

# Preliminary Investigation: Physical Internet on the Furniture Supply Chain

Jacob Cook  
Mohit Goyal

Sponsor Prof. Benoit Montreuil

# Agenda

- Introduction
  - Heuristic
  - Case Description
- Generated Data Case Analysis
  - Results
- Conclusions
  - Future Work

# Heuristic

- Vehicle Routing Problem
- Local Neighborhood Search
- Nearest Neighbor

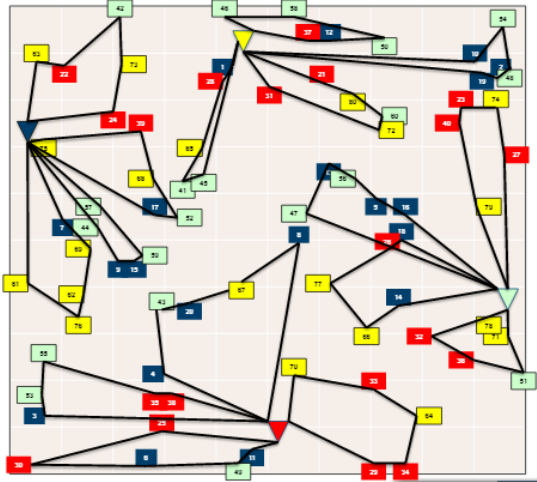
Introduction

Generated  
Data

Conclusion

# Case Description

|                |
|----------------|
| Introduction   |
| Generated Data |
| Conclusion     |



Case 1 (**Solo** Storage, **Solo** Distribution)

Case 2 (**Shared** Storage, **Solo** Distribution)

Case 3 (**Shared** Storage, **Shared** Distribution)

Case 4 (City **Mobile Cross docks**)

Case 5 (City **Distribution Center**)

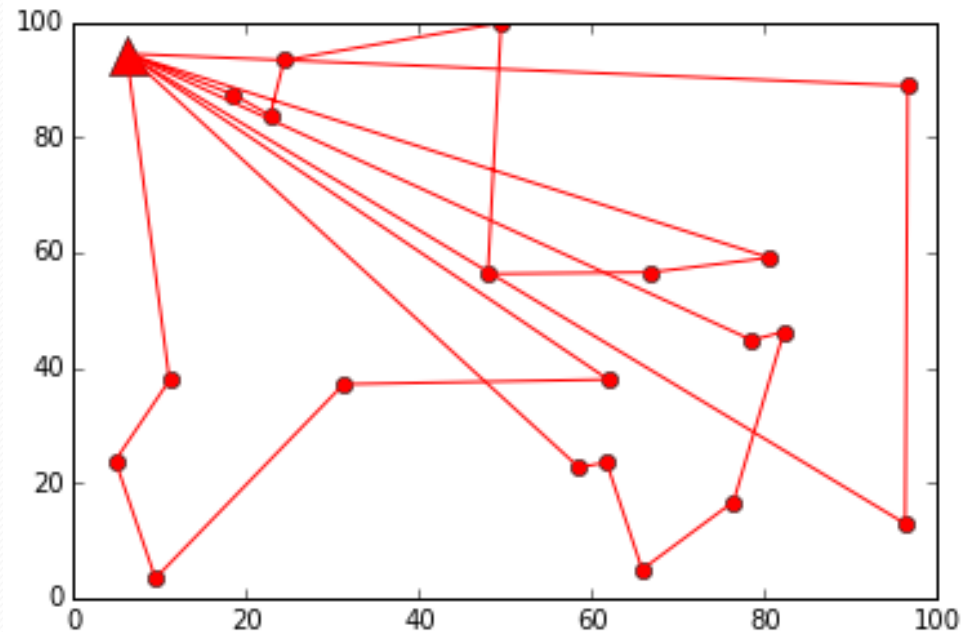
Case 6 (**Location Optimization** of DC)

- Optimizing all DCs together
- Optimizing one DC at a time



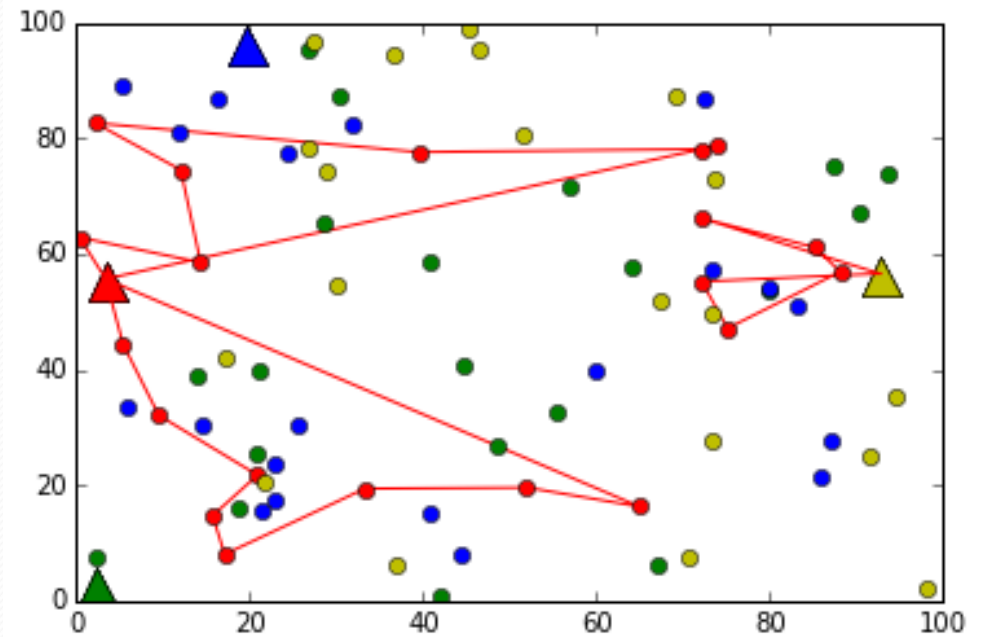
# Case 1 (Solo Storage, Solo Distribution)

- For 1000 Runs
  - Average Distance: 3255 km
  - Average Man Hours: 121 hrs



# Case 2 (Shared Storage, Solo Distribution)

- For 1000 Runs
  - Average Distance: 2410 km
  - Average Man Hours: 100 hrs



|                |
|----------------|
| Introduction   |
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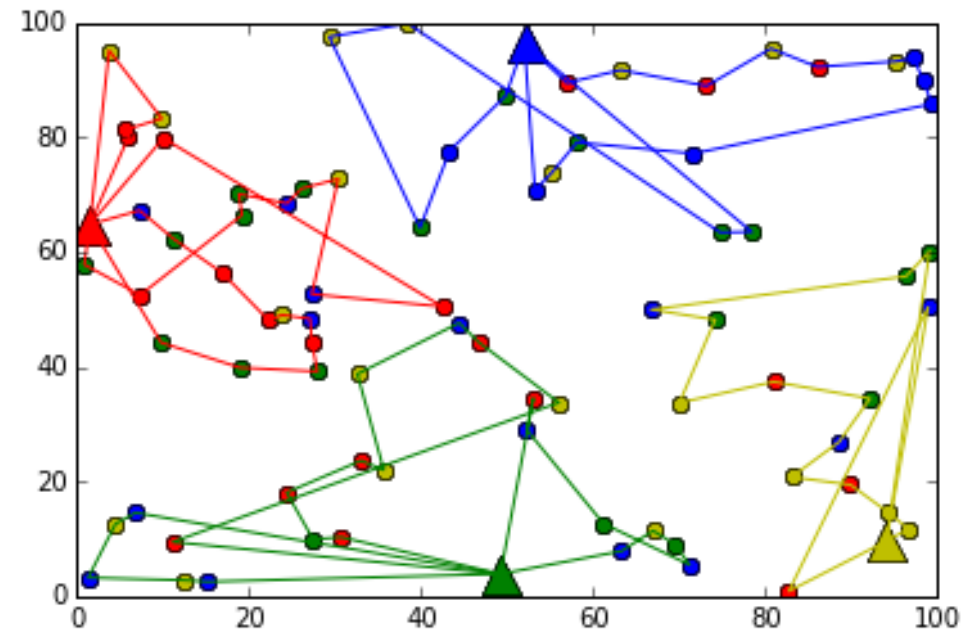
# Case 3 (Shared Storage, Shared Distribution)

- For 1000 Runs
  - Average Distance: 1310 km
  - Average Man Hours: 73 hrs

Introduction

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Conclusion





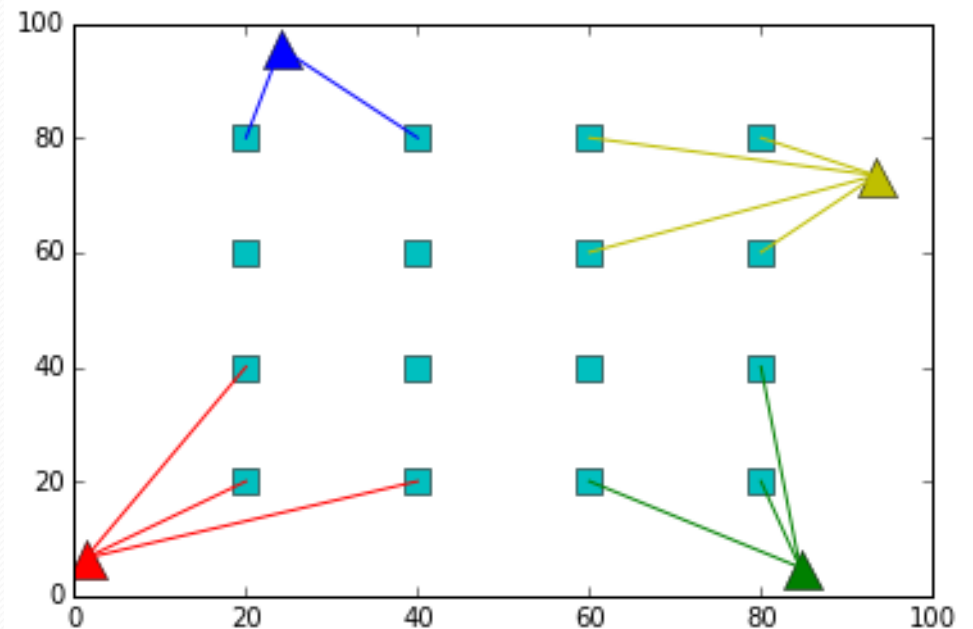
# Case 4 (City Mobile Cross docks)

Introduction

Generated Data

Conclusion

- For 1000 Runs
  - Average Distance:
    - Trucks: 245 km
    - Small Trucks: 1015 km
  - Average Man Hours
    - Truck: 6 hrs
    - Small Truck: 45 hrs





