



ORACLE®

Oracle Warehouse Management (WMS) and RFID

Integrations, Enhancements and an Overview

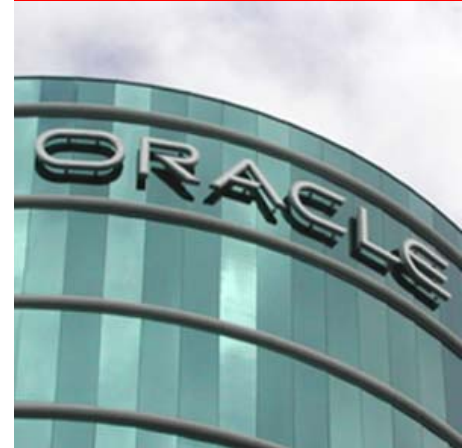
Aditya Agarkar
Director, Product Strategy

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decision. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

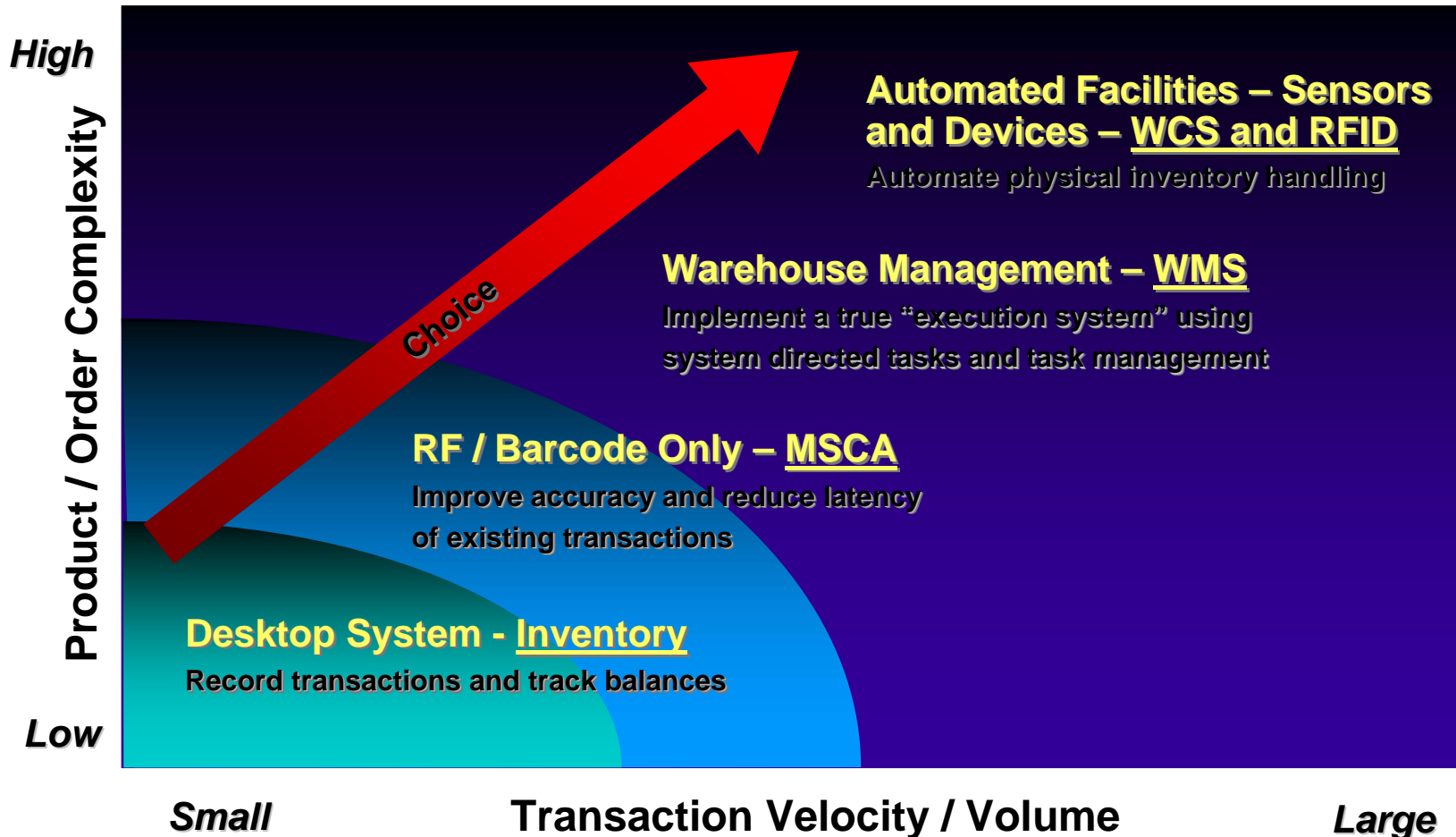
Agenda

- WMS Overview
- WMS Features
- WMS Direction
- Q&A



Material Management Products

WMS for complex material management needs



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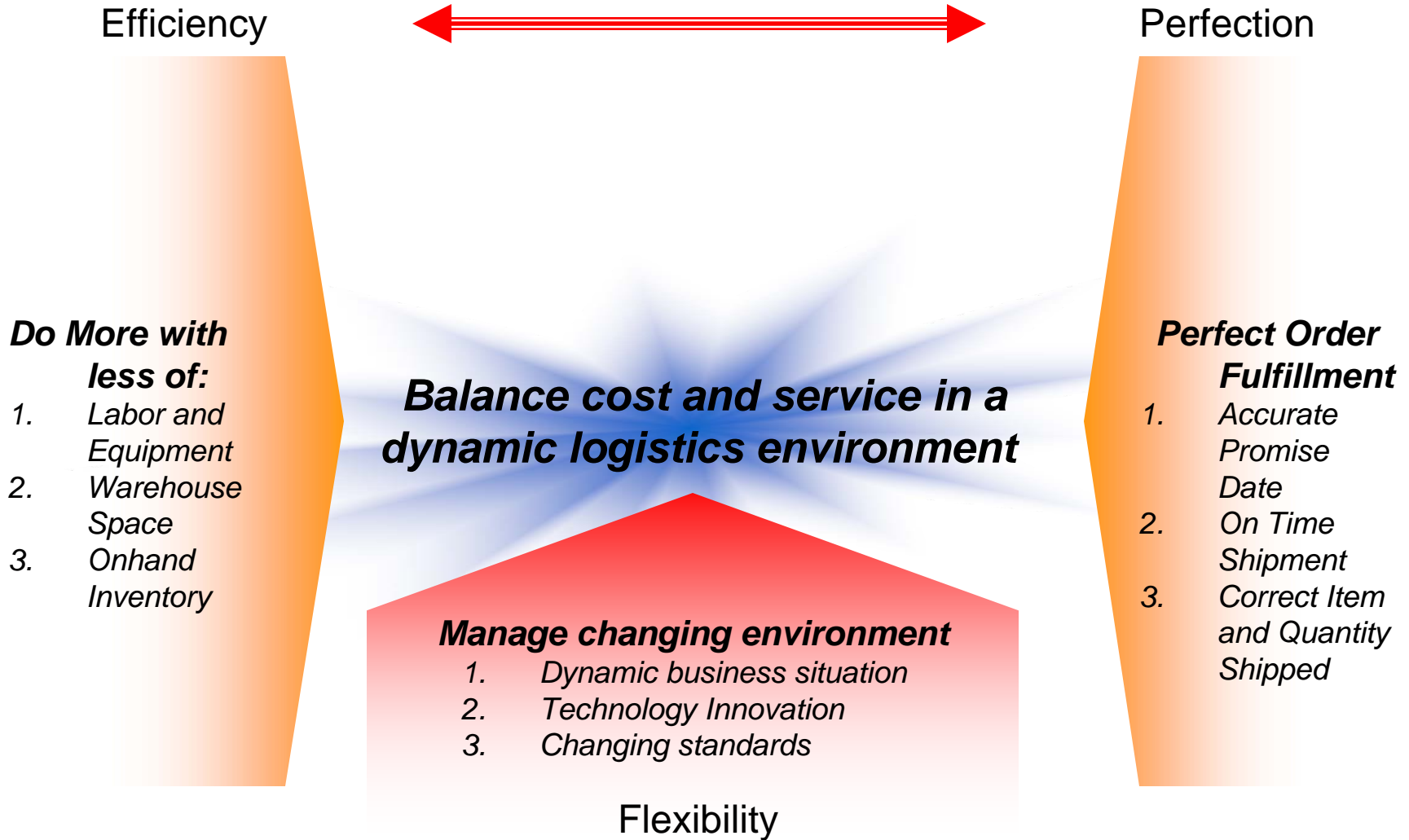
The above reflects Oracle's current development plans which are subject to change at any time

Who needs WMS?

