



Cisco and Datria Retail Warehouse Voice Picking Improves Fulfillment Accuracy and Productivity

Executive Summary

Retail distribution operations continuously strive to improve order accuracy and worker productivity as competition and challenging economic cycles affect profit margins. Many retailers have automated processes, and some have also adopted voice-based warehouse picking solutions. However, the Cisco® and Datria Retail Voice Picking Solution is the first network-based, voice-enabled solution that uses thin clients and enables you to:

- Achieve near 100-percent order accuracy
- Improve worker productivity by as much as 30 percent
- Reduce the time needed for training new employees by up to 90 percent
- Extend standards-based voice services across the organization
- Achieve return on investment in less than one year

Introduction

A challenging retail environment makes it more important than ever to preserve margins. Gaining operational efficiency is an important step to achieving this goal. Order picking in retail warehouses is a labor-intensive process, and many companies automate it to increase order accuracy and improve worker productivity.

Order Errors Increase Costs

The Warehousing Education and Research Council defines the “perfect order” as one that arrives on time, is 100-percent complete, is free from damage, and includes proper paperwork. When an order is incorrectly shipped, a company's costs increase. These costs are associated with:

- Reselecting and reshipping the correct goods
- The returns process, including authorization; shipping or pickup of incorrect items; receiving; inspection; restocking to inventory; and extra management time

- Lost retail sales because the correct goods are not on shelves
- Delays in invoice payment, which affects days sales outstanding (DSO) performance

Challenging Environment Creates Inefficiency

The seemingly simple task of picking a product off a warehouse shelf to match an order becomes a critical factor in efficient order fulfillment. Regardless of whether you use pallet, case, or piece-pick operations, it is challenging to greatly reduce the amount of time workers need to find, select, place, check, and prepare the correct items for shipment.

In many warehouses today, “pickers” receive a printed order, or pick sheet, physically look through the warehouse to locate each item, and load it onto a pallet, cart, or tote. With only a few SKUs to choose from, this is not such a difficult task. However, the picking process becomes more labor-intensive and error-prone in warehouses that stock hundreds or thousands of different items; when workers experience a constant flow of new products in unfamiliar packaging; and when slotting and picking strategies change in response to continuously changing consumer purchasing patterns.

Current Solutions Are Limited

Many automated systems are limited to warehouse use, and existing voice solutions are often standalone systems that require costly mobile computer systems. Even as retailers seek to improve order fulfillment precision and worker productivity, they must balance solutions with return on investment (ROI) requirements and flexibility – especially in challenging retail climates. Solutions must be flexible to accommodate fluctuating economic cycles, as well as able to extend process automation resources across the enterprise. Solutions that enable retailers to improve efficiency should also help them control operational expenses, reduce training costs, improve worker retention, and improve overall enterprise flexibility and agility.

Worker Inexperience Is a Constant Challenge

Turnover for warehouse staff tends to be high, and it takes time for new workers to achieve corporate productivity target levels. Staff turnover results in inefficiencies, because new workers must be trained. As a result, the warehouse staff is not uniformly productive. In addition, some pickers may struggle with language differences. Fellow workers, managers, and the need to repeatedly traverse the warehouse searching for products create additional distractions. When no automated systems are available to assure pick optimization, additional time is spent in quality assurance, manually double-checking each order.

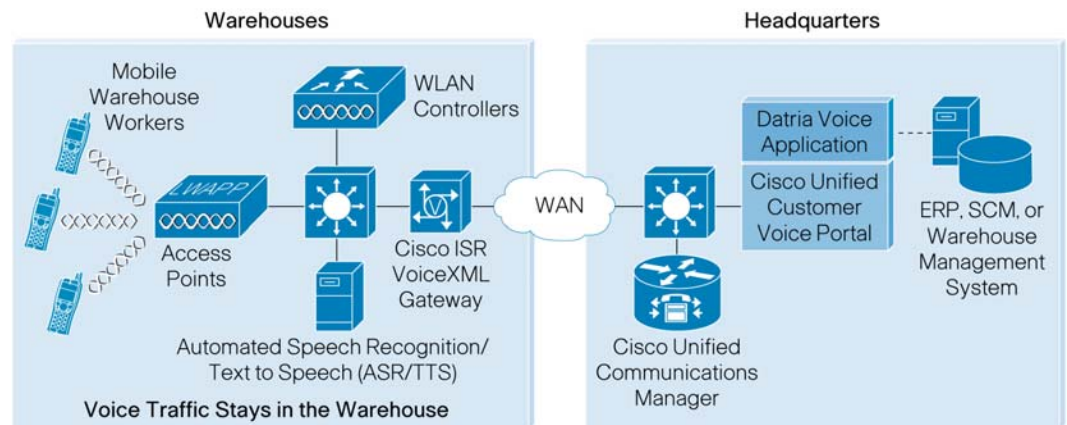
Cisco and Datria Retail Voice Picking Solution