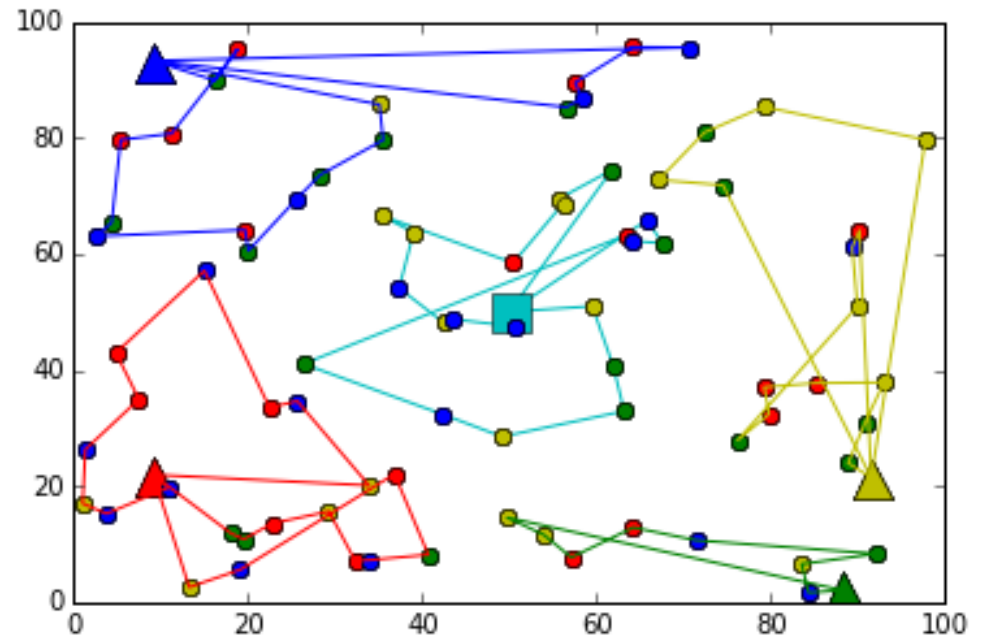
# Case 5 (5<sup>th</sup> Central DC)

- For 1000 Runs
  - Average Distance: 1270 km
  - Average Man Hours: 72 hrs

Introduction

Generated Data

Conclusion

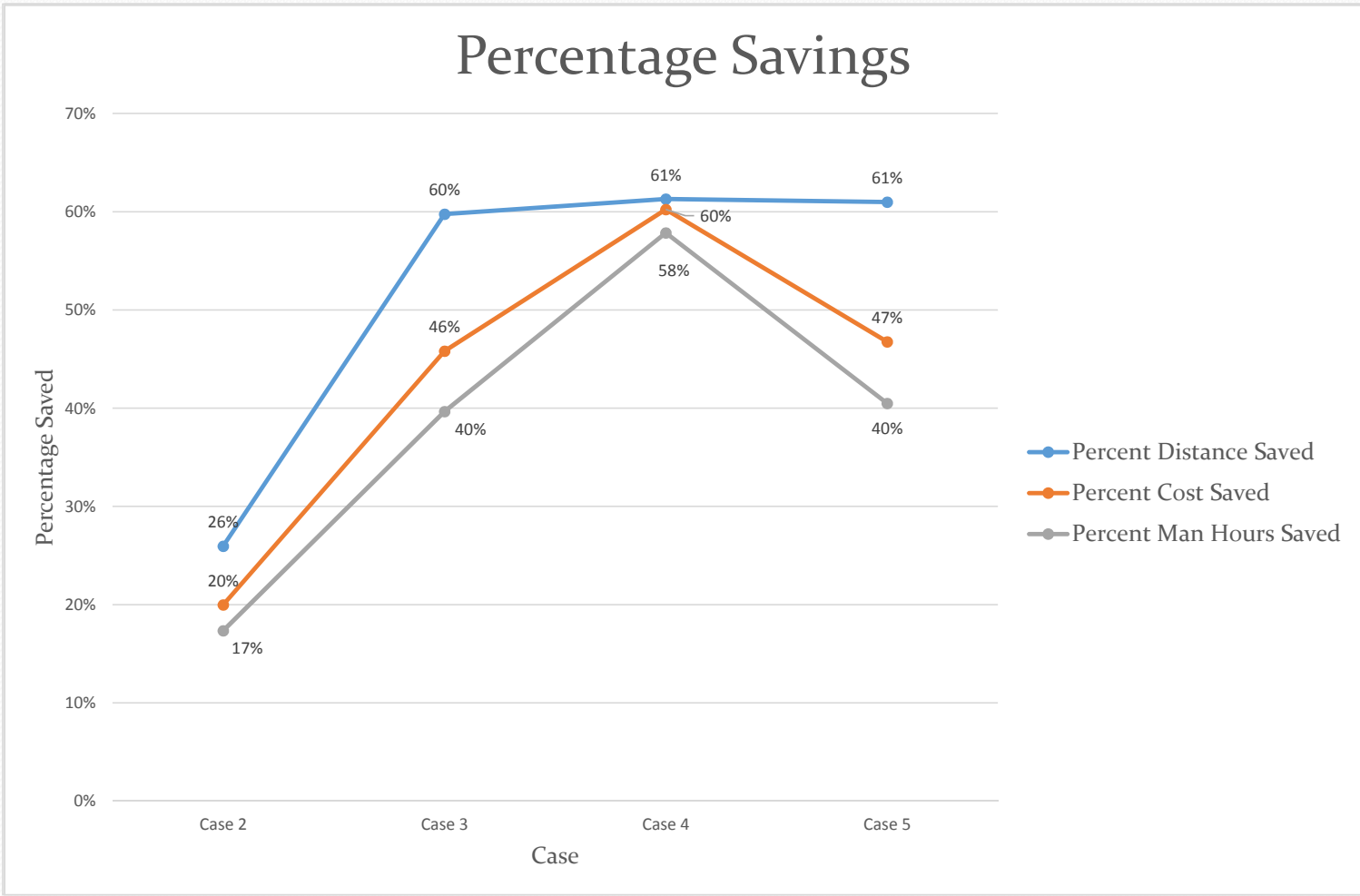


# Results

Introduction

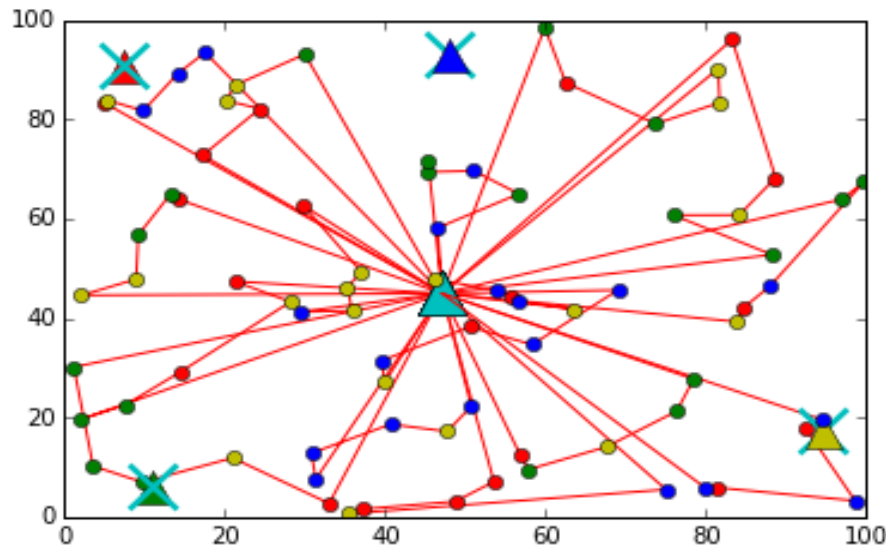
Generated Data

Conclusion

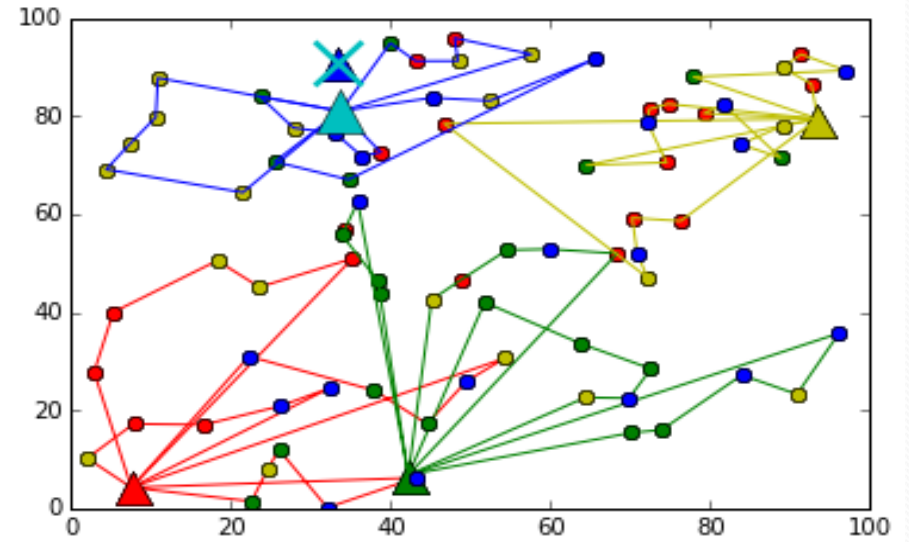


# Case 6 (Location Optimization of DC)

Case 6



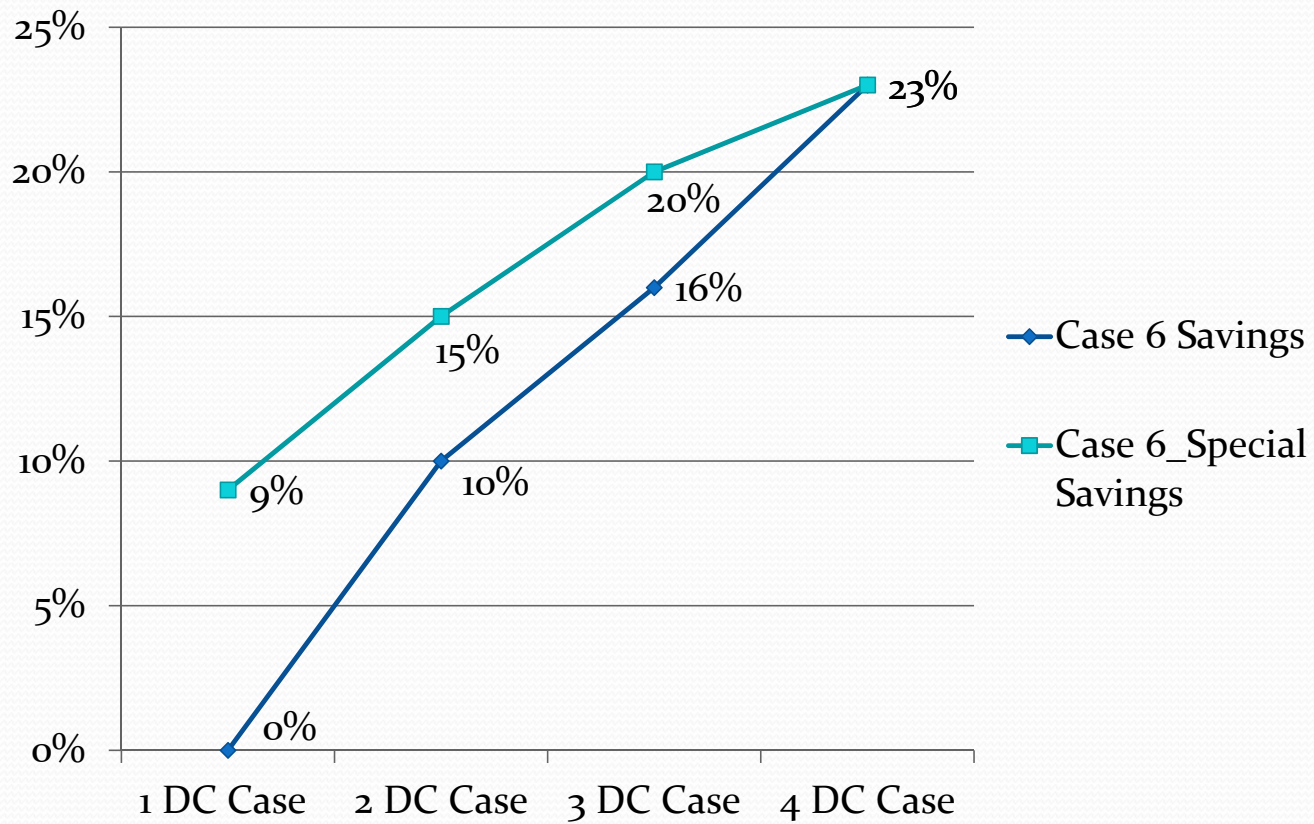
Case 6 Special



|                |
|----------------|
| Introduction   |
| Generated Data |
| Conclusion     |