	Low	High	
Number of SKUs and bins	Inventory	MSCA	WMS
Inventory Turns	Inventory	MSCA	WMS
Transaction Volume	Inventory	MSCA	WMS
Warehouse Capital Cost	Inventory	MSCA	WMS
Inventory Carrying Cost	Inventory	MSCA	WMS
Pressure on Operating Margin	Inventory	MSCA	WMS
Cost of Imperfect Order Fulfillment	Inventory	MSCA	WMS
Cost of Non-Compliance	Inventory	MSCA	WMS
Labor Cost	Inventory	MSCA	WMS

WMS Value Proposition

Features for operational efficiency, perfection and flexibility

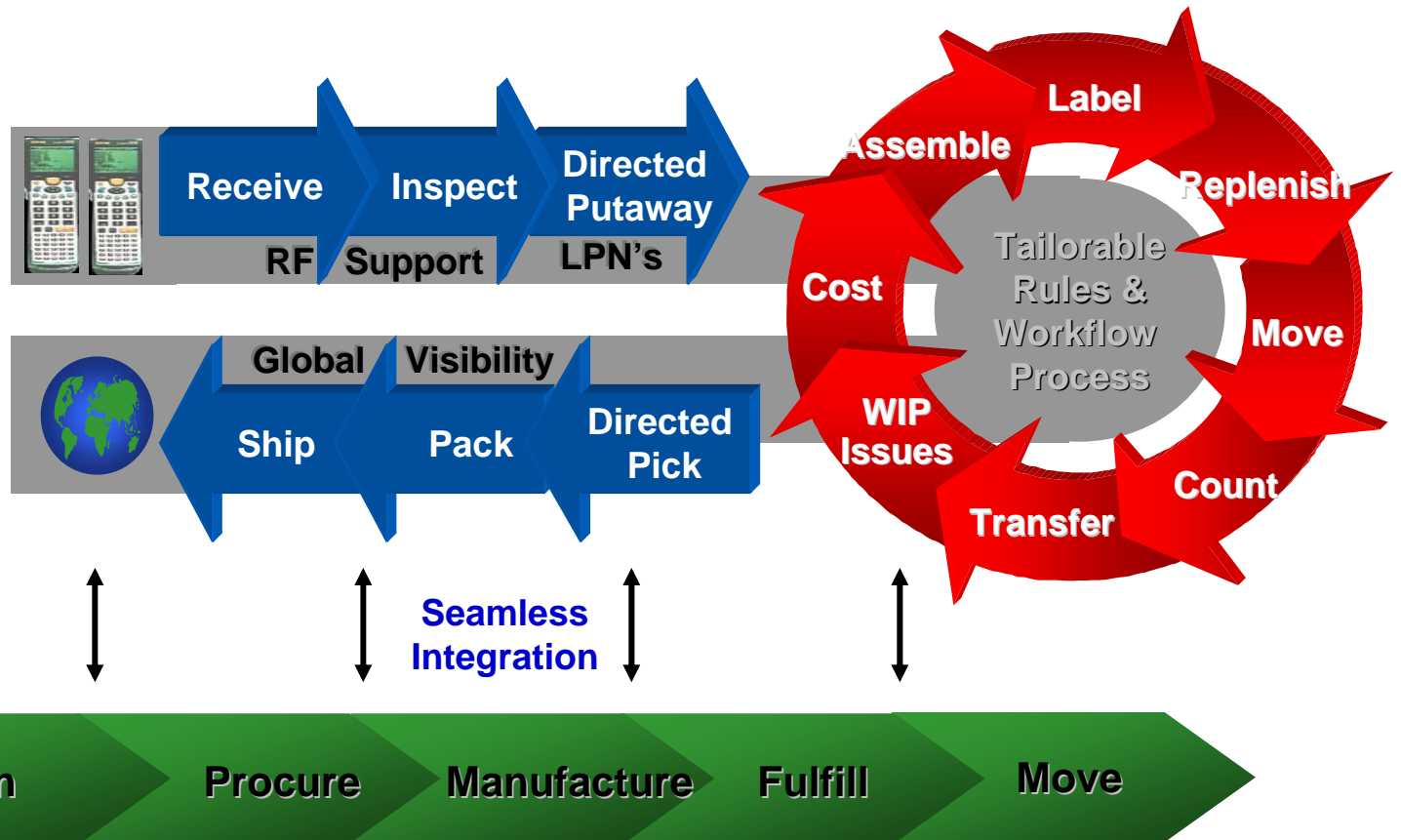


Built-In and Integrated

Built-in, Integrated and highly efficient and flexible WMS for complex needs

RMA's
Purchases
Transfers

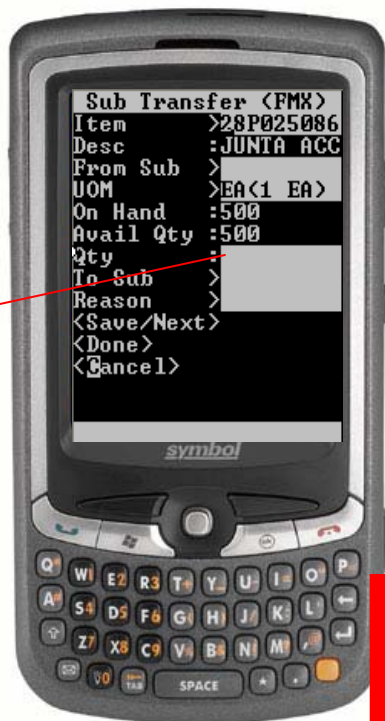
RTVs
Orders
Transfers



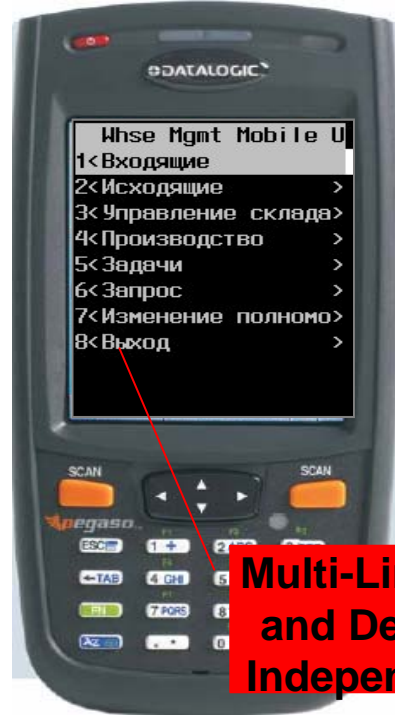
Mobile Transactions

Middleware to Support Device Independent Mobile Transactions

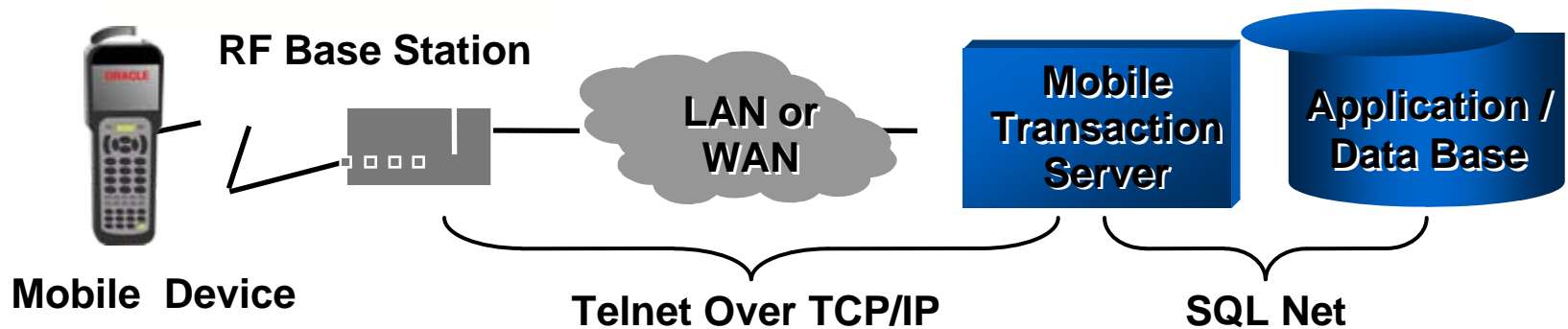
Transactions at Point of Use on Mobile Devices equipped with Barcode Scanners