The Cisco and Datria Retail Voice Picking Solution provides flexible data collection designed for the needs of the mobile warehouse worker. Based on your existing IP network and standard Cisco Unified Communications platforms, this groundbreaking solution integrates proven voice over IP (VoIP) and network-based speech recognition technologies with Datria’s warehouse interface for real-time voice communication with enterprise warehouse and logistics management systems. Mobile workers can be equipped with Cisco wireless VoIP handsets, VoIP-capable multimodal smartphones, or computers to connect them with ERP, warehouse management, inventory management, supply chain management, retail information, and merchandising systems in real time. The Cisco and Datria solution also permits voice to be combined with other data-collection technologies such as RF scanning and RFID.

Simple, Powerful Architecture Promotes Flexibility

The Cisco and Datria Retail Voice Picking Solution has a very simple but powerful topology and can be deployed at a single site or decentralized across a large number of remote sites.

Figure 1. The Cisco and Datria Voice Picking Solution for Retail



Each Cisco and Datria Retail Voice Picking Solution includes:

- **Configurable Datria application package:** An open VoiceXML and Java-based application package that provides mobile workers with a real-time voice user interface to existing corporate systems.
- **Cisco Unified Customer Voice Portal:** A flexible VoiceXML platform that provides the robust run-time environment for the Datria application.
- **Cisco Voice Gateways:** Integrated Services Routers equipped as VoiceXML Gateways act as industry-standard integration points between VoIP callers, speech recognition technologies, and VoiceXML applications.
- **Mobility devices:** Cisco Unified Wireless IP Phone792x models are equipped with extended-use batteries and ruggedized cases for use in warehouses. Existing wireless devices can also be used.
- **Cisco Unified Wireless Network:** Provides VoIP capabilities for wireless phones and other mobility devices.
- **Cisco Unified Communications Manager:** Manages and supports VoIP calling for mobile devices.
- **Routing and switching solutions:** Cisco WAN routing and switching solutions form the backbone that connects the enterprise, warehouses, and supply chain.

“Thin-Client” Architecture Lowers Costs

Voice-activated picking technologies in themselves are not new – this technology has been used for years in the grocery, retail, wholesale distribution, and automotive industries. However, the agile Cisco and Datria solution takes advantage of open standards and proven functionality for warehouse applications. Instead of costly, full-function mobile computers with proprietary client software and high maintenance requirements, the Cisco and Datria Retail Voice Picking Solution allows you to shift to flexible, agile, cost-effective Cisco Unified IP Phones or other mobile devices that rely on network-based intelligence and speech recognition capabilities. The Cisco and Datria solution can be easily integrated with your service-oriented architecture (SOA) and Web 2.0 applications while delivering high scalability and affordability.



Gain a Reusable Voice Resource

Unlike traditional client-based voice solutions, the Cisco and Datria Retail Voice Picking Solution enables you to use voice as a shared enterprise resource within a standard, open IT web services architecture. It is based entirely on open standards and Internet voice protocols, such as VoiceXML, Media Resource Control Protocol, Eclipse, and standard web services, and it uses commercial, off-the-shelf components, including a voice engine from Nuance and the industry's most powerful algorithms. The solution is available in various packages that are readily configured to your specific needs.

Extend the Value of Existing Infrastructure

The Cisco and Datria Retail Voice Picking Solution enables you to use existing IT investments in IP telephony and network infrastructure to simplify integration and management. Based on proven, network-based technologies, the open system reduces the need to constantly refresh technologies and frees scarce IT resources to focus on other strategic projects.

Voice user interfaces can be used as a companywide resource to automate multiple business processes. The Cisco and Datria Retail Voice Picking Solution is compatible with SOAs, such as SAP, and a broad range of surrounding inventory and fulfillment processes. In the warehouse, network-based voice can also be used to automate receiving and putaway, storage transfer, replenishment, return, cross-docking, load building and packing, shipping and delivery, yard management, value-added services, and inventory or cycle counting applications.

Voice can also be extended for a wide range of other retail processes, such as transportation management, field force management, salesforce automation, store replenishment, store inventory management, markdowns, regulatory compliance and reporting, human capital management, and more. The solution complements the use of bar code scanning, pick-to-light, and RFID technologies for multimode, enterprisewide processes.