# Case 6 (Location Optimization of DC)

- Introduction
- Generated Data
- Conclusion





# Conclusions

Introduction

Generated  
Data

Conclusion

- Move towards inter-connected Supply Chain
- Key Findings: Generated Data Case
- Future Work
  - Increase Scope from Last Mile up to First Mile
  - Analyze Truck Utilization
  - Software for various Scenarios
  - Integrate other Supply Chain Industries

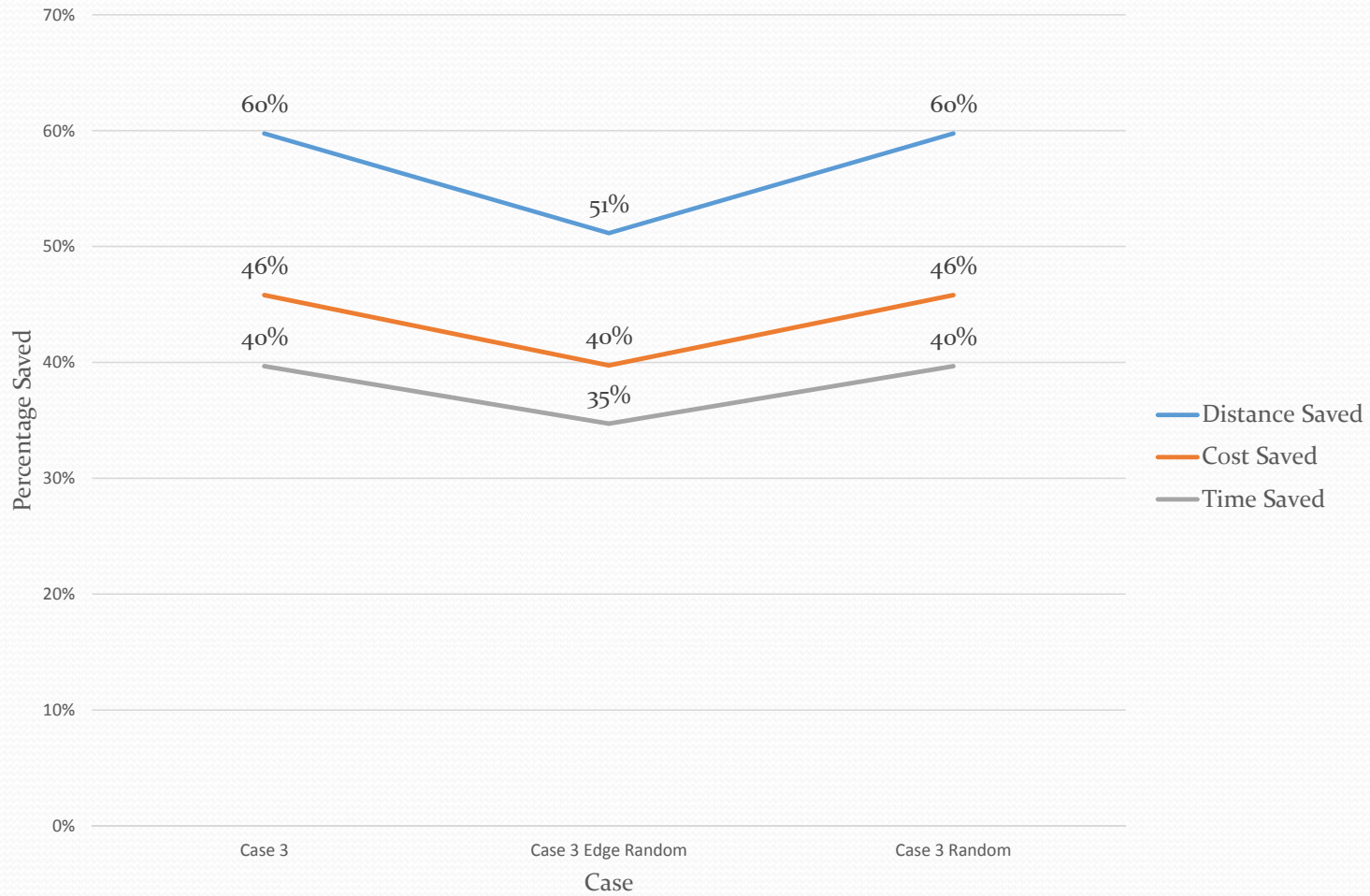




# BACK – UP SLIDES

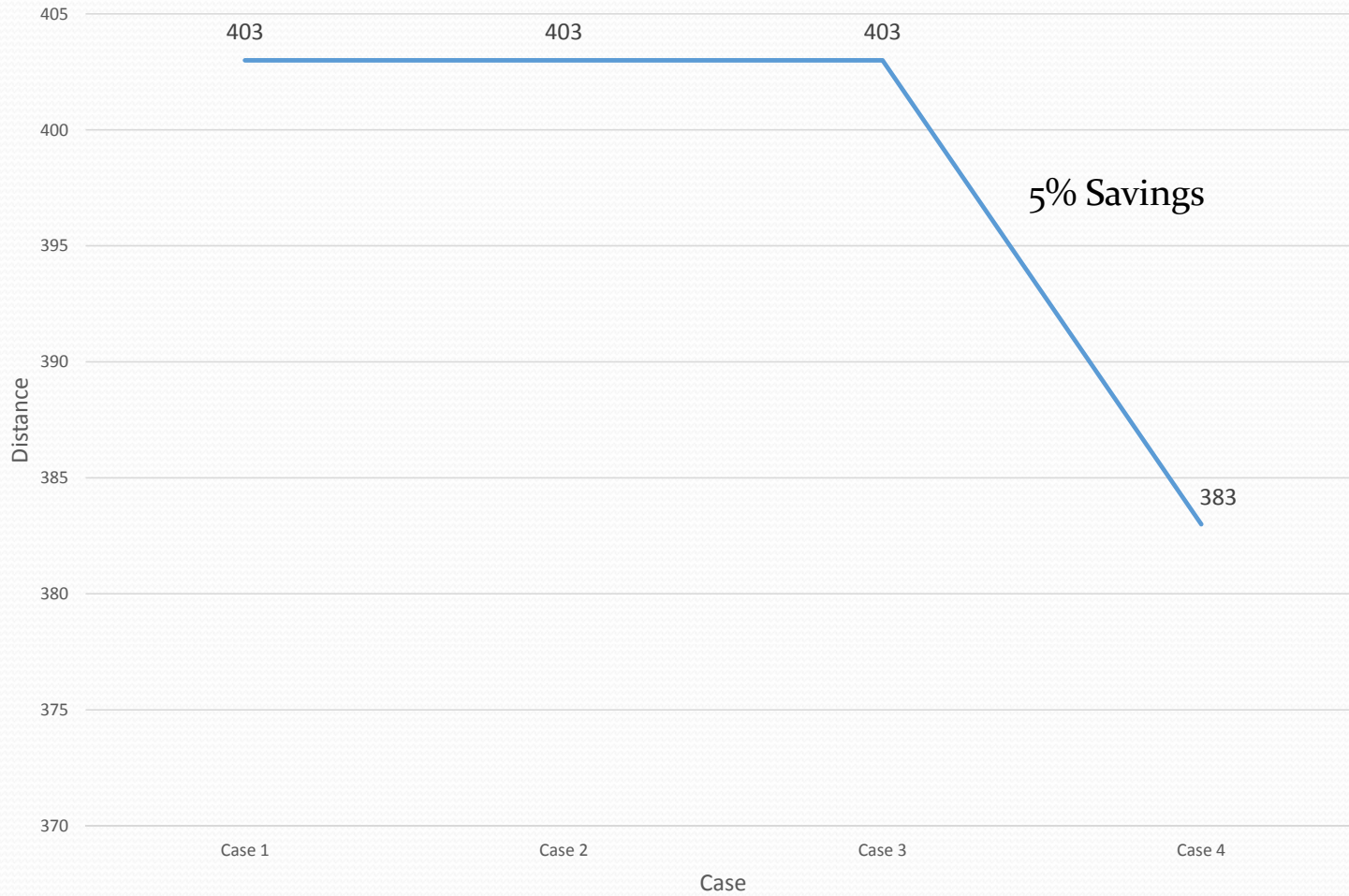


# DC Generation Scenarios

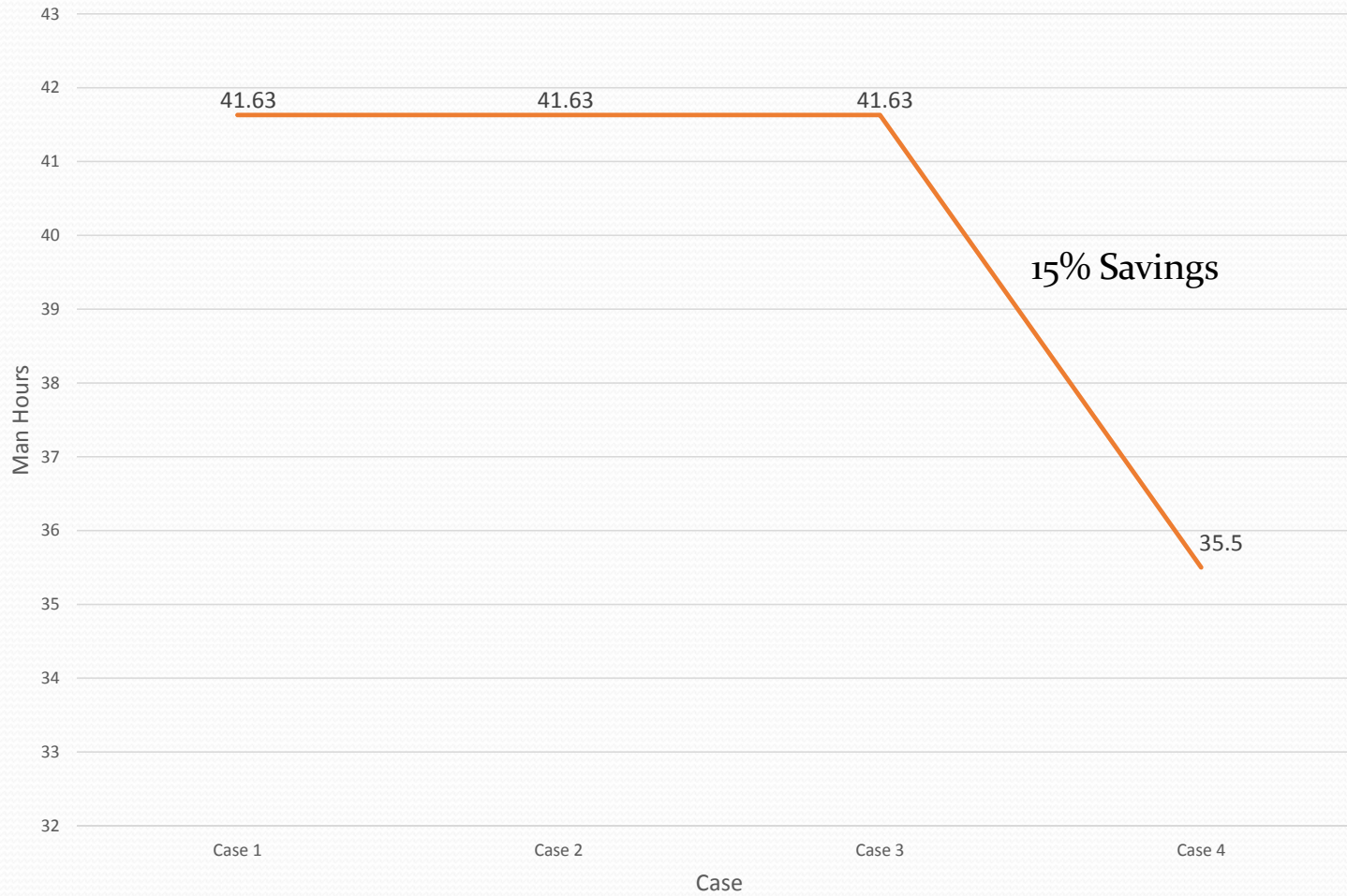




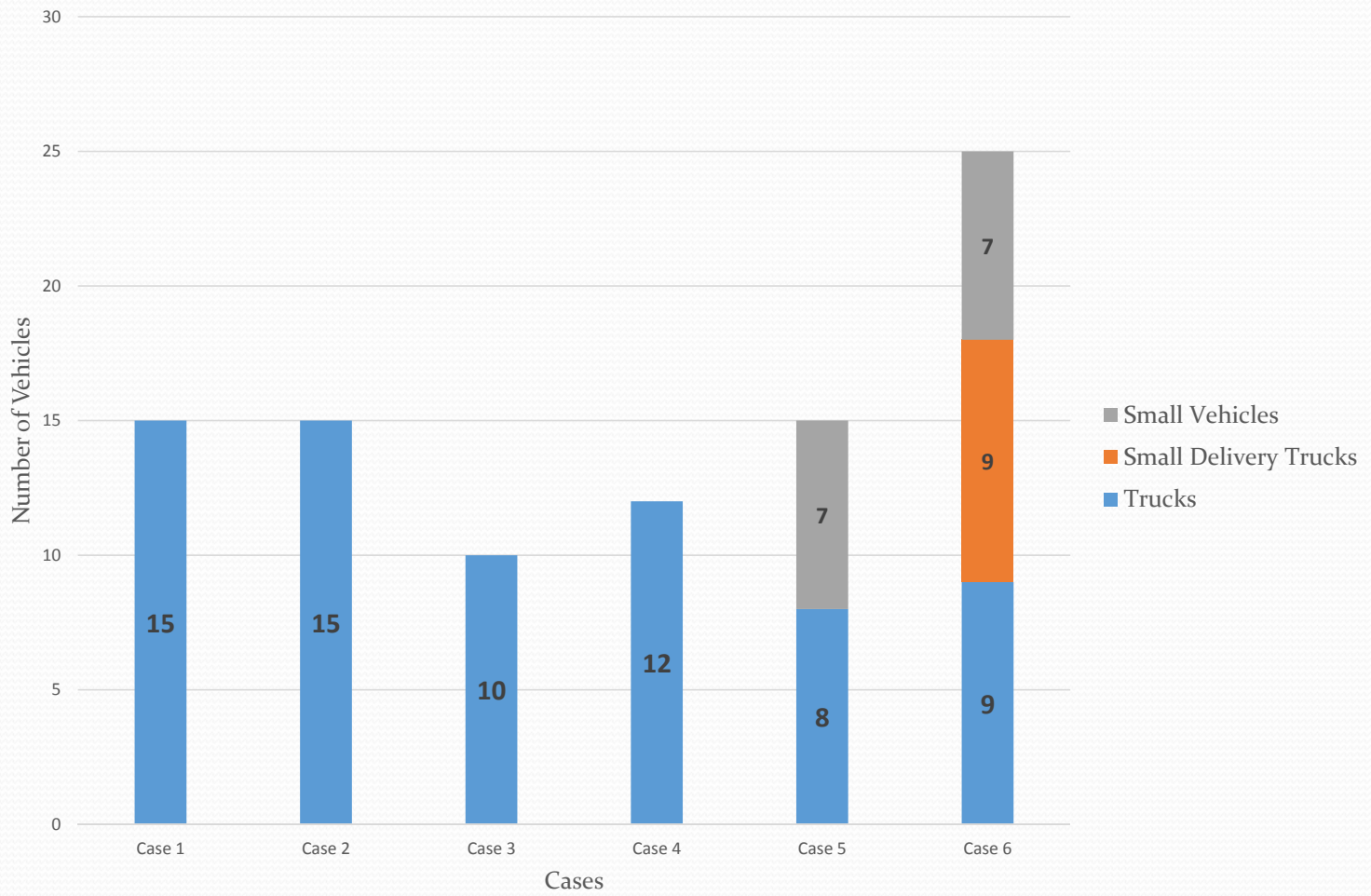
# "XXX" Distance



## “XXX” Man Hours Scenario



# Vehicle Chart





# PRELIMINARY INVESTIGATION OF THE IMPACT OF INVENTORY POLICY ON LAST MILE DELIVERY OF FURNITURE AND LARGE APPLIANCE UPON OPEN ASSET SHARING: SIMULATION-BASED APPROACH

NAYEON KIM AND BENOIT MONTREUIL

*GEORGIA INSTITUTE OF TECHNOLOGY*



3rd International Physical Internet Conference, June 29 – July 1, 2016

*Workshop TAI: Hyperconnected Logistics Experiments in Home Fashion, Furniture and Appliance Supply Chains*



# BACKGROUND

- Last-mile Delivery
  - The most expensive logistic operations
  - Directly related to customer experience