Now also available in GUI



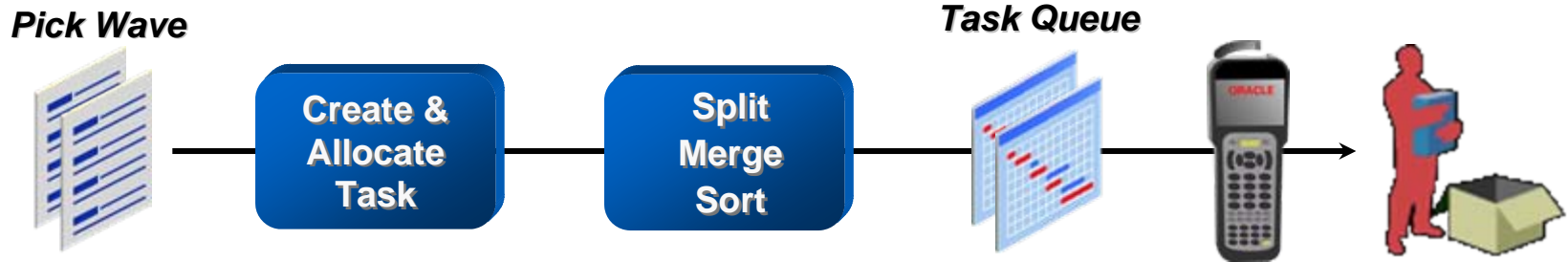
Multi-Lingual and Device Independent



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Directed Tasks

Rule Based Tasks to Direct Workers

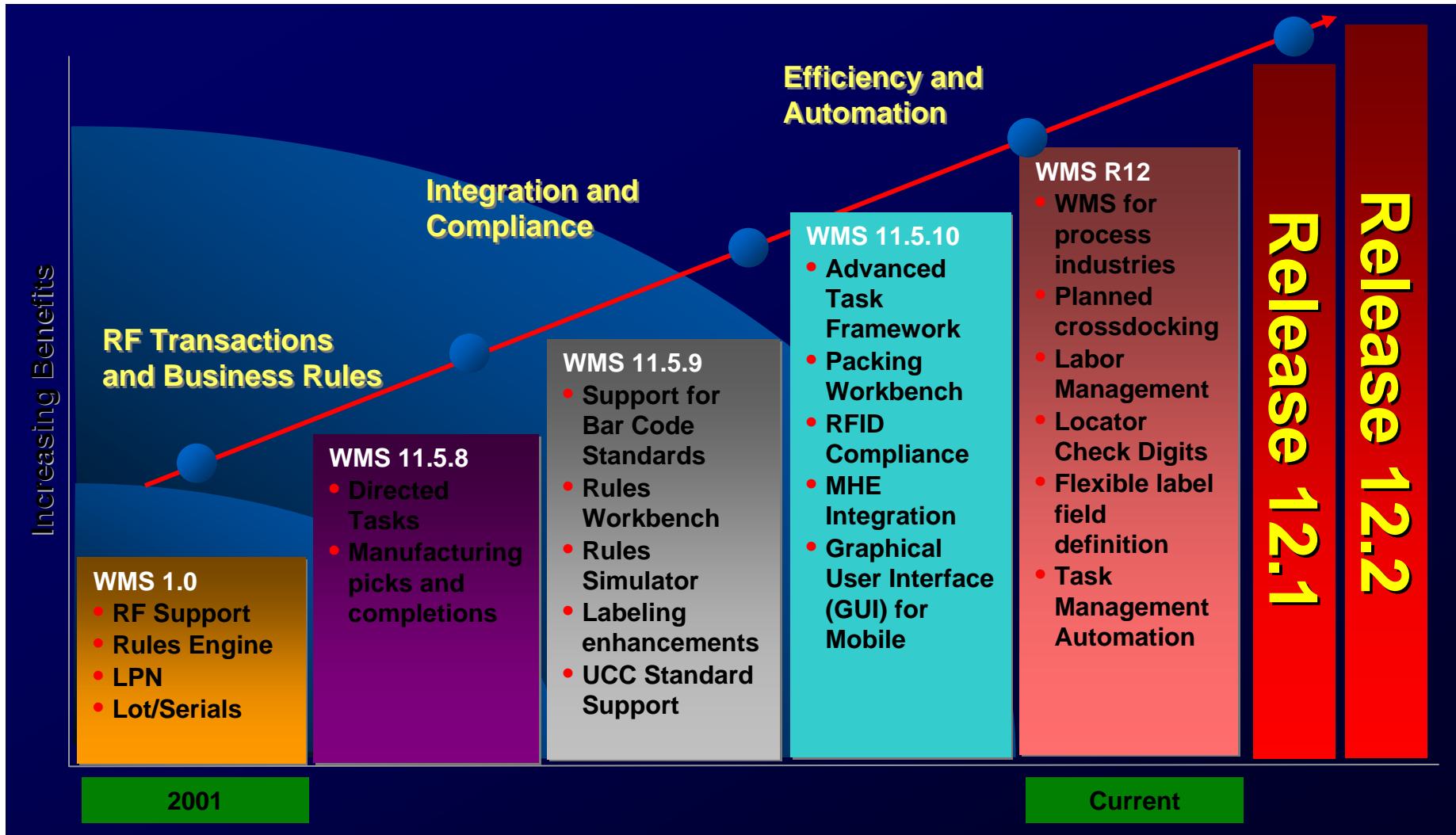


- Dispatch Tasks To RF Devices
- Support Multiple Picking Methodologies
- Match Skills and Equipment to Tasks
- Perform Task Sequencing and Interleaving

- Create Paperless, Streamlined Processes
- Align Pick Plan with Business Mix
- Reduce Safety Issues and Training Costs
- Significantly Reduce Travel Time

Warehouse Management System

Rapid ramp up and Continued Investment in the product

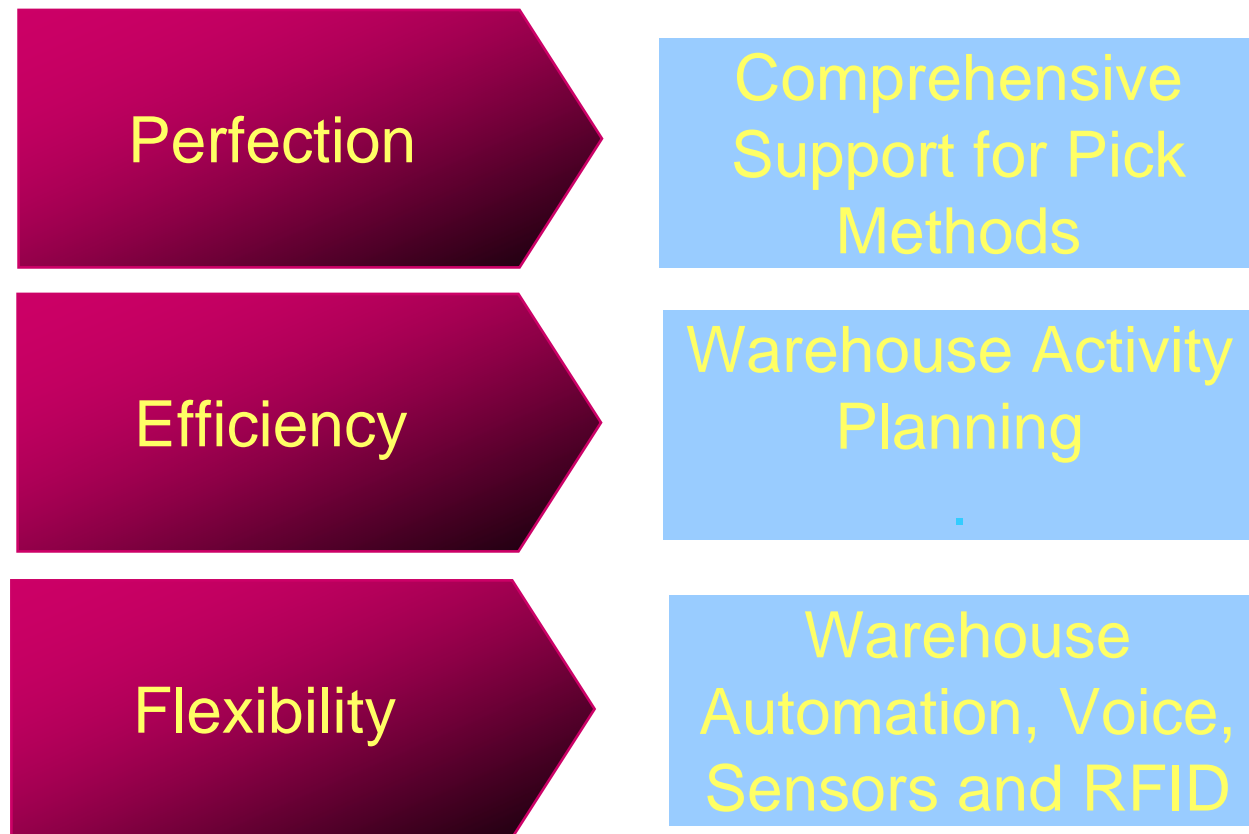


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The above reflects Oracle's current development plans which are subject to change at any time

