the-air (OTA) updates and continuous validation

Supports OPC UA, MQTT and ROS 2 standards

The future of warehouse intralogistics demands optimized logistics and strategies to streamline delivery and eliminate waste. RTI Connex[®] provides a scalable, production-ready software framework that allows all components within an industrial system to work as one, integrated solution.

USING AGVs/AMRs TO EXPAND INTRALOGISTIC AUTOMATION

Increased competition, reduced profit margins and significant labor shortages are driving many companies to automate increasingly larger parts of their intralogistics processes.

This trend towards automation is further impacted by new environmental regulations and a growing awareness of environmental issues. As companies begin to set more ambitious environmental, social and governance (ESG) goals, it simply makes sense to explore how automation can maximize management of material and logistics while minimizing waste on the shop floor.

Automated guided vehicles (AGVs) and Autonomous Mobile Robots (AMRs) are key components of this automation strategy, as these systems are vital to moving materials around the facility. However, these systems can typically only deliver significant value when properly integrated with the factory's intralogistics systems.

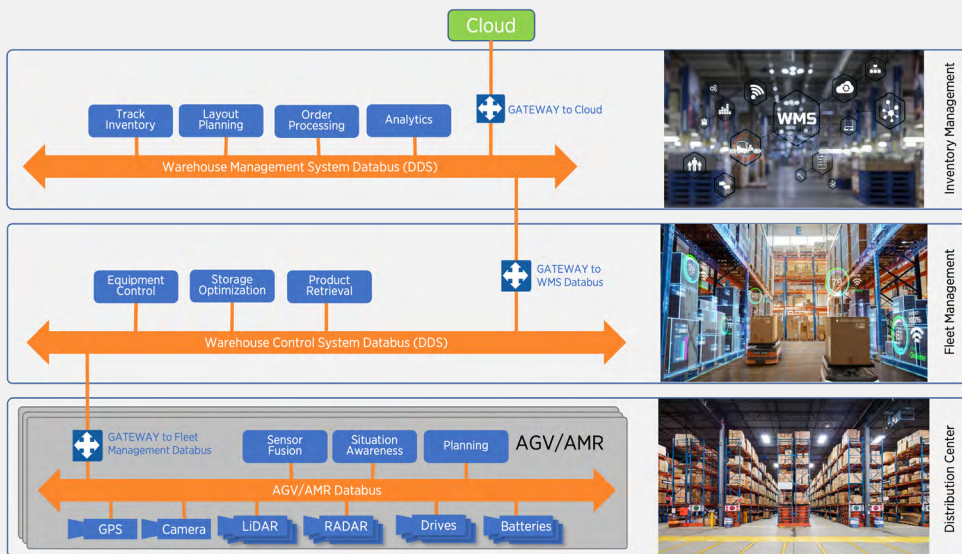
In many cases, there is either limited or no integration of AGVs/AMRs with existing warehouse management systems (WMS).

Instead, AGVs/AMRs receive manual requests from a fleet management system or directly from humans. Although many manufacturers are aware of the benefits of integrating mobile robots with their WMS system, the complexity of integrating disparate legacy and/or proprietary systems can be a major barrier.

Integrating AGVs/AMRs to the WMS can automate the process of creating the transport orders that send robots to retrieve and move materials. This reduces the need for human intervention both in creating the orders and in physically navigating around the plant to fulfill them, resulting in new efficiencies and cost savings.

RTI CONNEX: STANDARDS-BASED CONNECTIVITY FOR IIoT SYSTEMS

RTI brings its expertise in the Industrial Internet of Things (IIoT) to this area of intralogistics. Using standardized data interfaces, RTI Connex enables proprietary machines and software to work as one integrated system, securing the exchange of data from the distribution center, to the warehouse management system, to the cloud.



The layered databus processes information in real-time across the distribution center, ensuring that all systems work as one. Adhering to the principles of DDS, the layered databus keeps data in motion continuously, supporting a data-centric architecture.

Connex is based on the Data Distribution Service (DDS™) standard, the foundational communication element of modern IIoT systems. DDS uses IIoT design principles to code secure, interoperable systems that can exchange data in near real time with no single point of failure, while operating within all regulatory compliance. As the premiere vendor of DDS, the next generation IIoT protocol, RTI software is production-ready, scalable and secure.

productivity for expensive assets by waiting for new materials to arrive. In addition, it can prevent the waste of capital resulting from holding too much inventory at any given time.

This effort requires flexible systems that can facilitate integration of data flow, offer backwards and future-proof compatibility and are inexpensive to maintain. For more information on how RTI can optimize your operations, please visit www.rti.com/industries/industrial-automation/agv-amr.

INCREASE INVENTORY VISIBILITY

Inventory visibility is vital for supporting profitable and efficient supply chain operations. However, keeping track of the inventory on hand and knowing where it is located in fast-moving warehouses can be difficult. The integration of AGVs/AMRs with inventory management systems can be used to overcome this challenge, with rapid sharing of information in real-time, both on-premise and to the cloud.

AGVs/AMRs can effectively identify and record the materials they transport in real-time, making this data available to other systems and also to human operators, enabling them to locate materials and goods accurately. This prevents loss of

REAL-WORLD EXAMPLE

634AI MAESTRO: ROBOT-AS-A-SERVICE AT YOUR SERVICE

634AI developed an innovative AMR solution concept that delivers autonomous mobility, completely independent of the functionality of a robot or robotic vehicle. Built on the RTI Connex connectivity framework, MAESTRO is a centralized AI system that understands everything in motion on the industrial floor and can orchestrate the action. Through floor mapping, obstacle detection and continuous video streams from ceiling-mounted cameras, all vehicles are controlled by MAESTRO without the need for expensive on-board navigation sensors, LIDAR assets, or even full computing power.

ABOUT RTI

Real-Time Innovations (RTI) is the largest software framework company for autonomous systems. RTI Connex® is the world's leading architecture for developing intelligent distributed systems. Uniquely, Connex shares data directly, connecting AI algorithms to real-time networks of devices to build autonomous systems.

RTI is the best in the world at ensuring our customers' success in deploying production systems. With over 1,800 designs, RTI software runs over 250 autonomous vehicle programs, controls the largest power plants in North America, coordinates combat management on U.S. Navy ships, drives a new generation of medical robotics, enables flying cars, and provides 24/7 intelligence for hospital and emergency medicine. RTI runs a smarter world.

RTI is the leading vendor of products compliant with the Object Management Group® (OMG®) Data Distribution Service (DDS™) standard. RTI is privately held and headquartered in Sunnyvale, California with regional offices in Colorado, Spain and Singapore.

Download a free 30-day trial of the latest, fully-functional Connex Drive software today: <https://www.rti.com/downloads>.

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