RE-BALANCING INVENTORY ACROSS BUSINESS UNITS

Student: Hyuk Jin Cho, SCM 2019
Student: Ketan Lahoti, SCM 2019
Advisor: Bruce C Arntzen
Sponsor: CVS Health

MIT GLOBAL SCALE NETWORK

January 2019 Poster Session

Motivation / Background

- o DSCSA (Drug Supply Chain Security Act) Serialization for visibility and traceability in highly complex drug distribution network from manufacturers to consumers
- o Client's businesses operating on different inventory management systems currently
- o Opportunity to re-balance inventory with single window visibility of inventory across businesses

Key Question

- o Quantification of Inventory management benefits with central repository of inventory information across businesses post drug serialization

Relevant Literature

- o Inventory Models with Lateral Transshipments (Paterson, Kiesmüller, Teunter and Glazebrook, 2011)
- o Lateral Transshipment for perishable inventory Management (Nakandala, Lau & Shum 2017)

< An Inter Company Inventory Opportunity >

Boston Store 2:20 PM
My snowbird customers have gone to Florida for the winter so I'm overstocked on a lot if items until spring!

High Volume RX Mail Center 2:25 PM
Wow! We could use that inventory here at the mail center. Send it over!

Boston Store 3:45 PM
OK, it's on its way.

High Volume RX Mail Center 3:52 PM
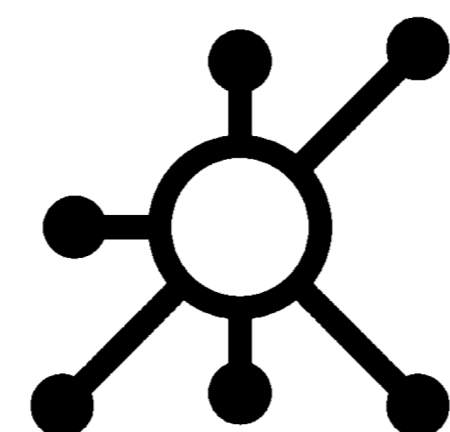Thanks, this will keep us from reordering and manage inventory better across the enterprise
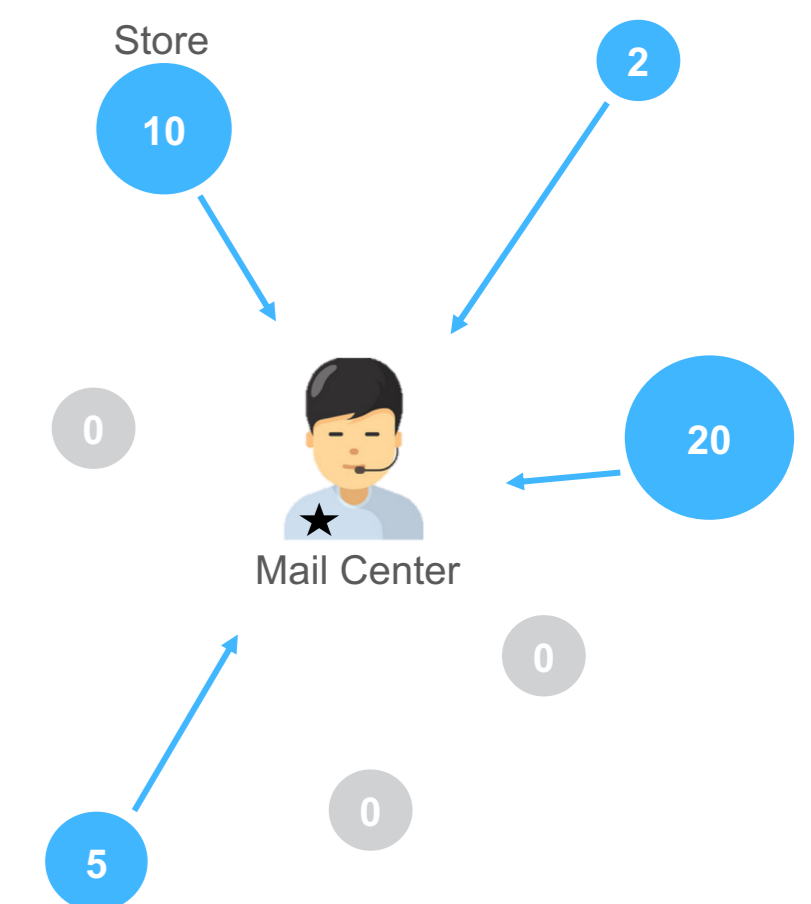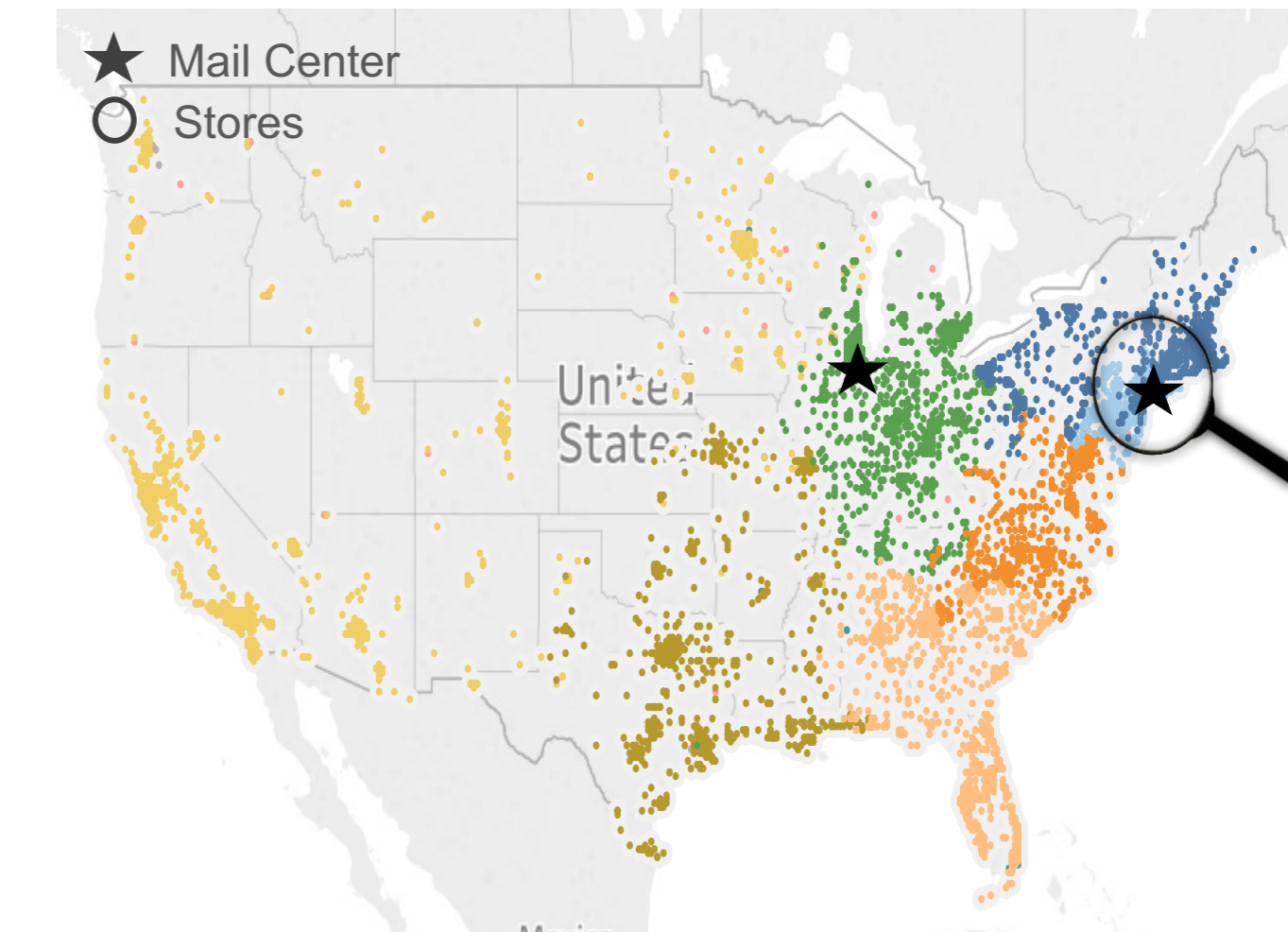
Boston Store