WMS Value Proposition

Sample Features for Core Value Proposition



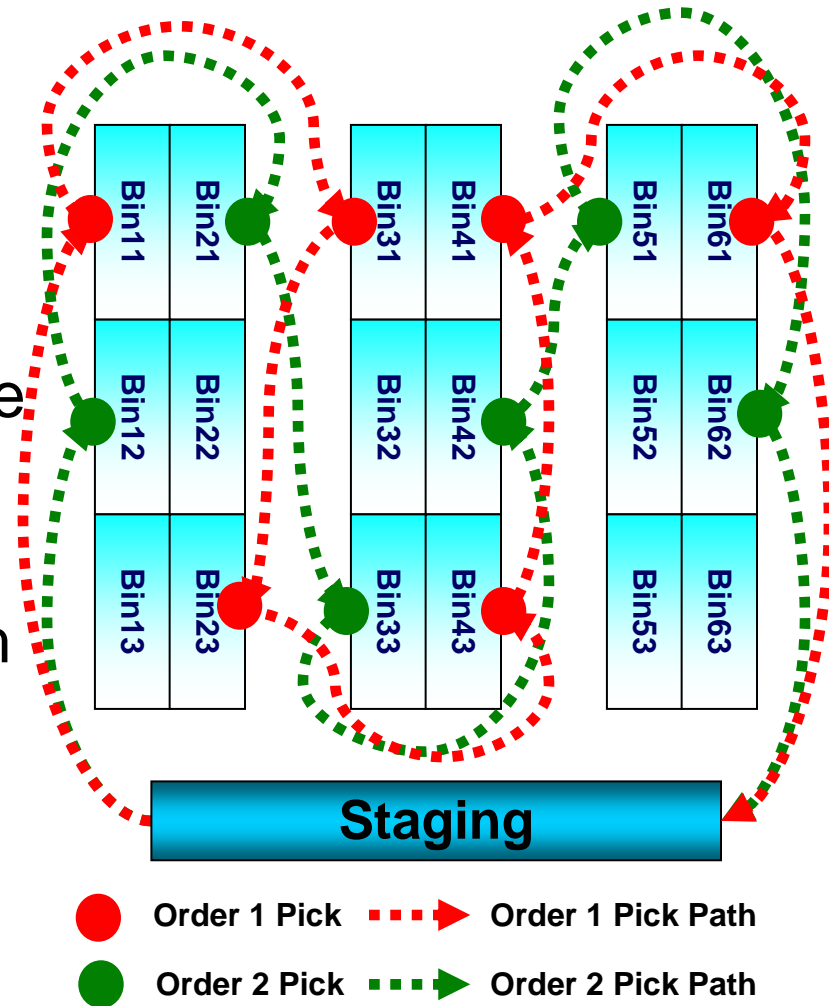
Comprehensive Transaction Support

Wide range of pick methods for your warehousing needs

Pick Methods	Current	Future
Order Picking	✓	
Pick by Label	✓	
Zone Picking	✓	+
Pick and Pass	✓	+
Cluster Pick / Batch Pick	✓	+
Case Picking – Pick to Pallet	✓	+
Case Picking – Pick to Belt	✓	+
Bulk Picking	✓	
Paper Picking	✓	

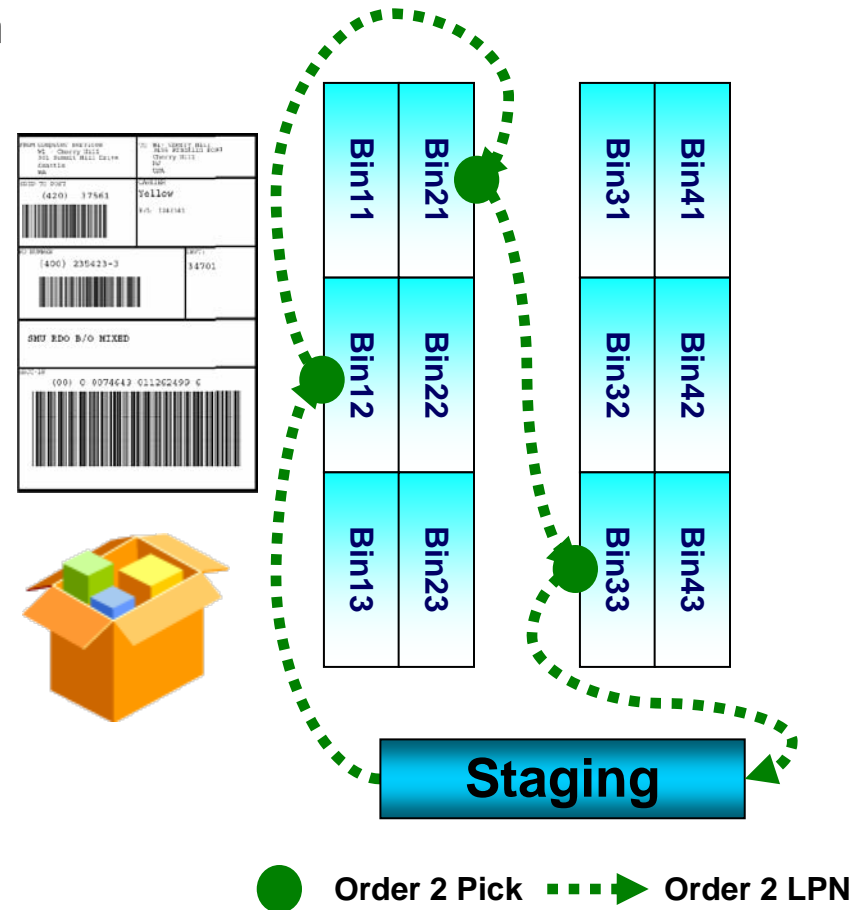
Order Pick

- Example: Following orders to be picked
 - Order 1
 - Order 2
- Warehouse operator will make two passes of the warehouse for each order
- Order should be large enough for equipment capacity to be utilized fully



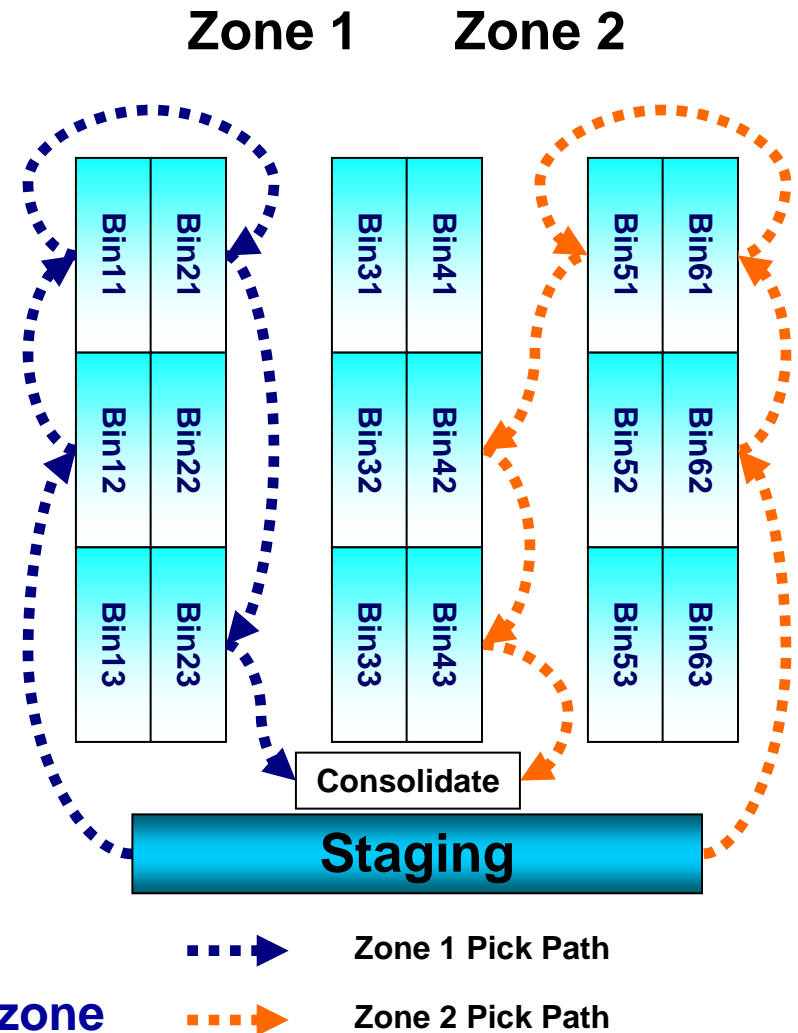
Label Pick

- Cartonization - Determine a carton size and generate an LPN label at release
- Warehouse operator will scan the LPN label and WMS will dispatch tasks for the label
- Process Alternatives:
 - Pick to Tote: Perform Packing into final shipping container at pack station
 - Pick and Pack: Possible to eliminate downstream packing operation by picking into a final shipping carton or container



Zone Pick

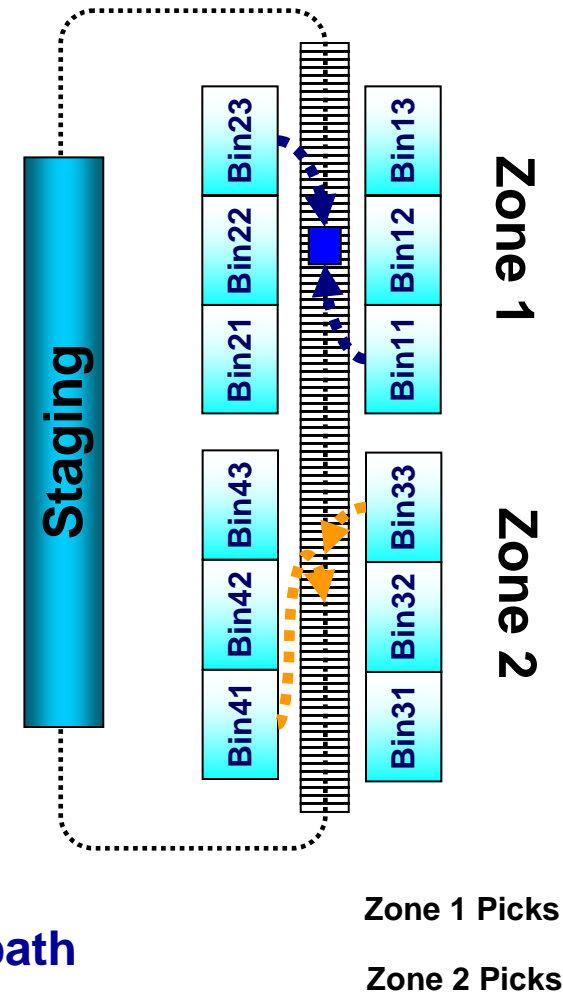
- Example: Each picker is assigned a pick zone
 - Zone 1
 - Zone 2
- Warehouse operator will pick from their zone and pass to the picker in another zone
- Parallel picks across zones
 - Possible to reduce order pick time
 - Requires order consolidation after picks are complete
 - Pick profile may be different e.g. Pallet pick in Zone 1 and case pick in Zone 2