Benefits

Significantly Higher Order Accuracy

The Cisco and Datria Retail Voice Picking Solution delivers close to 100-percent order accuracy. Warehouse and distribution operations typically realize a 50-to-90-percent reduction in order errors with voice picking. Accuracy improvements reduce inventory discrepancies, reduce costs associated with picking errors, and help maintain timely invoice payments.

Improved Worker Productivity

At the start of each shift, workers clip on Cisco wireless phones or multimodal computers, and put on headsets. They press a speed-dial button to initiate their login requests to begin working:

- Each worker hears picking requests as natural-sounding human speech, augmented by speech synthesis, when appropriate
- Workers confirm pick activities and order status using speech recognition

The system sets a pace for the work to be accomplished while giving each worker some flexibility for breaks or other interruptions as required. The Datria application can also manage different pick situations as they arise, such as stock shorts, damage, or out-of-inventory. It also supports task interleaving, such as blending cycle-counting with picking or putaway activities.

Real-time mobile worker connectivity enables organizations to optimize investments in software logic systems, enabling new pick optimization strategies. Most companies see productivity improve from 10 to 30 percent from process optimization.

Reduced Training Requirements

Mobile warehouse workers rapidly accept the Cisco and Datria Retail Voice Picking Solution because it uses a familiar telephone instead of a complex mobile computing device. State-of-the-art speech recognition technologies eliminate the need for each user to spend 30–40 minutes training the system to his or her voice. A trainer and worker can easily collaborate during the training process using standard telephone features. Most users only require one to two hours to fully understand and become highly effective with the voice technology. This is especially important with a diverse workforce to help ensure that nothing is lost in translation.

The solution also supports self-run tutorials, which can be used to help train new workers or to introduce new warehouse processes. Managers spend less time training and monitoring inexperienced staff members. The solution also makes it easier for temporary or seasonal workers to use voice picking technology, helping ensure that demand bursts are met in a timely and efficient manner.

Improved Worker Safety

Speech solutions provide safety benefits for the retailer and individual workers. Automated picking supports regulatory compliance for goods traceability by capturing extra selection data, such as production batch number. Speech technology is also “hands-free and eyes-up,” helping workers avoid lifting injuries or accidents associated with inattentiveness. Fewer mishaps can also reduce companies’ workman compensation costs, while making staff scheduling more predictable.

Improved Employee Retention

Automating picking gives companies visibility into individuals’ productivity, supporting incentive programs that reward employees for meeting or beating productivity targets. Workers also appreciate the extra investment that companies make in them and enjoy using state-of-the-art technologies. These attributes make it less appealing to move to another company’s warehouse and help make entry-level employees more valuable to the organization.

Rapid Return on Investment

The Cisco and Datria Retail Voice Picking Solution simplifies warehousing processes into a single, efficient workflow. Mobile workers take advantage of accurate, real-time information to enhance fulfillment and assure optimal distribution of manufactured products. Benefits include:

- Close to 100-percent fulfillment accuracy
- Improved item and lot tracking to help meet increasing regulatory requirements for traceability
- Enhanced operational agility
- Improved worker productivity by up to 30 percent
- Elimination of redundant QA processes to reduce labor costs
- Fewer injuries and improved worker safety, which can help lower insurance costs

- Typical installation time of 1–2 months with return on investment in 3–9 months
- Cost-effective voice automation resource for broader enterprise use

Why Cisco?

Effectively meeting retail challenges within static or shrinking budgets is easier with an integrated approach. Cisco has years of experience working closely with leading retail enterprises and has carefully built a collection of network, security, application, and management best practices. Cisco retail network architecture and validated network designs have been successfully created and tested for retail stores of all sizes, enterprise data centers, and the Internet edge to support e-commerce operations.

Cisco Connected Retail

Cisco Connected Retail solutions allow you to use the strength of your network for connecting with today's consumer, collaborating more effectively with suppliers, heightening security, and reducing operating costs. By using the network as your platform, you can easily integrate access to information for every user, including employees, customers, and suppliers. Security, management, rich connectivity, video, media, mobility, voice, and identity services are enabled in the network itself.

Cisco Advanced Services

Cisco Advanced Services help make networks, applications, and the people who use them work better together. Using a Lifecycle Services approach, Cisco provides fixed-price planning, design, and optimization services to help increase business value and return on investment.

Learn More Today

The Cisco and Datria Retail Voice Picking Solution can help you achieve operational efficiency goals while enabling new strategic business initiatives. Learn more about this solution by visiting www.cisco.com/go/retail. Resources are available to help you establish a technical blueprint to begin improving order accuracy and worker productivity. For information about Datria retail solutions, visit www.datria.com.



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