  - Increase with E-commerce
  - Considerable social and environmental impact in urban area  
e.g. traffic congestion, air pollution



Source: <http://amm.clubmetropolitan.ro/structures/auto-draft/>

- Furniture and Large Appliances
  - Large, heavy items
  - White-glove services
    - Delivery and install time



Source: <http://kndelivery.com/> (left)



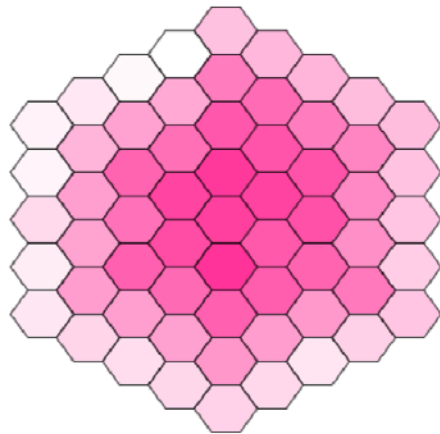
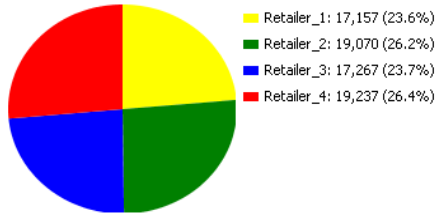
<http://www.ufwinc.com/furniture-delivery-fees-united-furniture-warehouse/> (right)

# BACKGROUND: RESEARCH QUESTIONS

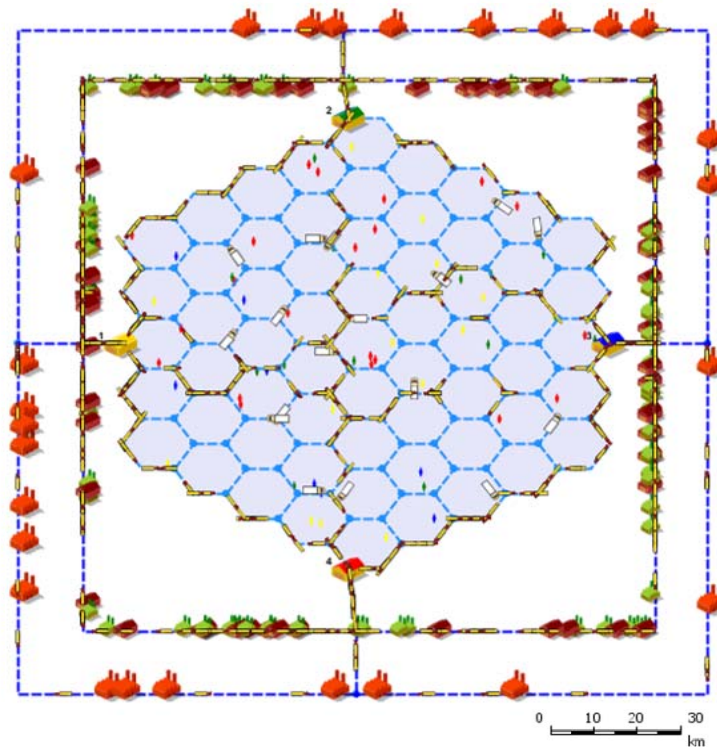
- Is the efficiency of logistics operations when assets are shared affected by the policies of participating companies? If so, how much?
- What would be the potentially best operating policies for companies in the new logistics environment?

# SIMULATION DESIGN: VIRTUAL CITY




Cumulative Demand by Retailer





Demand Density Representation



## Manufacturers:

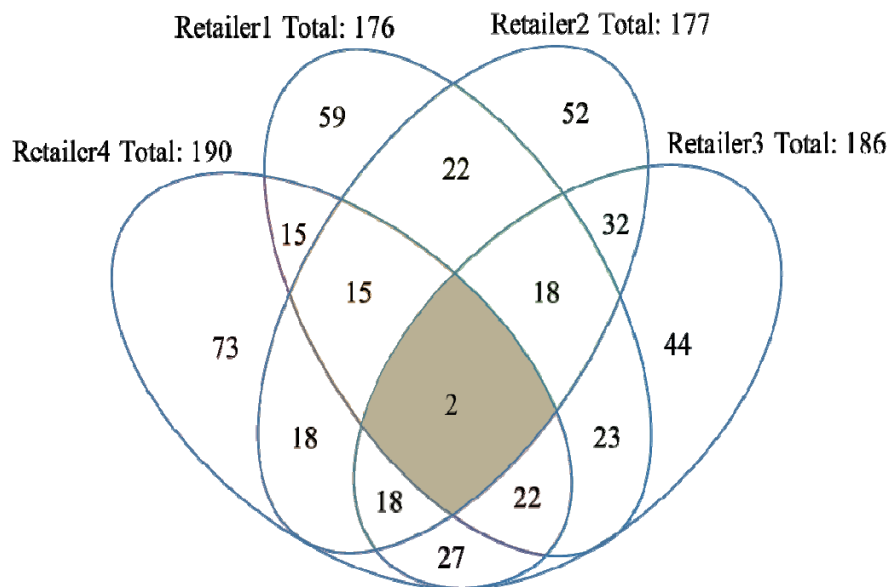
-  Onshore / Make-to-Stock
-  Onshore / Make-to-Order
-  Onshore / Make-to-Order

## Delivery Trucks:

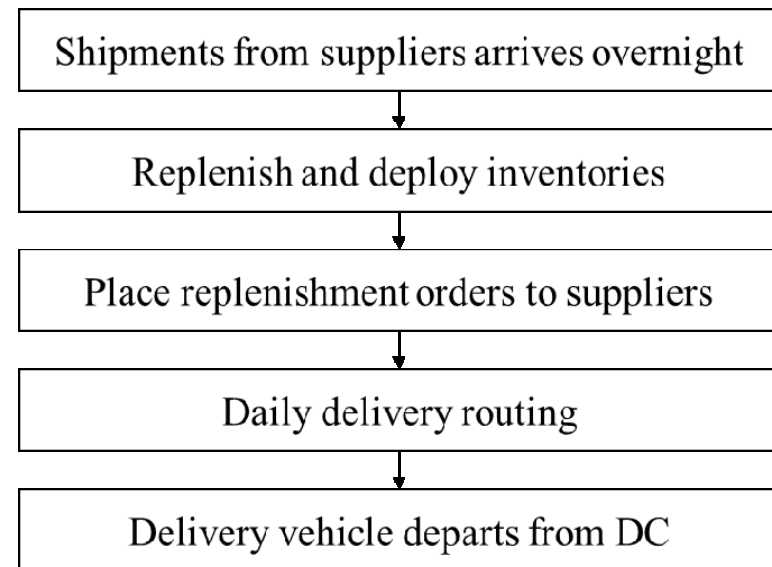
-  Long-haul Delivery Truck
-  Last-mile Delivery Truck
  - 50 km/hr (on main roads)
  - 40 km/hr (in a district)