Enhancements to ensure that separate Carton labels can be generated for each zone

Pick and Pass

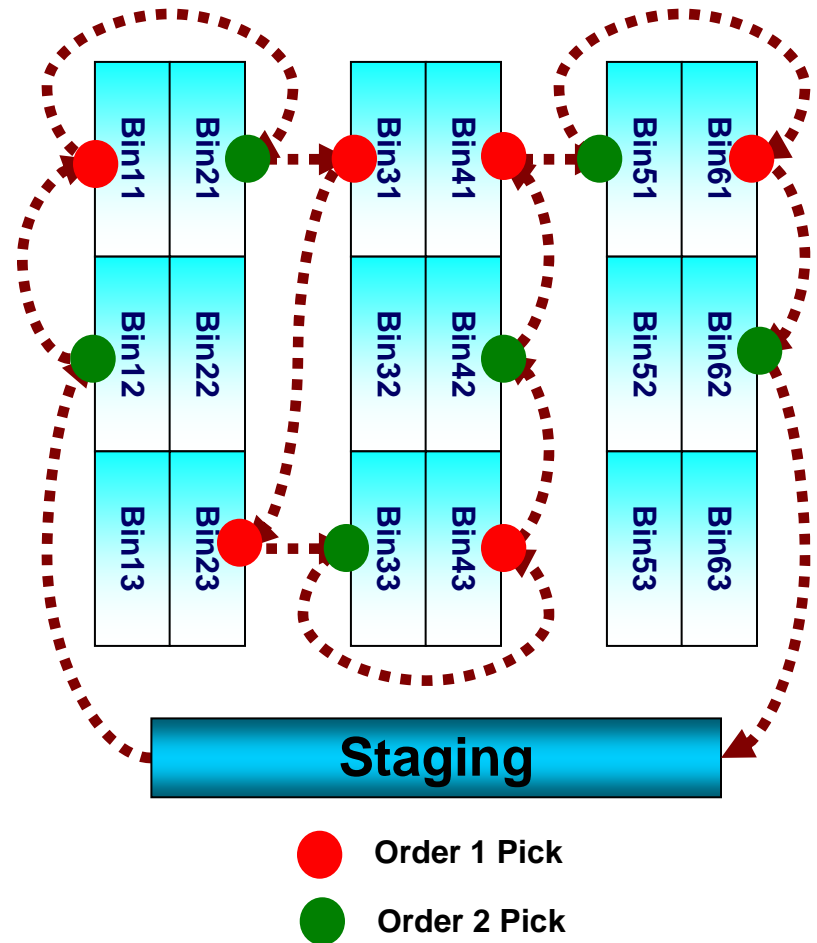
- Example: Each picker is assigned a pick zone
 - Zone 1
 - Zone 2
- Warehouse operator will pick from their zone and pass to the picker in another zone
- Sequential picks across zones
 - Possible to reduce travel time
 - Order consolidated as picks progress
 - All pick zones must use similar pick profile e.g. cant have pallet pick in Zone 1 and case pick in Zone 2
- Cartonization is needed



Enhancements to ensure that single carton labels is generated for all zones in the pick path

Cluster Pick

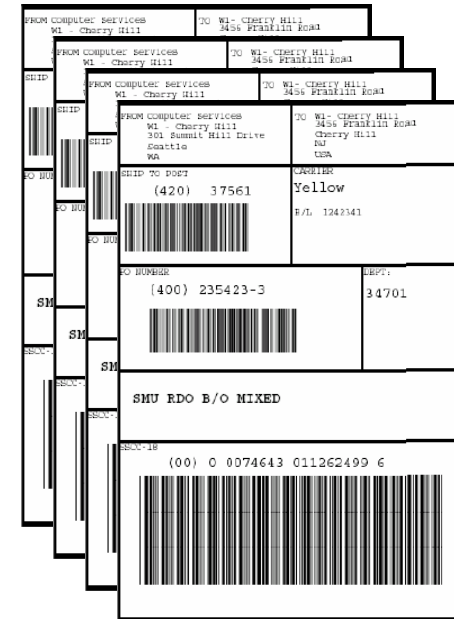
- Example: Following orders to be picked
 - Order 1
 - Order 2
- Warehouse operator will make one passes of the warehouse and pick both orders
- Each Order should be less than equipment capacity
- Cluster size set for optimum equipment capacity utilization



Enhancements to Perform Cluster Picks using Cartonized LPNs

Full Case Picks

- What is needed?
 - Assign shipping labels to cases during picking
 - Perform picking efficiently
- WMS Features:
 - Create case level shipping labels (UCC-128) at order release
 - Assign labels to operator at the start of picking
 - Perform case picks by scanning LPN or UCC-128 barcode (SSCC-18)
- Options:
 - Load cases to a pallet
 - Load cases to a conveyor



Enhancement to perform picks by scanning case labels

Warehouse Planning

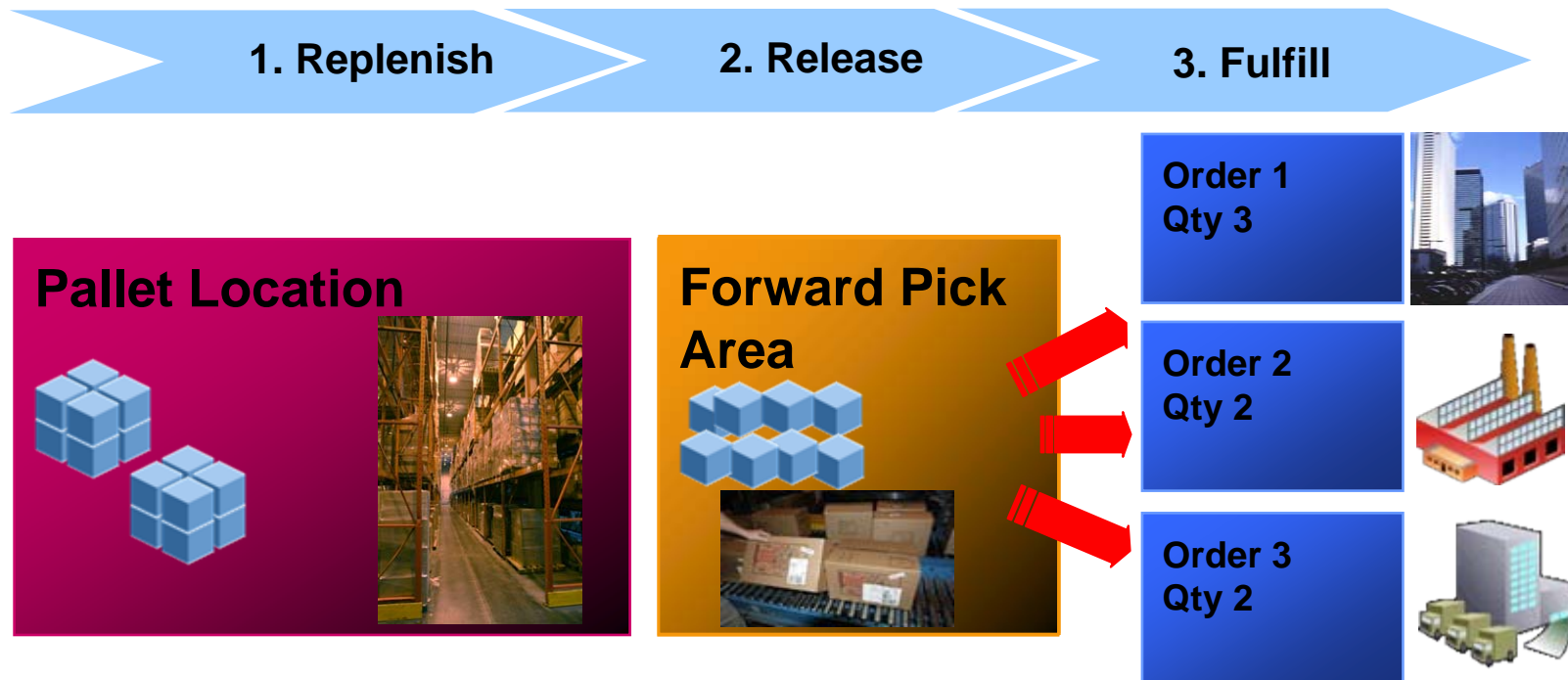
Deliver compelling value to address complex warehouse needs

Planning Area	Current	Future
Replenishment to Forward Pick Area	✓	+
Warehouse Activity Planning and Order Release	✓	+
Slotting		✓