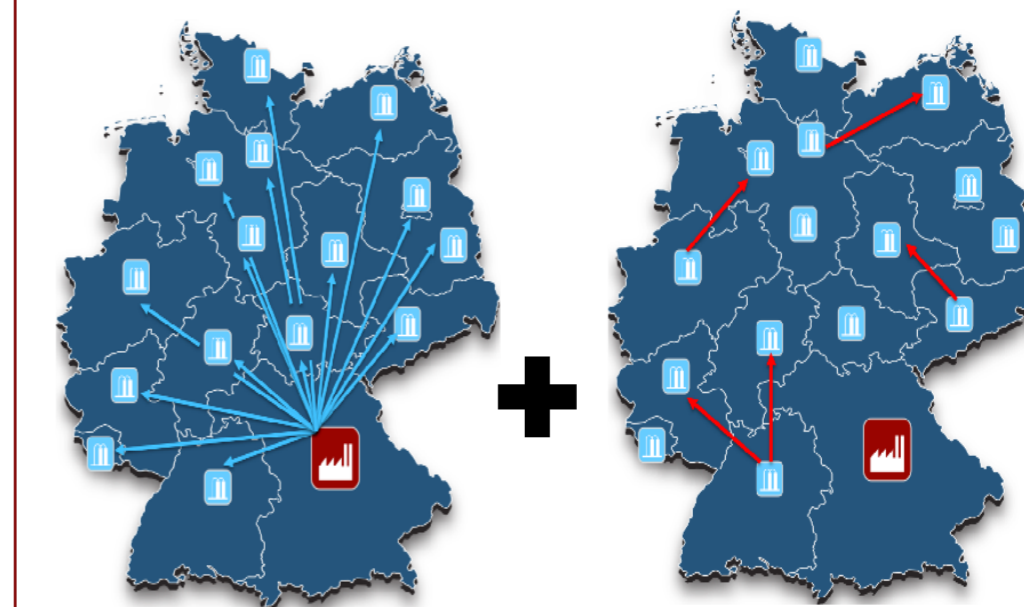**High Volume RX Mail Center**

Methodology

- o Identify individual outlet's inventory status
  - Convert current inventory in weeks of demand
  - Determine the excess quantity per outlet
- o Redistribute excess inventory from outlets to the mail centers (2 locations)
  - Minimum transportation cost model based on the quantity and the distance

Initial Results

★ Mail Center
○ Stores

Store
Mail Center

- o Determined the overall excessive of SKUs at various outlets
- o Tested the formulated optimization model and heuristic model at Area level

Expected Contribution

Distribution from Central Warehouse + Lateral Transshipments

- o Reduce inventory in the system with improved service levels
- o Devise lateral transshipment model across retail chain

Hyuk Jin Cho   Ketan Lahoti