



# Warehouse Execution System

## Business context

Warehouse needs are changing. Shifting consumer demands and the need to support omni-channel fulfillment are shrinking order sizes and adding pressure to deliver in shorter timeframes. Workforce dynamics are evolving. Higher employee turnover is increasing costs to hire and train staff. Traditional WMS solutions need additional capabilities to support the changing customer demands for delivery, to account for labor issues, to address increasing order volumes, and adapt to unexpected changes during daily operations.

The changing technology landscape is driving higher adoption of autonomous mobile robots (AMRs) and other new automation. Warehouse operations need technologies to manage the variety of tasks and orchestrate the combination of humans and robots more efficiently towards a common warehouse goal.

## The Blue Yonder Solution

Blue Yonder's Warehouse Execution System is an intelligent cloud-native solution, equipped to unlock opportunities for greater efficiency, performance, and cost reductions across the warehouse. The WES extends and enhances WMS capabilities by coordinating work across humans, dynamic robots and static automation to assign the right resource, the right work at the right time. This decreases steps, smooths operational capacity and drives excellence in operations.

## Real results

Reduce administration costs by

**80%**

Increase units-per-hour (UPH) by up to

**12%**

Reduce new robot vendor onboarding by

**50%**

Improve pallet pick operations by up to

**6%**

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## Key benefits

- Reduce administrative overhead by reducing manual task manipulation and enabling focus on value-added activities.
- Increase efficiency through improved orchestration of warehouse tasks.
- Increase throughput by improving dock utilization and prioritizing nearly completed shipments (in and out).
- Enable upstream decision optimization by leveraging a probabilistic demand forecast.
- Cloud-based technology with Continuous Rollout of New Capabilities.

# Capability details

## Autonomous Orchestration

Warehouse task interleaving enables the most efficient task assignments for all work, with integrated voice or RF- directed interleaving of tasks. Tasks are assigned to either robot or human resources and interleaved based on proximity, priority and permissions to maximize efficiency and service.

## Balance Priority and Proximity

During dynamic task assignment, establish a balance between the importance of priority versus the proximity of the next task. Ensure high priority demands are met during high volume days, and proximity efficiencies are exploited during typical operations.

## Streamlined Automation Onboarding

Standardized & public APIs provide flexibility and accelerate onboarding of one or multiple robotic vendors through a completely vendor agnostic solution. Provides a one stop shop which showcases multiple value metrics and provides advanced troubleshooting features to expedite issue resolution across multiple robotics vendors.

## Advanced visibility

Gives site managers visibility into performance, throughput and bottlenecks along with future needs based on the resource schedule.

## Actionable analytics

Analytical tools define the right parameters for maximum efficiency, so you can employ the right number of workers based on demand.

## Agile task assignments

Tasks are assigned based on the parameters you define, while the engine tracks task-related shift lengths and times the position of labor resources in near real-time.

## Flexible allocation

Using warehouse taskings allocation capabilities, you can reduce travel time and pick items in the most effective way as new assignments come, even in ever-changing conditions.

## Cost State Engine & Dynamic Tour Assignment

Sophisticated method to intelligently plan, re-plan and dynamically allocate human and equipment resources to the most optimal tasks based on configurable inputs which ensures the correct work is executed efficiently based on each customers unique priorities.

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## Key Features

- **Priority tie break**  
Appointment trailer will be given higher priority than a drop load with all other conditions being equal.
- **Rolling the dock**  
Prioritizes picking tasks for the least effort to complete load (outbound) and to empty a staging lane (inbound).
- **Ship to address priority**  
Tasks associated with international shipments are prioritized differently from domestic shipments to help ensure customer SLAs are met.
- **Multi-layer visibility**  
Offers high-level operational views down to the individual task as well as lagging and leading views.
- **Vendor Agnostic Robotics Hub**  
Service enables onboarding of multiple robotics vendors in a warehouse.
- **Comprehensive Analytics**  
Reporting across robotics and manual operations.

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## Digital transformation is at your fingertips

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