

5G Edge Automated Guided Vehicle (AGV) Management

Solution brief

A more efficient and flexible approach to manufacturing robotics



Industry 4.0 will require manufacturing, warehouse and logistics operators to respond to changing customer and market demand faster than ever before.

You can still rise to meet new demands even if your business is using legacy automated guided vehicle (AGV) systems. And you can do it without making costly changes to the factory floor or adding new types of robots with different control software.¹

Verizon 5G Edge AGV Management uses On Site 5G and private mobile edge computing (MEC) products to enable centralized control of mixed fleets of mobile robots. Near real-time data management and insights enable you to make adaptive, flexible changes to fleet tasks and routes quickly.

Solving challenges for the factory of the future

AGV Management is part of Verizon's 5G Edge set of fully managed MEC solutions specifically designed to increase the effectiveness of manufacturing production and related processes.

With 5G Edge AGV Management, heterogeneous fleets of robots are orchestrated and controlled through edge computing, connectivity and third-party software. The solution uses autonomous transport systems that leverage 5G wireless networking to traverse the plant floor during operation. It replaces more rigid and costly methods, such as laser-guided navigation, floor-based magnetic tape, or rails and mirror.

The combination of 5G and edge computing will enable new capabilities, such as compute-intensive data algorithms, for the smart factory of tomorrow. The vision of 5G Edge AGV Management is to offload some primary compute from the robot itself to centralized edge compute, allowing for lower-cost, thin-client robots.

Make adaptive, flexible changes to fleet tasks and routes quickly in near real time. This is Enterprise Intelligence.

The benefits of 5G Edge AGV Management

AGV routing can be dynamically changed in near real time to minimize events like AGV collisions and deadlock and livelock conditions.

5G Edge AGV Management can help your business:



Optimize the use of existing assets by allowing you to operate and control mixed fleets of mobile robots.



Improve obstacle avoidance for both safety and routing efficiency.



Quickly adapt to changing customer and market demands.



Enhance plant safety through critical rerouting capabilities.

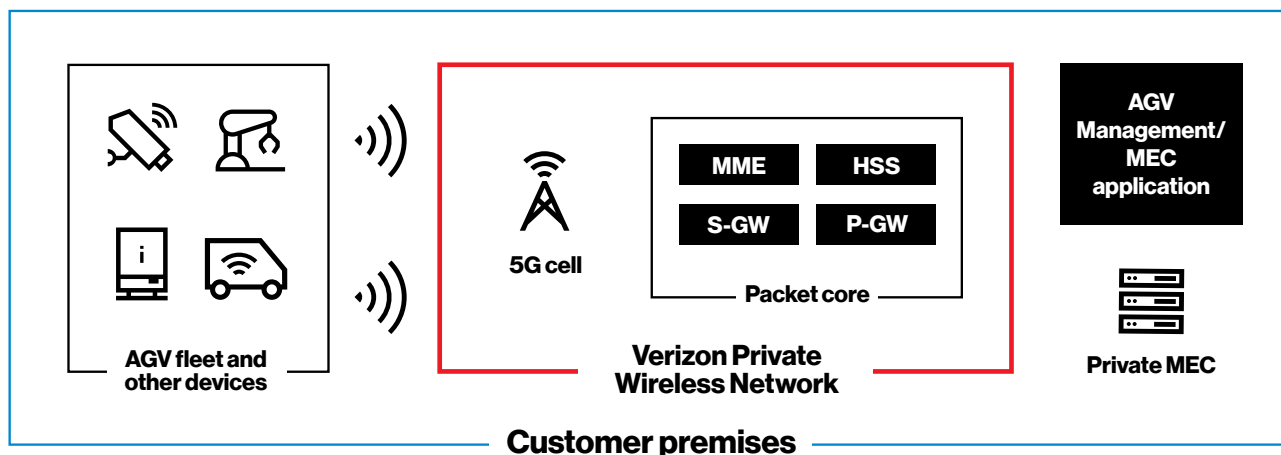


Support better-informed decision-making through AGV fleet status and performance metrics.



Enhance efficiency improvements through machine learning (ML) algorithms.

These benefits deliver end-to-end awareness and deep insights about your operations, helping your business become more agile and smarter. This is Enterprise Intelligence.



5G Edge AGV Management features

Key components of this solution, in addition to the software-as-a-service (SaaS) license, are:

- **The solution portal.** Displays near real-time fleet status, analytics and performance metrics, helping your operators optimize plant operations
- **User role management.** Lets you easily define groups, roles and permission settings to control access to the solution portal
- **System integration through application programming interfaces (APIs).** Enables integration with manufacturing execution systems (MES), enterprise resource planning (ERP) systems and warehouse management systems (WMS)
- **Advanced analytics.** Helps optimize planning and execution
- **Remote operation and control.** Enables custom business rules and route designs of mixed fleets of AGVs in near real time
- **Simulators and digital twins.** Enables you to test and optimize applications before deploying to the live mobile robot fleet
- **Task planning.** Allows tasks to be assigned and executed on a per-robot or fleet-wide basis
- **Surroundings-aware perception.** Helps prevent collisions and increases safety margins
- **Dynamic mapping.** Allows mobile robots to respond to changing conditions in near real time

Why Verizon

Verizon is a leading MEC solution provider, with the experience to help you design, deploy and manage solutions that help meet today's challenges and position your company for the future. With Verizon, you benefit from:

- Extensive experience in LTE and 5G deployments, secure connectivity and device management
- A growing ecosystem of collaborators bringing new capabilities and outcomes to customers
- Provision of the "whole stack" – On Site LTE/5G, private MEC and vertical-managed solutions
- An experienced Professional Services team to help with complex, unique onsite wireless and MEC deployments
- A converged LTE, 5G private wireless access and MEC solution to enable high performance
- Verizon Private IP, Virtual Network Services, Software Defined WAN and Secure Cloud Interconnect service integration to enable high performance
- Advanced solutions that can improve manufacturing operations and manage quality controls to produce Enterprise Intelligence

Learn more:

To see how 5G Edge AGV Management can help you increase efficiency and prepare for future challenges and opportunities, contact your Verizon Business Account Manager.