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Walmart Supply Chain
Driving Innovation

Andrew DiEugenio
General Transportation Manager
Mebane, North Carolina

Agenda

- Introduction
- Overview
- Distribution Center Robotics
- Transportation Routing & Dispatching
- Closing

Introduction

- General Transportation Manager – Perishable Grocery Facility
- Service Territory – 97 stores in Virginia, North Carolina, South Carolina

Update to the Metropolitan Washington Council of Governments TPB

Overview - Mebane, North Carolina

Transportation Staffing:
- **60 Drivers**
- **18 Shop Associates**
- **11 Office Associates**
- **6 Managers**
- **95 Total Associates**

Stores:
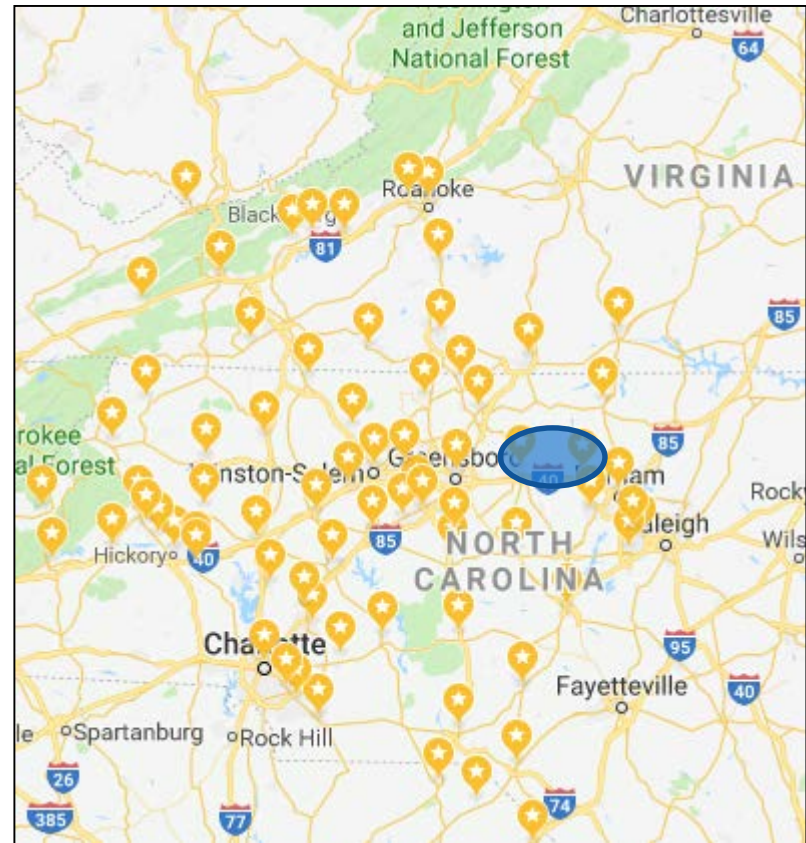- **75 Walmart Supercenters**
- **22 WMT Neighborhood Markets**
- **97 Total Stores**

Equipment:
- **40 Tractors**
- **110 Refrigerated Trailers**
- **450,000 sq. ft. facility**