# SIMULATION DESIGN: INVENTORY

## Product Portfolios (# of products)



## Daily Operation Routine of Retailers



- Product lead time (days): 1-7 (Onshore/MTS), 8-29 (Onshore/MTO), 30-90(Offshore/MTO)
- Demand: Poisson( $\sum \lambda_i = 20$ ) per retailer
- Service Level > 0.99



# SIMULATION DESIGN: ROUTING HEURISTICS

- Routing Constraints:
  - Inventory, Tour time (8 hours), Volume/Weight capacity (70% of 17ft truck)
  
- Routing heuristics
  - 1) **Assign** each customer to DCs with inventory available greedily
    - a) Calculate distance to the nearest DC where inventory is available for each remaining customer
    - b) Assign a customer with the smallest distance to the DC
    - c) Update inventory availability and assigned/remaining customer list
    - d) Repeat a-c until all customers are assigned to a DC
  - 2) Construct route with **CW heuristic** among each group e.g. assigned to the same DC
  - 3) Improve route with **Intra-route 2-opt and Or-opt, Inter-route Or-opt and SWAP**
    - A. For each route, apply 2-opt and Or-opt with best improvement to local optima in sequence
    - B. For all routes, apply inter-route Or-opt and SWAP with best improvement to local optima in sequence
    - C. Repeat A-B until no improvement is found

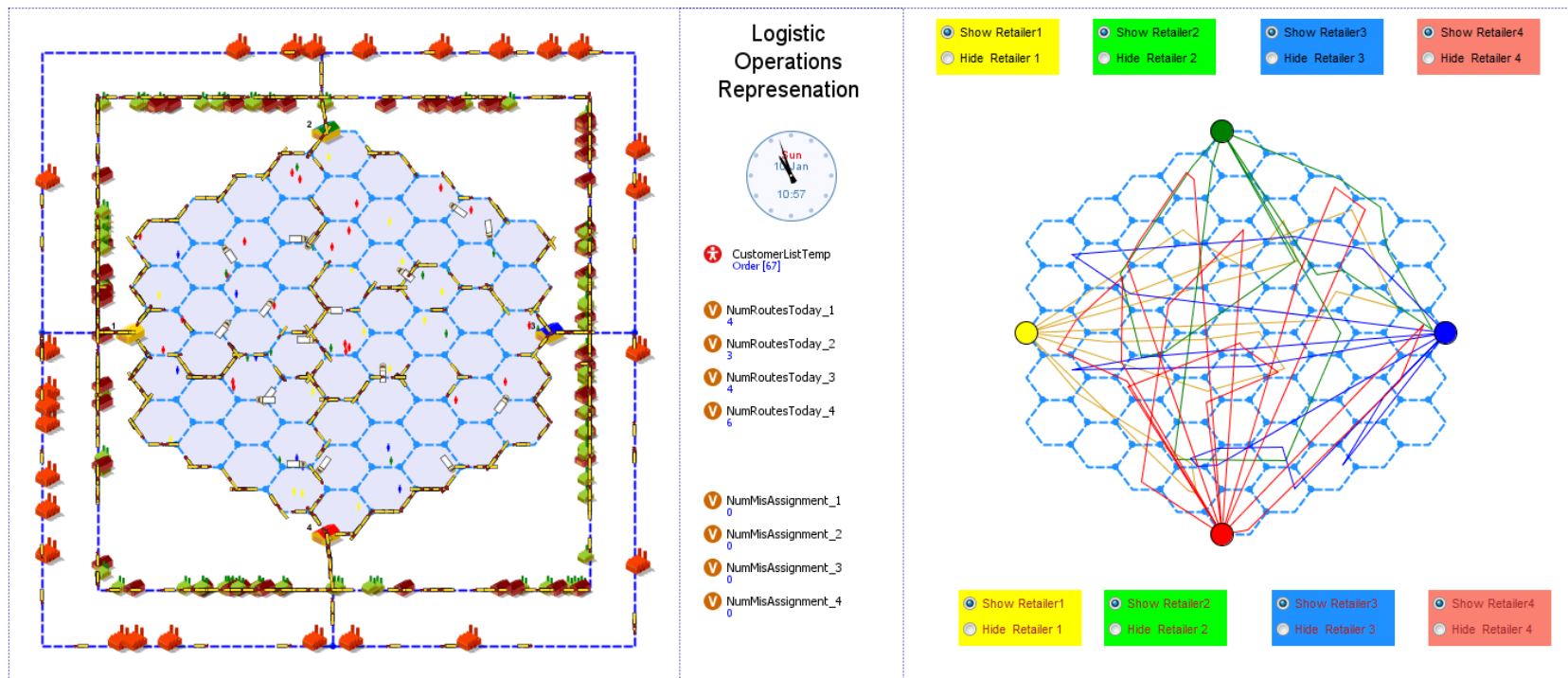
# SCENARIO ANALYSIS

| Scenario ID | Open Asset Sharing |          | Inventory Deployment Strategy |                       | Inventory Information Disclosure |                      | Inventory Borrowing |
|-------------|--------------------|----------|-------------------------------|-----------------------|----------------------------------|----------------------|---------------------|
|             | Storage            | Delivery | One-time Placement            | Overnight Deployment* | Minimum Disclosure               | Selective Disclosure |                     |
| 1           | -                  | -        | -                             | -                     | -                                | -                    | -                   |
| 2a          | ○                  | -        | ○                             | -                     | -                                | -                    | -                   |
| 2b          | ○                  | -        | -                             | ○                     | -                                | -                    | -                   |
| 3a          | ○                  | ○        | ○                             | -                     | ○                                | -                    | -                   |
| 3b          | ○                  | ○        | -                             | ○                     | ○                                | -                    | -                   |
| 4a          | ○                  | ○        | ○                             | -                     | -                                | ○                    | -                   |
| 4b          | ○                  | ○        | -                             | ○                     | -                                | ○                    | -                   |
| 5a          | ○                  | ○        | ○                             | -                     | -                                | ○                    | ○                   |
| 5b          | ○                  | ○        | -                             | ○                     | -                                | ○                    | ○                   |

\* Overnight Deployment stands for forecast-based overnight deployment

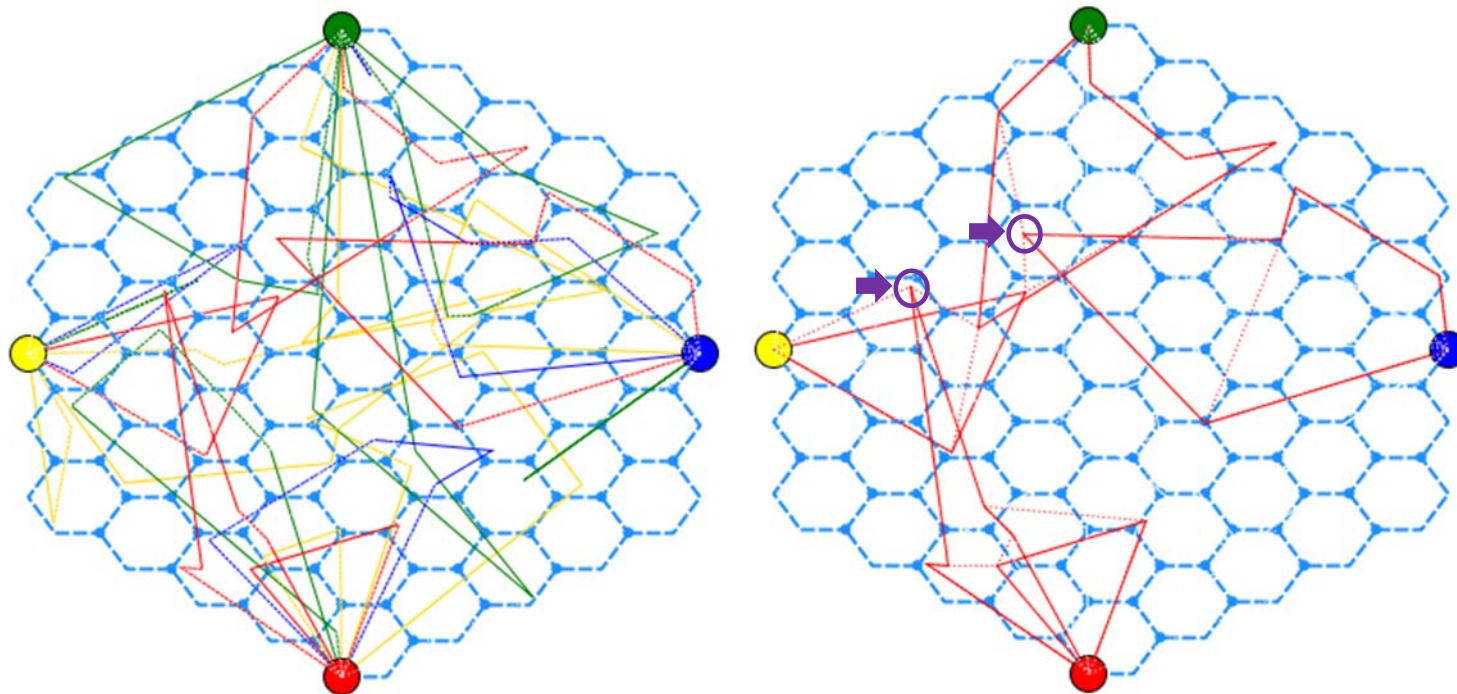
- Performance measures: Last-mile delivery travel distance, # of delivery vehicles used
- Simulation run for 2 years (730 days) after 6 months of warm-up period