Forward Pick Replenishment

Push Replenishment for irregular item demand

- Replenish ahead of order release to improve pick productivity by fulfilling large number of small orders from a forward pick area optimized for picking
- Identify floating locators for high demand items

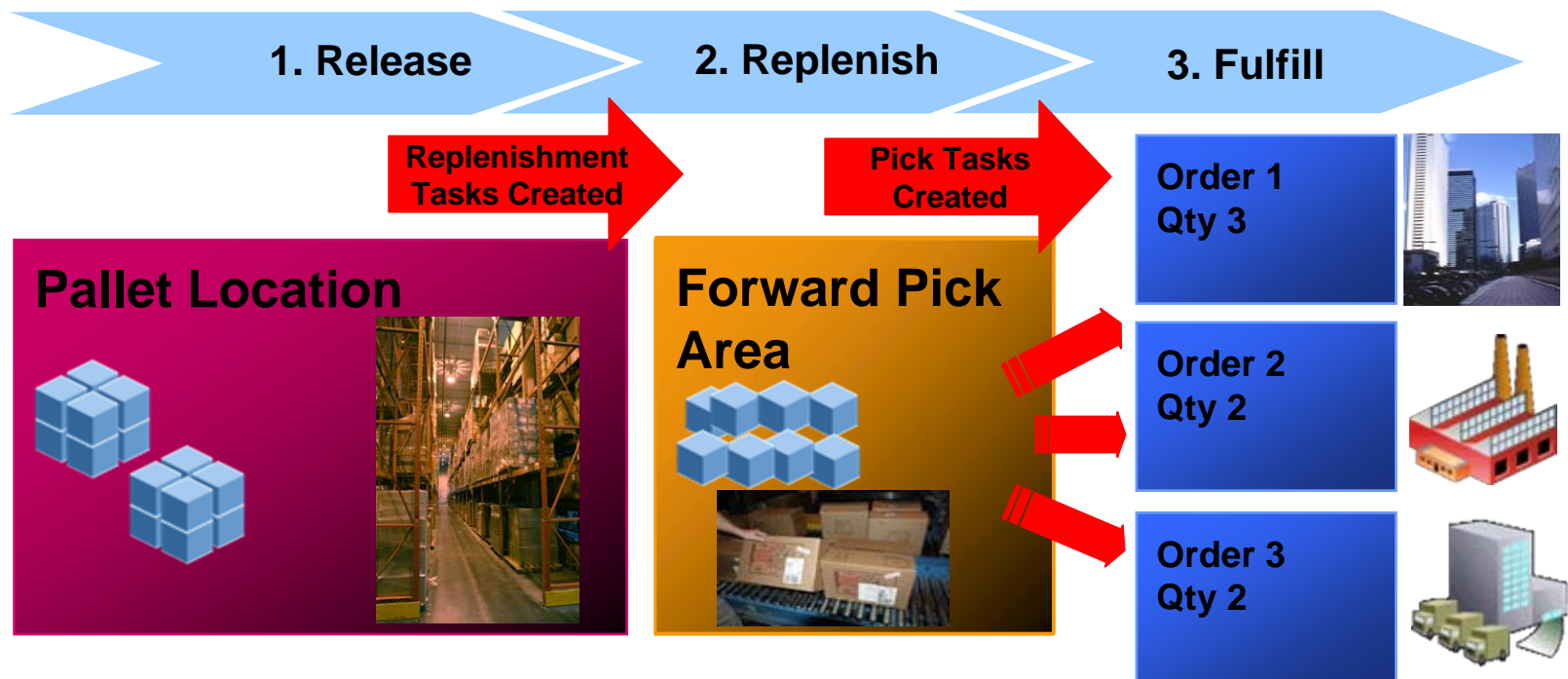


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Forward Pick Replenishment

Dynamic JIT Replenishment for regular item demand

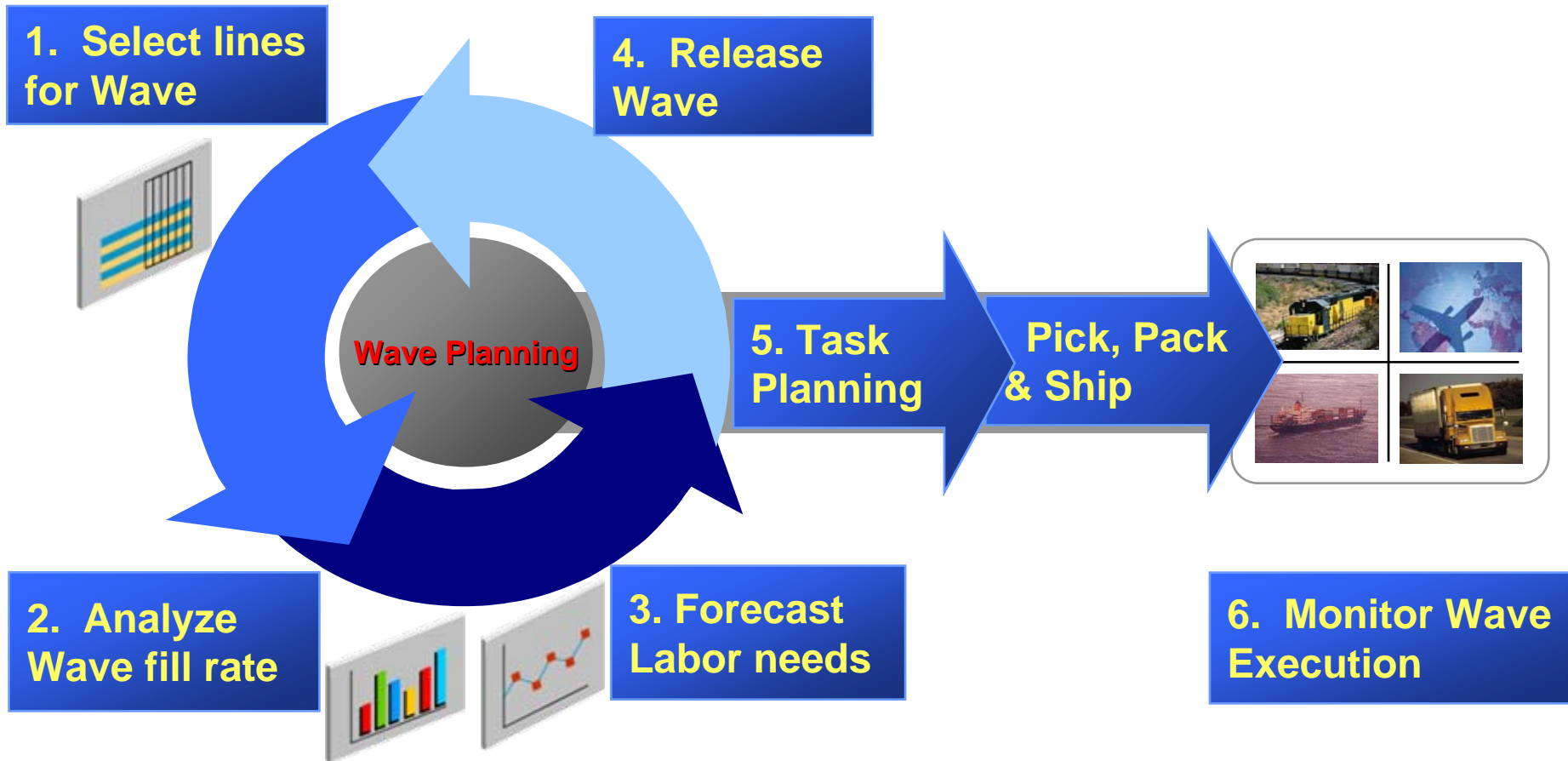
- Dynamically replenish forward pick locations when demand is placed on forward pick area
- Dedicated or Floating locators in Forward Pick Area



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Warehouse Activity Planning

Wave Planning and Task Planning for on-time shipment and enhanced resource utilization



Wave Planning

Increase fill rate, improve resource utilization, support high volume

The screenshot displays the Oracle Wave Planning interface. At the top, there are tabs for 'Wave', 'Order', and 'Shipping'. Below these are several input fields for 'Wave Rule', 'Wave Completion', 'Wave Description', 'Wave Constraints' (Total Cube, Total Revenue, Total Weight, Total Line Count), 'Wave Planning Criteria' (Plan Tasks, Pick Method), and 'Staging Sub Inventory' (Staging Locator). A 'Waves' tree view on the left lists various waves with their statuses (Planned, Created, Completed, Cancelled, Released). The main area shows a 'Wave Summary' table with columns for Order, Order Line, Delivery, Trip, Ship Meth, and Fulfillment Status.