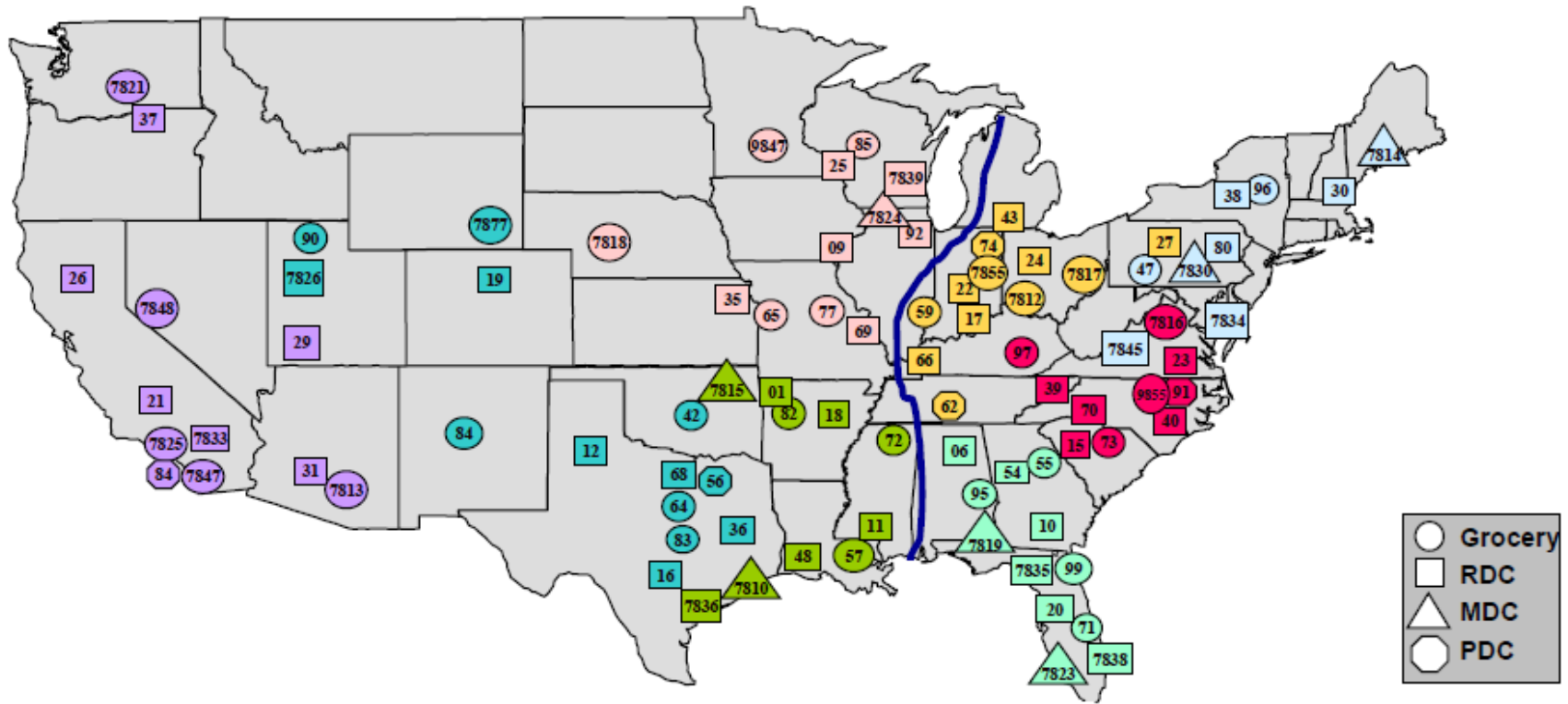**Walmart** ❋
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Walmart Operations in the District of Columbia

- **Distribution Centers:**
  - **Grocery: Gordonsville, VA**
  - **GM: Sutherland, VA.**

- **Walmart Supercenters in DC:**
  - **5929 Georgia Ave NW**
  - **310 Riggs Rd NE**
  - **99 H St NW**

- **Restrictions:**
  - **Delivery Windows**
  - **Trailer Sizes**
  - **Special Permitted Drivers**

Walmart Supply Chain Network

Legend:
- Grocery (circle)
- RDC (square)
- MDC (triangle)
- PDC (hexagon)

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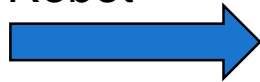
Driving Efficiency through Automation
Robotics, Centralized Routing, Optimized Dispatching

Automated Grocery Distribution Center – Symbotic

- **Why Automate?**

  - **Reduce Costs – Up to 80%**

  - **Increase Efficiency – CPH Productivity**

  - **Maximize Facility Operating Area**

  - **Eliminate Turnover**

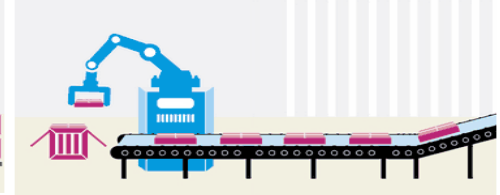 - **Improve Safety + Load Quality**
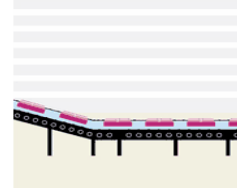
Associate vs Robot

Robots Take On the Warehouse
Symbotic, a robotics company owned by the CEO of grocer C&S Wholesale, is trying to upend the business of storing and shipping groceries. Here's how a typical Symbotic distribution center works.