# SCENARIO I: INDEPENDENT OPERATION



- Routes are colored by retailer

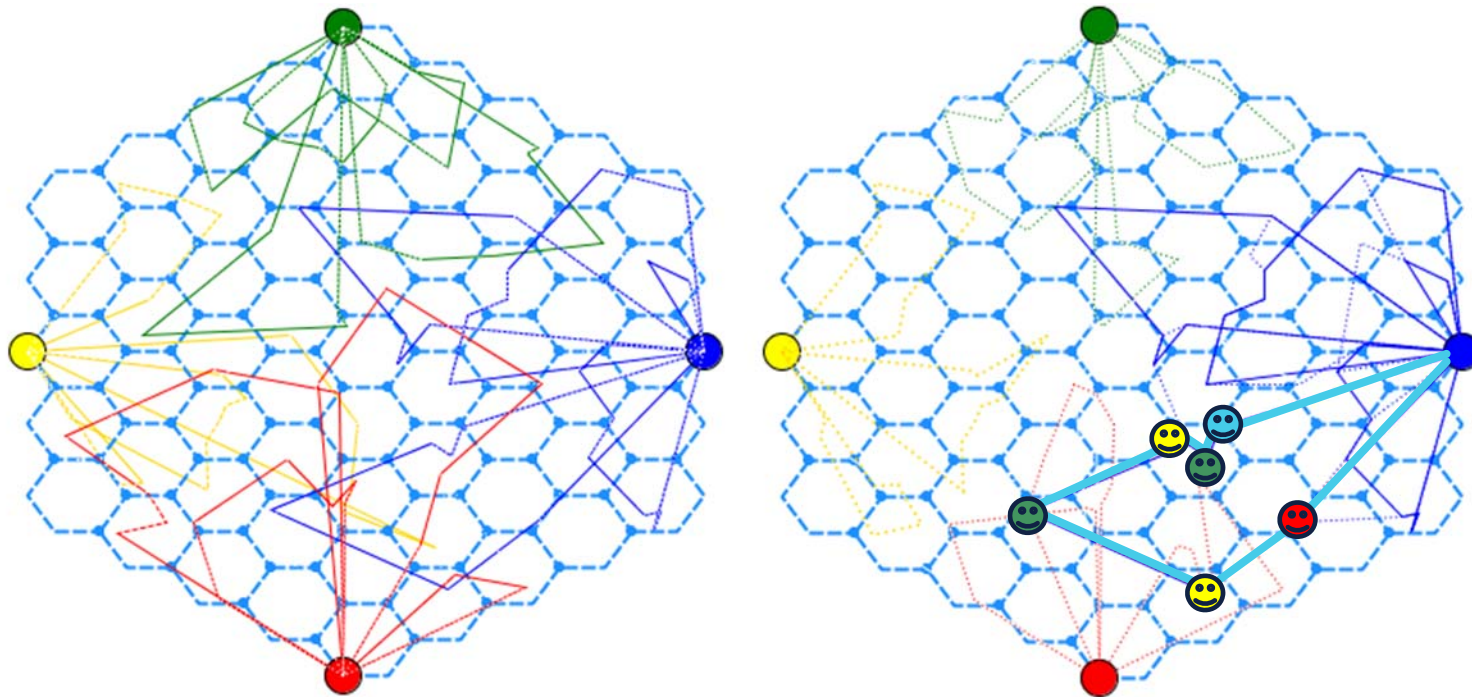
## SCENARIO 2: SHARED STORAGE



- Routes are colored by retailer
- Solid line for actual routes and dotted line for routes with order-based overnight deployment

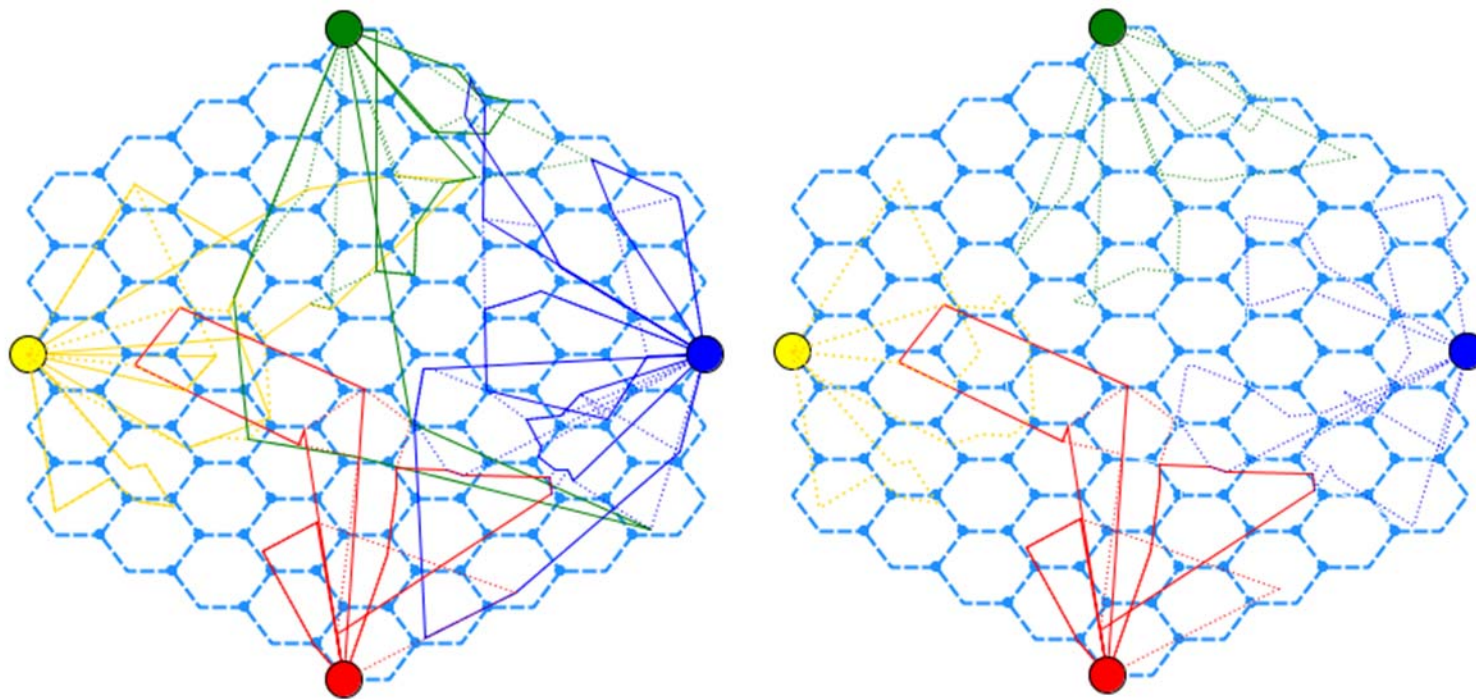


## SCENARIO 3: SHARED DELIVERY / MIN INFO DISCLOSURE



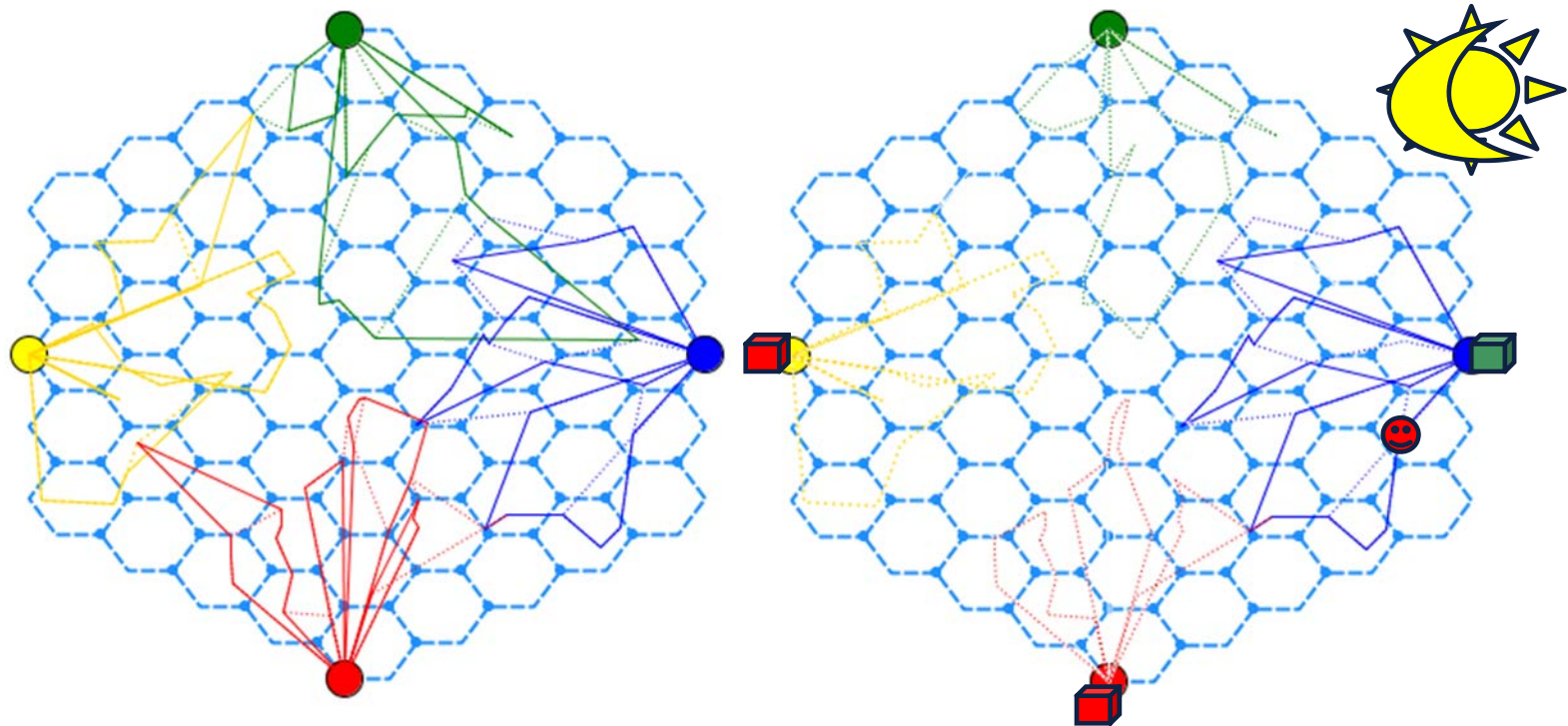
- Routes are colored by departing DC
- Solid line for actual routes and dotted line for routes with order-based overnight deployment

## SCENARIO 4: SHARED DELIVERY / SELECTIVE INFO DISCLOSURE



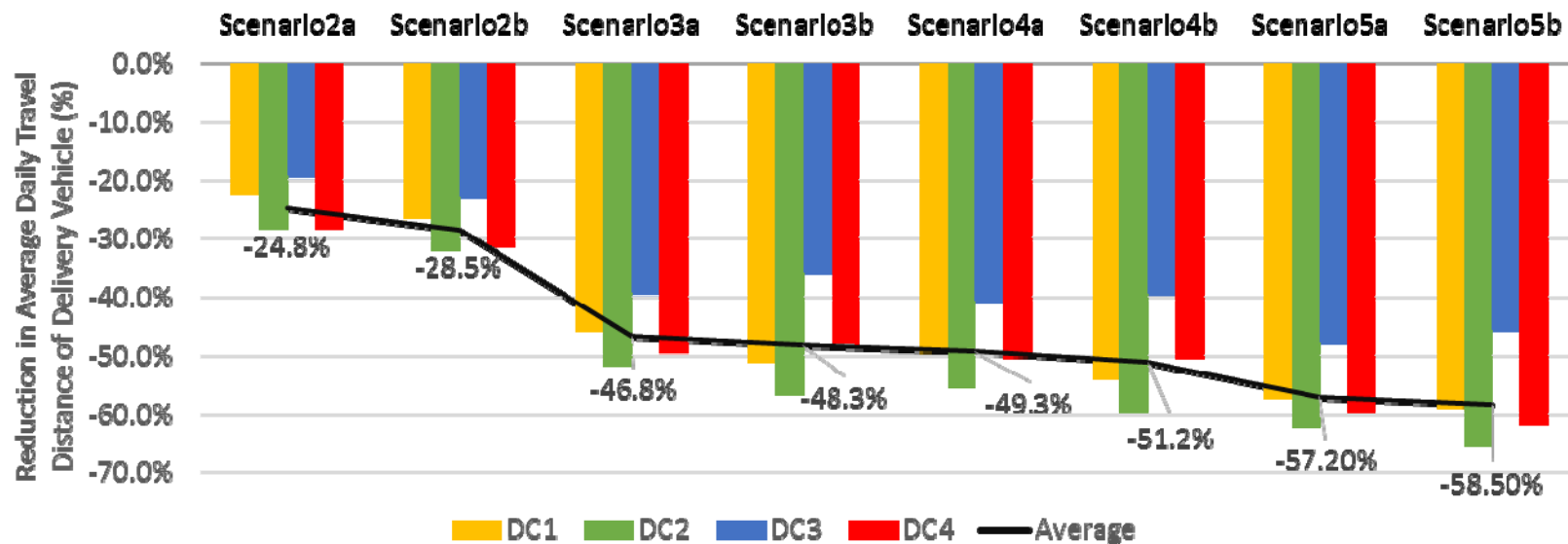
- Routes are colored by departing DC
- Solid line for actual routes and dotted line for routes with order-based overnight deployment