1	Order	Order Line	Delivery	Trip	Ship Meth	Fulfillment Status	Item
2	7014	4	2342	5344	PRCL	Pending Replenishment	AS1087
3	7014	5	2342	5344	PRCL	Pending Replenishment	AS9590
4	7014	6	2342	5344	PRCL	Completed	AS6273
5	7014	7	2342	5344	PRCL	Pending Replenishment	AS7731
6	4011	2	23864	15992	PRCL	Active	AS6027
7	4011	3	23864	15992	PRCL	Pending Replenishment	AS8758
8	1776	4	15427	18046	PRCL	Pending Replenishment	AS9728
9	1776	5	15427	18046	PRCL	Pending Replenishment	AS5535
10	1776	6	15427	18046	PRCL	Active	AS1789
11	1776	7	15427	18046	PRCL	Pending Replenishment	AS3582
12	1776	8	15427	18046	PRCL	Task Pending	AS7267
13	1776	9	15427	18046	PRCL	Pending Replenishment	AS2502
14	22	2	29541	12283	PRCL	Pending Replenishment	AS6928
15	22	3	29541	12283	PRCL	Completed	AS386

- Planning features to allow release of orders only for 100% fill rate
- Scheduling of order release based on labor capacity
- Task planning for optimized execution
- Single workbench to monitor warehouse activity

Designed for throughput of more than **20,000** Lines/hr

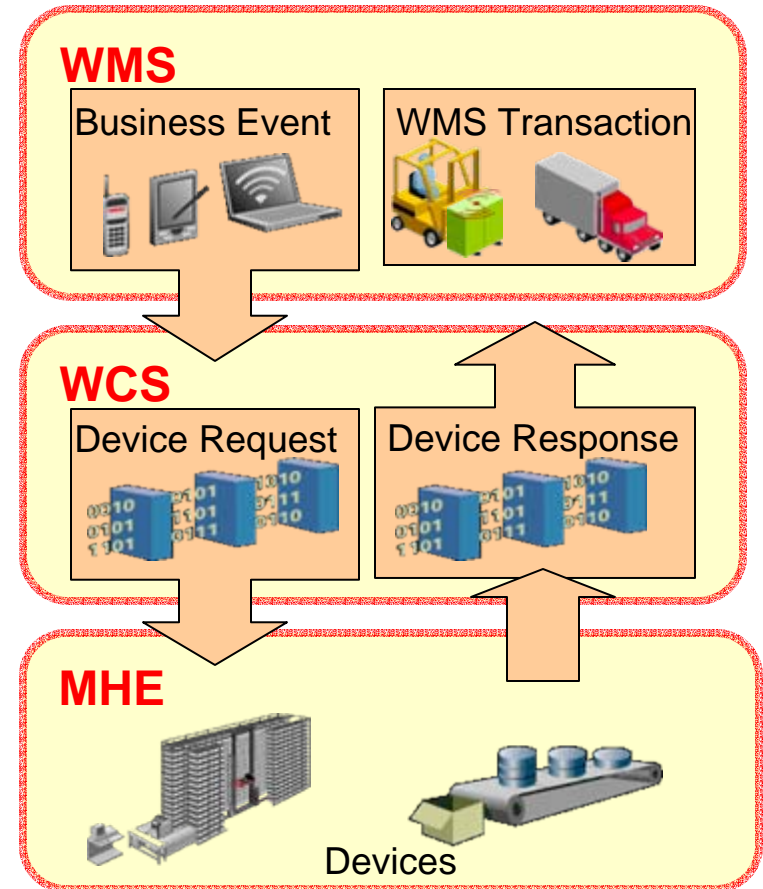
Automation, RFID/Sensors and Voice

Deliver compelling value to address complex warehouse needs

Planning Area	Current	Future
Warehouse Automation – Warehouse Control System	✓	+
Voice	✓	+
RFID and Sensor Driver Execution	✓	+

Seamless Integration to Devices

- **Device Definition**
 - Define devices and associate with business events in WMS
 - Device IP and Port information in WCS
- **Construct Messages**
 - Vendor specific message structure dynamically constructed in WCS when a specific business event occurs in WMS
- **Device Interface**
 - WCS carousel bridge runtime interface transmits request message and receives response message from device
- **WMS Transactions**
 - WMS transactions are confirmed manually or automatically based on device response



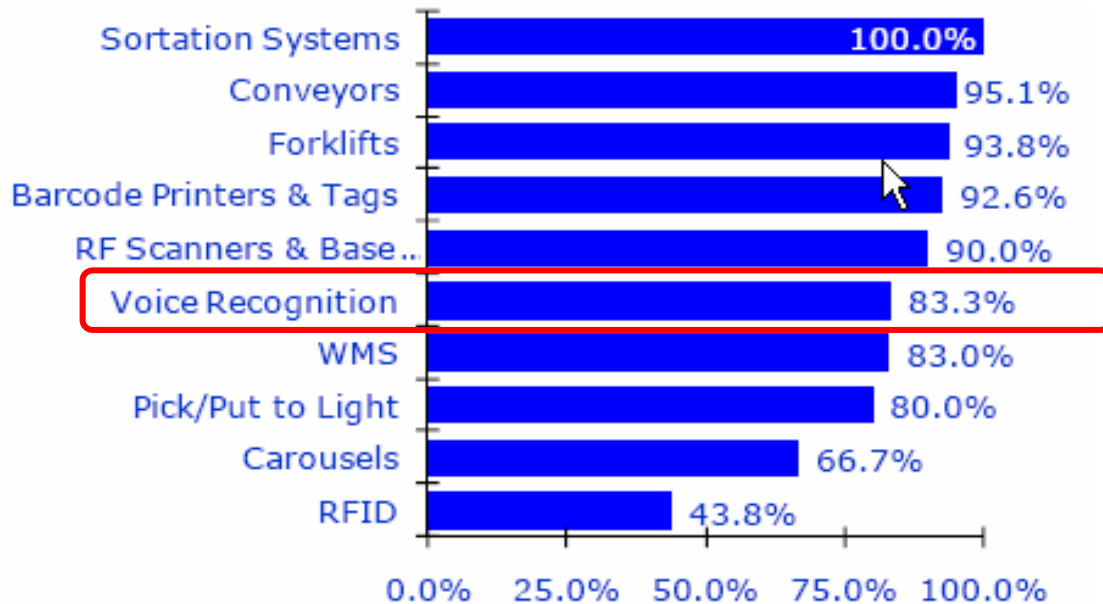
Voice Picking

Streamlined Data Input

- Where
 - Environment – cold storage & other climates where typing & scanning is cumbersome
 - Safety – hazmat & other situations where manual handling of goods is required
 - High Volume operations – when scanning slows you down
- WMS and Voice Benefits
 - No toggling between the system and the physical work
 - No need to query a screen to get work units
 - Less system training required

Proven ROI

Success Rate comparable to RF & WMS implementations



Percentage Who Reported That the Technology Investment Met Their Hurdle Rate Goals

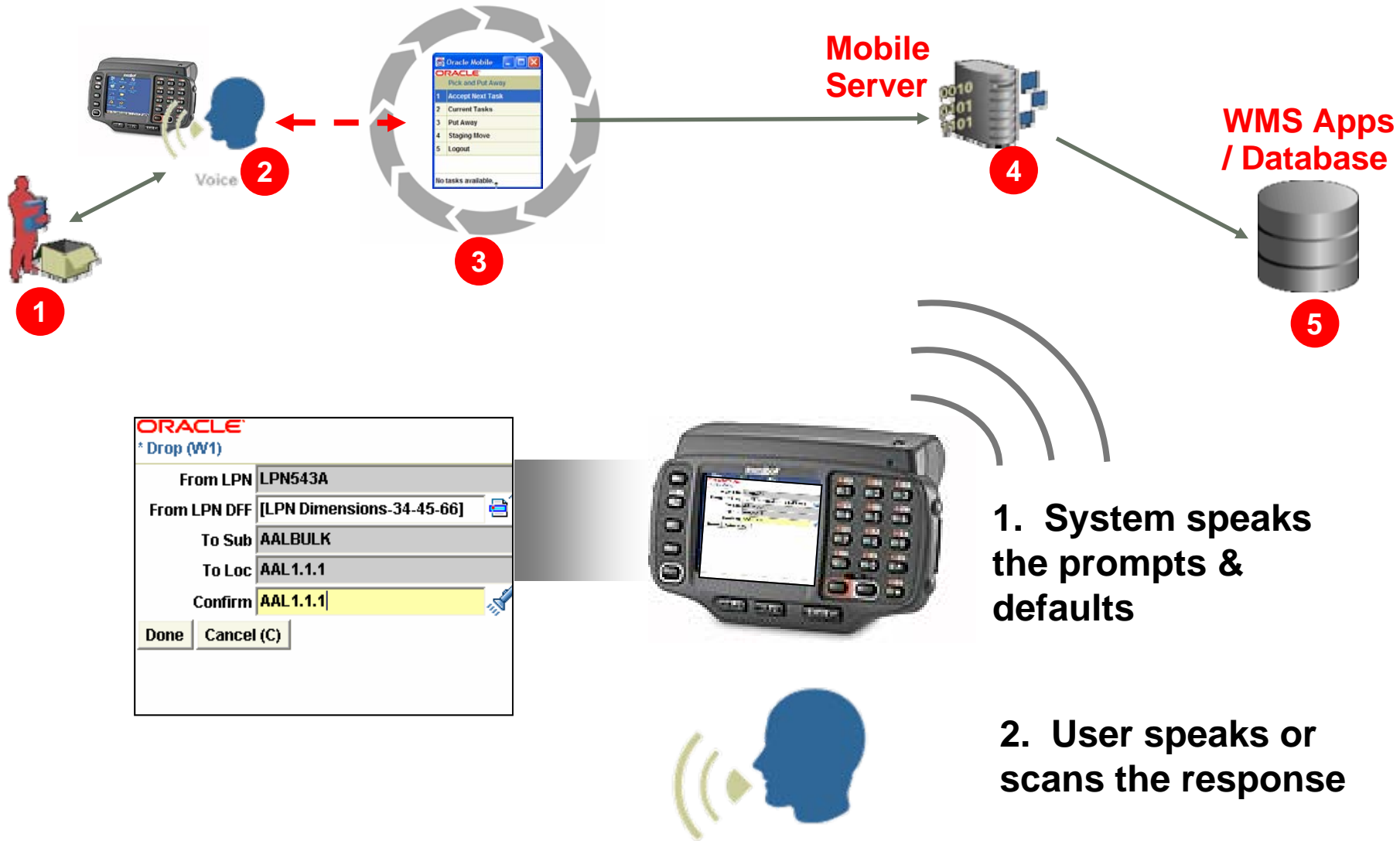
Source: Report - ARC Advisory Group, *Speech Recognition for Warehouse Operations*, Nov 2007.