Trucks unload cases of products, which are ferried by a forklift and unwrapped.
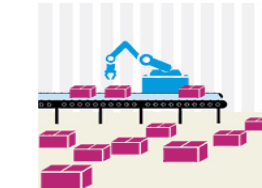
A stationary robot separates the load into individual cases of each product. The cases are recorded into Symbotic's software system and travel by conveyor to...
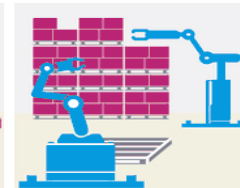
..."The Box," a huge metal enclosure divided into multiple levels, each with multiple aisles.

Symbotic's autonomous robots zoom up and down aisles at speeds of up to 25 miles per hour, storing and retrieving cases of food products. The aisles are about 28 inches wide.

Robots arrange cases in the order determined by software and assemble them into "perfect pallets" according to a grocery store's layout.

Another robot wraps the pallets, which can be up to 9 feet high, with plastic wrap.

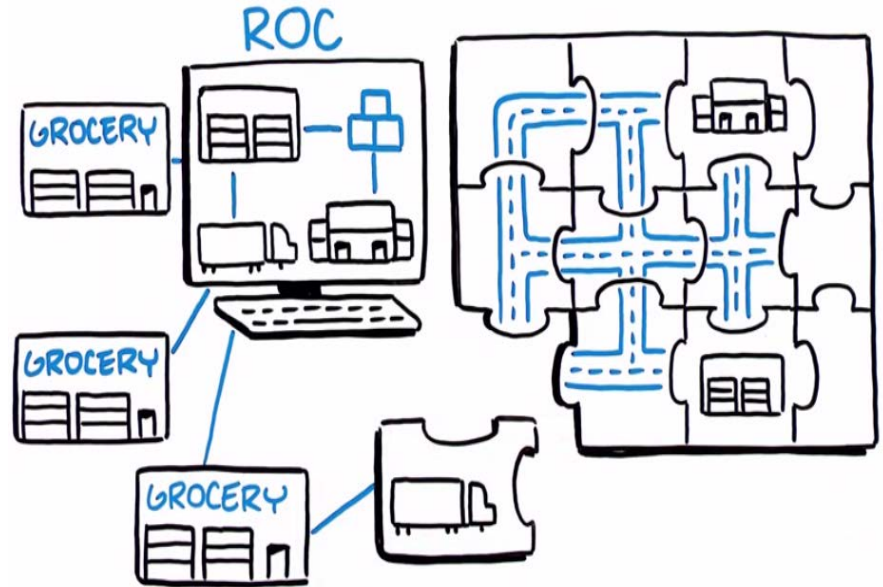The pallets are loaded into a truck and shipped to the supermarket.