# SCENARIO 5: INVENTORY BORROWING



- Routes are colored by departing DC
- Solid line for actual routes and dotted line for routes with order-based overnight deployment





# SIMULATION RESULTS: LAST-MILE TRAVEL DISTANCE



- Significant reduction by sharing strategy
- Additional Reduction by deployment strategy

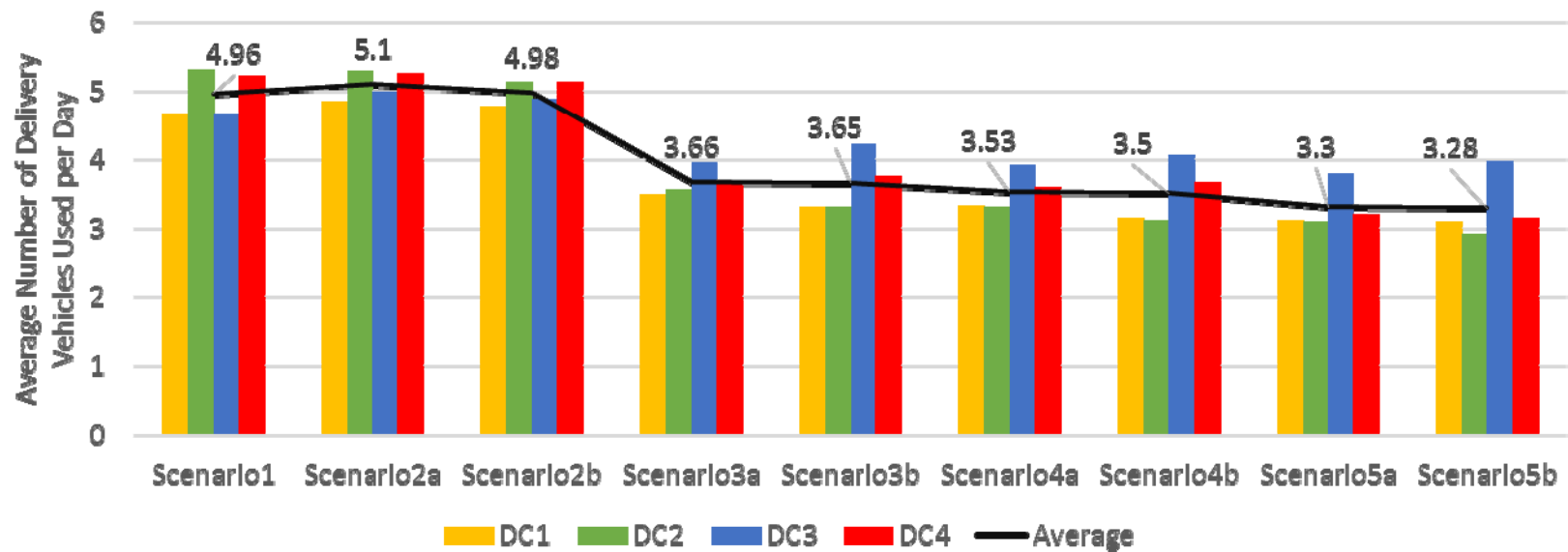


# SIMULATION RESULTS: LAST-MILE TRAVEL DISTANCE

| Scenario ID  | Forecast-based   |   | Order-based          |
|--|--|---|----------------------|
|  | One-time Placement   | Overnight Deployment  | Overnight Deployment |
| 1  | 0%   | -   | -                    |
| 2  | -25%   | -29% (-5%)  | -41% (-17%)          |
| 3  | -47%  -5%   | -48% (-3%)  -6%  | -63% (-29%)          |
| 4  | -49%  -16% | -51% (-4%)  -15% | -64% (-25%)          |
| 5  | -57%   | -59% (-3%)  | -64% (-13%)          |
| <b>Average Fraction of Misassignment (Scenario 2-4 / Scenario 5)</b> | <b>21% / 9%</b>  | <b>17% / 7%</b>   | <b>0%</b>            |

- Smart inventory deployment can improve delivery efficiency
  - Up to 29% marginal savings and up to 64% savings compared to baseline
- Disclosing information** and **borrowing inventory** can bring additional improvement

# SIMULATION RESULTS: USE OF LAST-MILE DELIVERY VEHICLES



- Number of delivery vehicles used can be reduced significantly by sharing delivery
- Marginal reduction by inventory deployment policy is insignificant
- Preference gap between DCs becomes more visible as routing flexibility increases

# LIMITATIONS

- **Cost of inventory deployment** is not counted
- The number and location of DCs can be optimized
- Another type of facilities, e.g. Pi-hubs, can be added
- Different type of products or mixed product types can be investigated

# CONCLUSIONS

- Openly sharing logistics assets (storage, delivery) can improve last mile delivery performance e.g. up to 64% reduction in travel distance
- Smart inventory deployment policy can affect the delivery performance in open shared operation environment e.g. up to 29% marginal reduction compared to one-time inventory placement
- Degree of information disclosure affects routing performance
- Sharing inventory between retailers can bring significant improvement under same inventory deployment policy if inventories are not perfectly deployed as in order-based overnight deployment
- Potential imbalance of preference among open assets and different benefits for participants can hinder the efficient utilization of the new system
- Operational protocols must be designed carefully to address different preferences on logistic assets and non-identical gains of participating companies





THANK YOU 😊



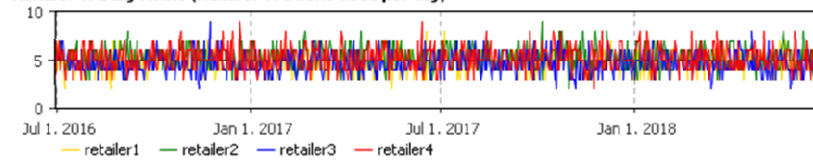
# CONTENTS

- Background
- Simulation Design
- Scenario Analysis
- Results
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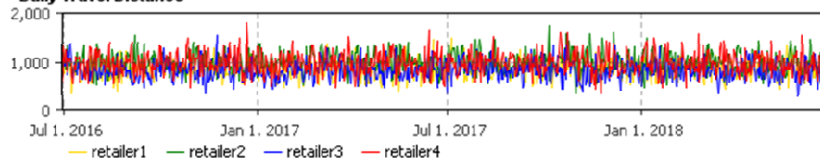
# SIMULATION RESULTS

## Simulation Results

Number of Daily Route (Number of trucks used per day)



Daily Travel Distance

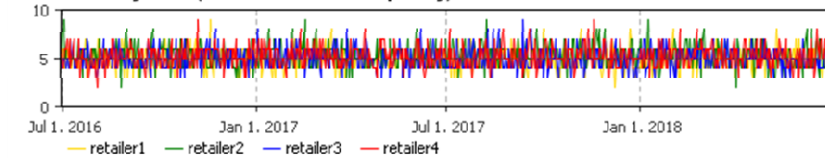


Fraction of Customers Assigned Not to the Nearest DC

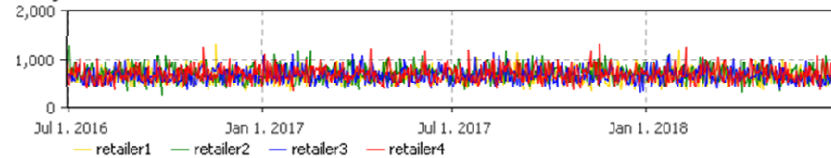


## Simulation Results

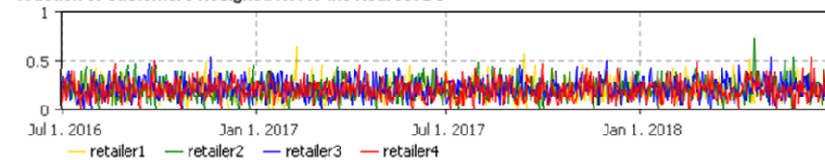
Number of Daily Route (Number of trucks used per day)



Daily Travel Distance

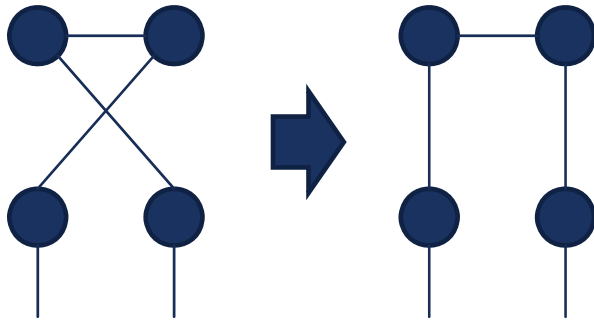


Fraction of Customers Assigned Not to the Nearest DC

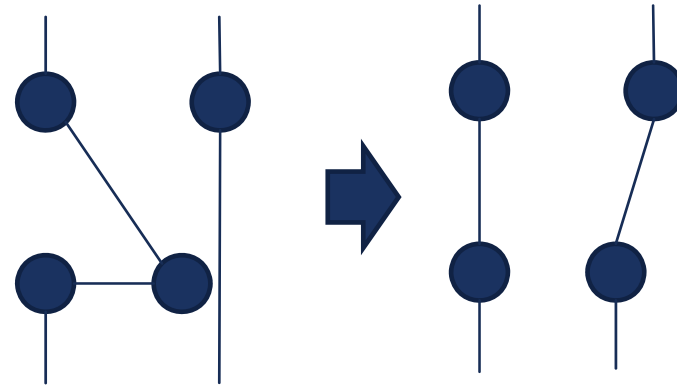


# SIMULATION DESIGN: ROUTING HEURISTICS

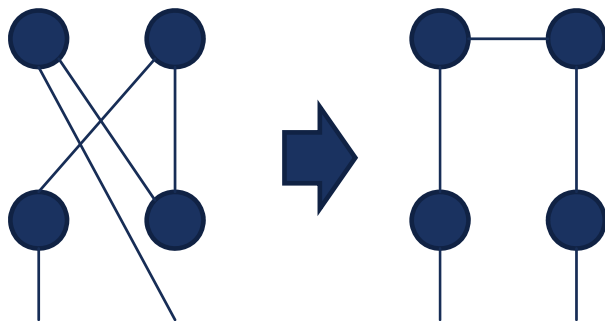
## ■ Intra-route 2-opt



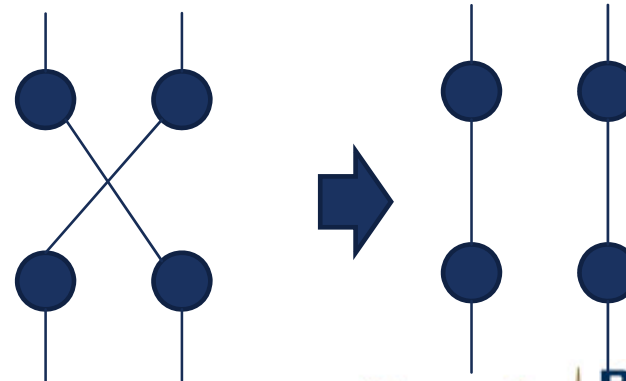
## ■ Inter-route Or-opt



## ■ Intra-route Or-opt



## ■ Inter-route SWAP







**International Physical Internet Conference Atlanta 2016**

**Daniel Pronovost**

- Director Home Delivery Operations Sears Canada Inc.
- 20 yrs experience big ticket retail
  - Sales
  - Operations
  - Supply Chain
  - Logistics
  - Customer Service
- Large national retailers such as Hudson Bay Company and Sears Canada Inc.
- Regional retailers such as Appliance Canada, Corbeil and Wise Buy Home