How Do We Enable Voice?

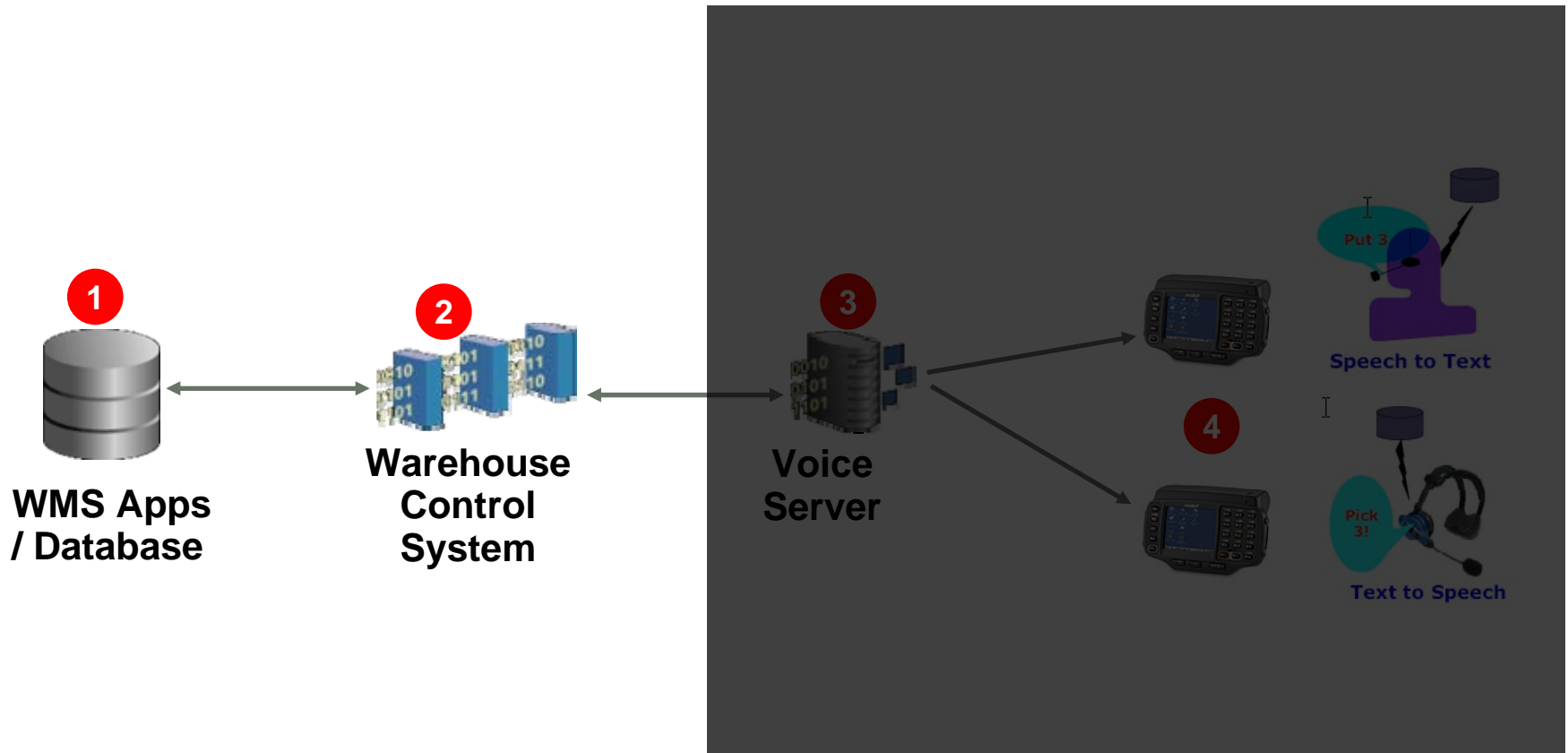
A solution based on choice

- **Hybrid Solution**
 - Voice overlay on mobile applications
 - User can speak, scan or type
- **Task Queuing and Processing**
 - Tasks from WMS pushed via Warehouse Control System into Voice System
 - Completely Automated

Hybrid Solutions

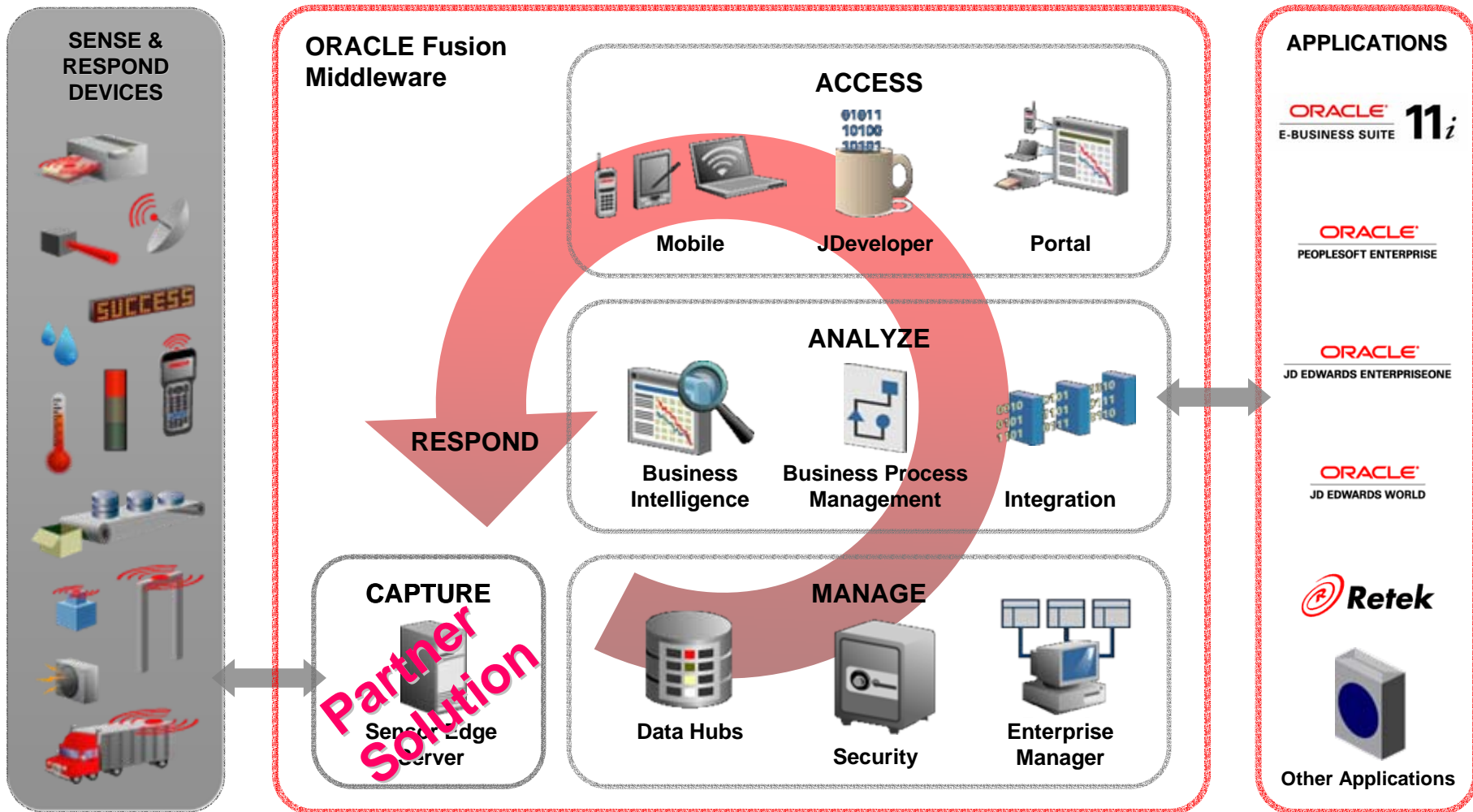


Voice Based Task Management Systems



To Oracle, the inner workings of these voice systems is a black box. They control task queues, dispatch & execution

RFID Solution schematic



The above reflects Oracle's current development plans which are subject to change at any time



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