Source: The Wall Street Journal

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Supply Chain

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Transportation
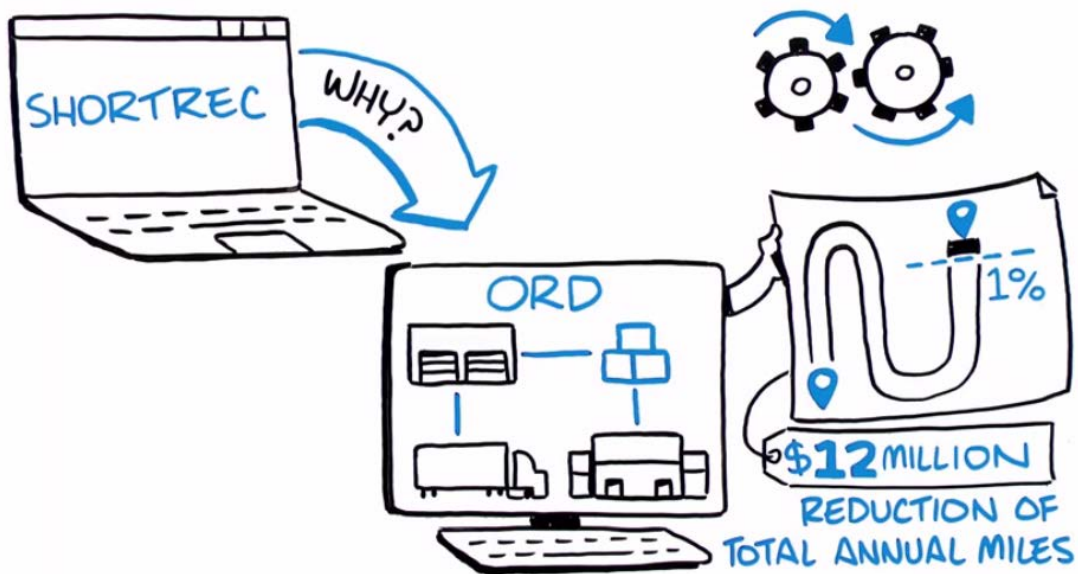## Centralized Routing

Centralized Routing

- **What is Centralized Routing?**
    - **CR moves routing from the local offices to a regional location.**
    - **Provides a "One Best Way"**

- **CR Improves**
    - **Quality**
    - **Speed: 30% Faster**
    - **Reliability**
    - **Overall Service to Stores**

Centralized Routing

- **Change in Software**
  - **Shortrec vs Ortec ORD**

Centralized Routing

- **How Does ORD Work?**
  - **Optimized routing engine with complex algorithms**
  - **0.75% less miles**
  - **+700 million miles/year**
  - **Save over $10M**

- **Multi-Stop Example**
  - **20 shipments**
  - **20x19x18x17…etc = 2.4Q**
  - **Variables/Regulations**

Centralized Routing

- **Strategic Change**
  - **Eliminate Local Office Manual Intervention**
  - **Total Supply Chain Analysis**
  - **Consistency**
  - **Bench Strength**

- **One Best Way Approach**
  - **Reinvest savings**
  - **Lead the way in retail**

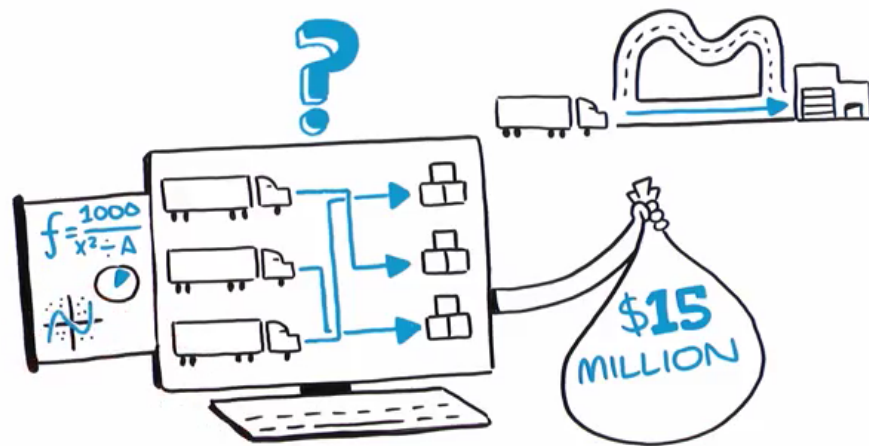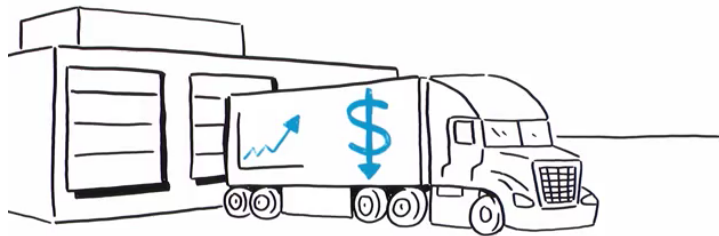**Update to the Metropolitan Washington Council of Governments TPB**

Transportation
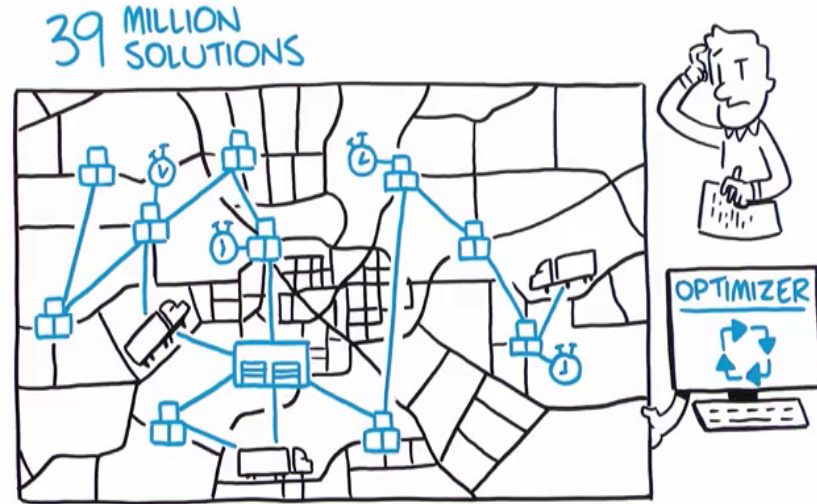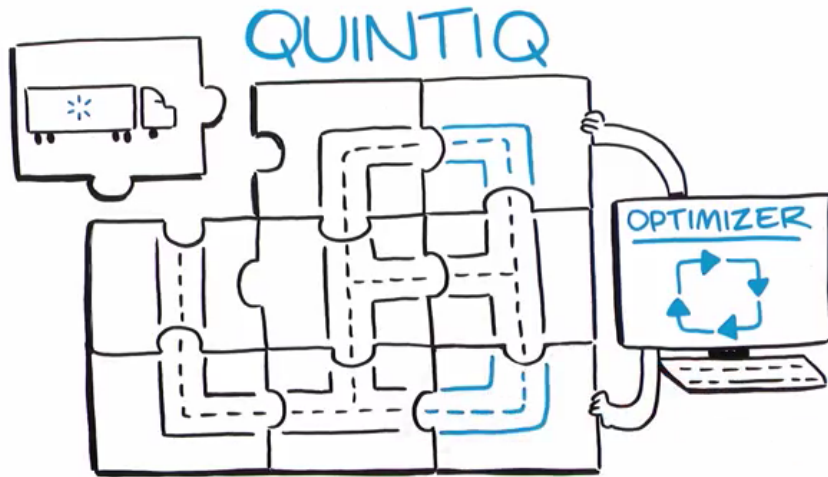## Optimized Dispatching

Optimized Dispatching

- **What is Optimized Dispatching?**

  - **Best Driver for Best Route given available hours and total workload**
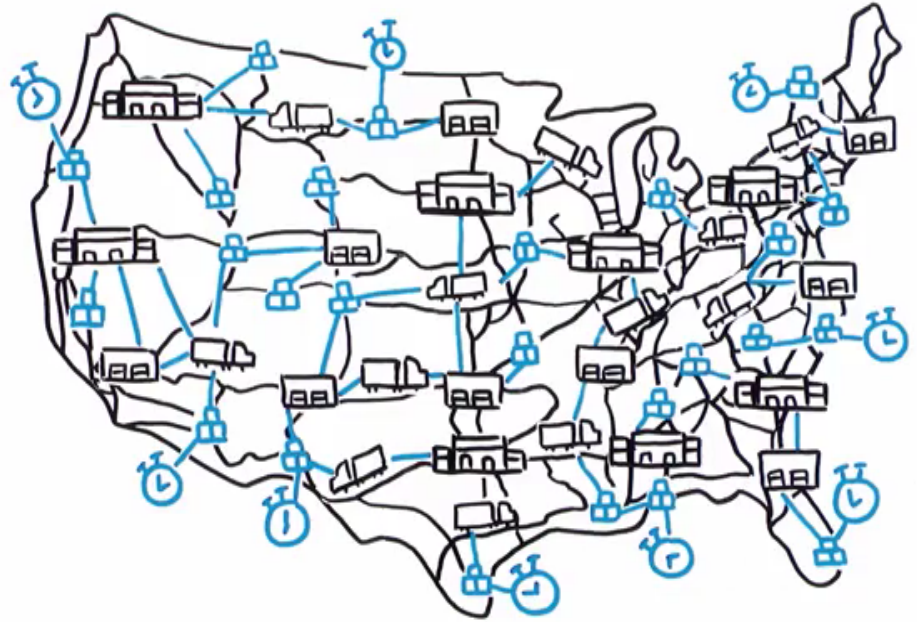
  - **Change in Private Fleet Strategy**

  - **Cost Savings**

Optimized Dispatching

- **How does Optimized Dispatching work?**
  - **Programmed by Quintiq**
  - **Traveling Salesman Example**
  - **Mitigates Constraints – Routes, Stores, Drivers**

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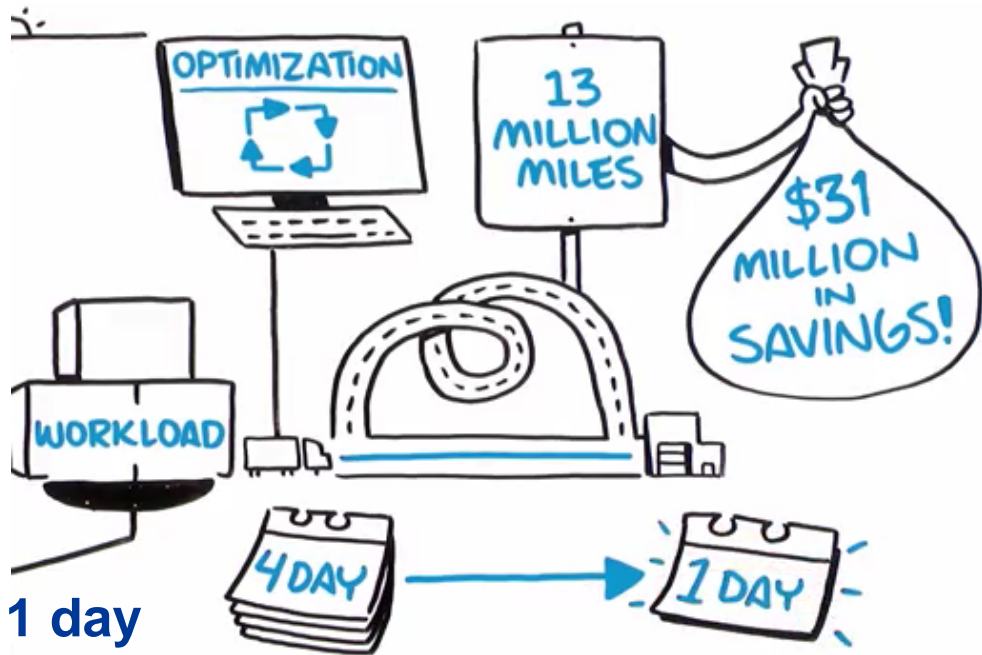
Optimized Dispatching

- **The Walmart Puzzle**

  - **186 Distribution Centers**

  - **5,300+ Stores**

  - **10,000+ Supplier Points**

  - **20,000 Trips per day**

  - **5,000+ Drivers**

Optimized Dispatching

- **Results**

  - **13M Miles Saved**

  - **$31M Saved**

  - **75% Acceptance Rate**

  - **Empty Miles reduced by 6%**

  - **Inbound Service: 4 days to 1 day**

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Questions or Comments?