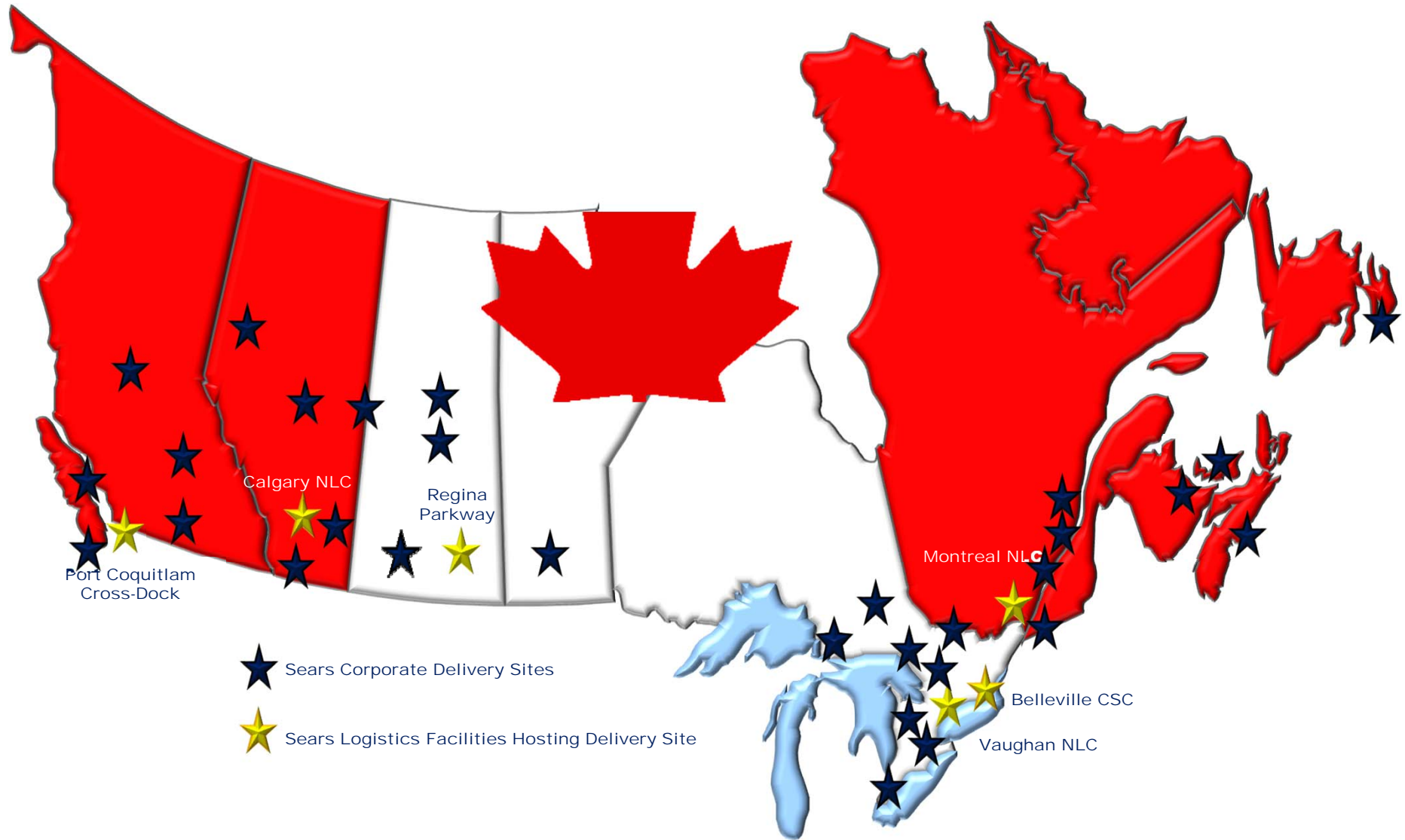
## Who is Sears Canada?

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- Sears Line Haul (SLH) provides the bulk of our 1<sup>st</sup> mile and replenishment needs
  - 700 power units
  - 2700 trailers
- DC's
  - 4 main sites (Vancouver, Calgary, Toronto and Montreal)
- Retail stores, dealer stores, catalogue sites and E-commerce
  - Comprising of 700,000 2 man white glove home delivery stops per year
- 46 home delivery sites
  - 4 hubs (DC's)
  - 42 spokes
  - Service over 90% of Canadian postal codes

# Who is Sears Canada?



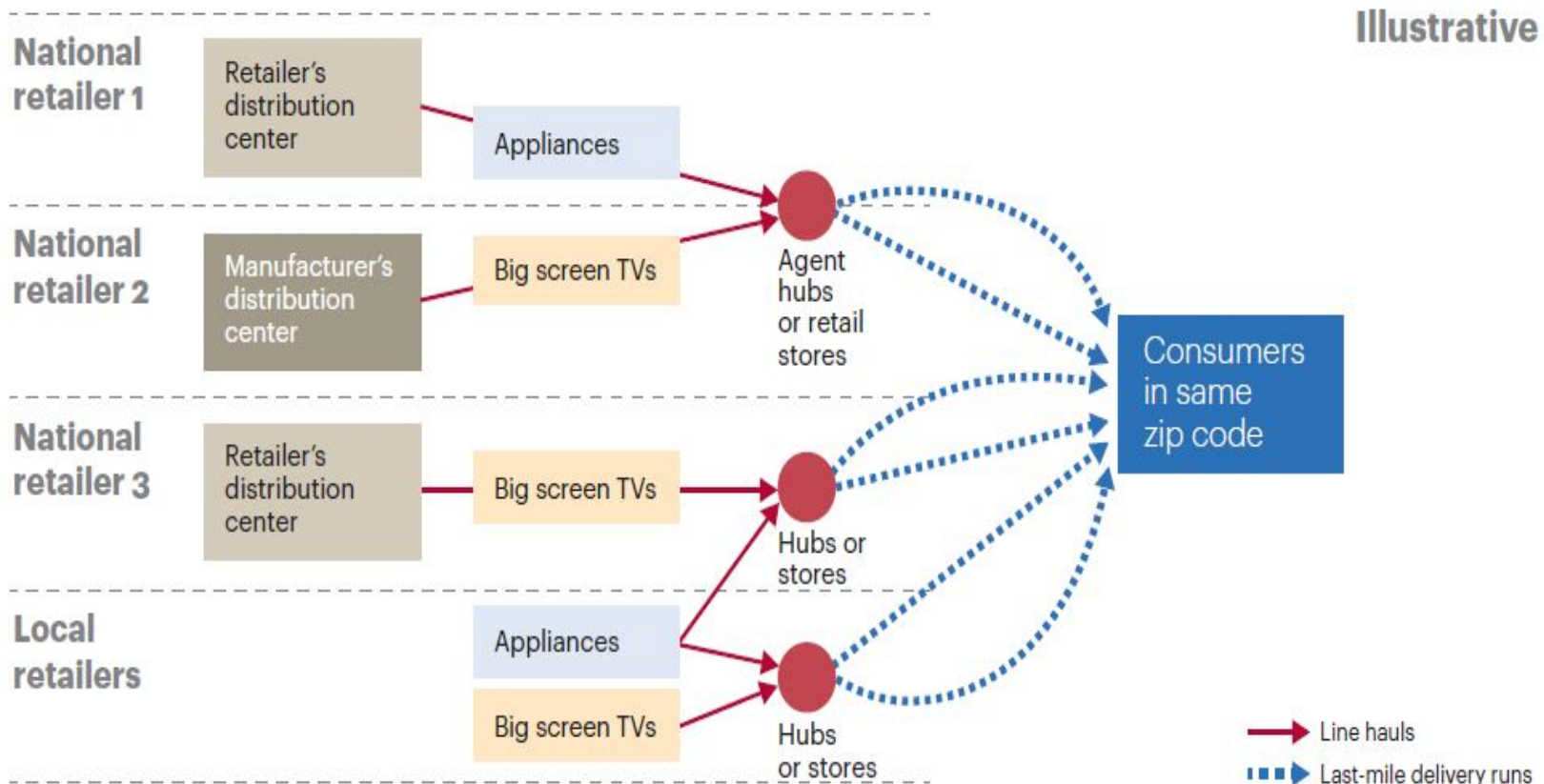


## Canada big ticket challenges

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- Fragmented volumes
  - Multiple channels servicing the same market
  - Inefficient use of transportation
  - Utilizing multiple final mile carriers to service the same PC's
  - Acting independently has continued to drive up costs
  - Supplier and retailer very protective of their information and networks
- Customer has more choice and channels to purchase from
  - The rise of E-tailing (Omni channel and Market Place)
  - Specialty regionalized retailers (ELTE Mkt, Appliance Canada)
- Bottom Line
  - Decreased volume
  - Making decisions that impact customer negatively (decreased service days)
  - Increased cost per item/delivery
  - **Lack of critical mass**

The web of home delivery operating models is overly complex



At Kerney Heavy Lifting required July 2013

## *How to increase critical mass*

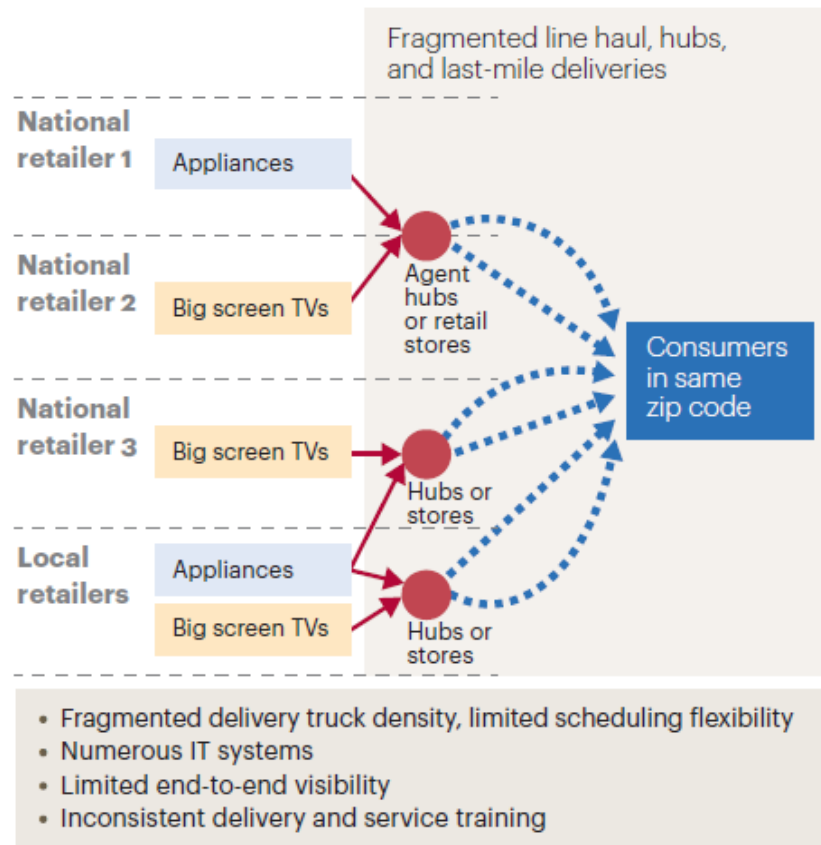
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- Sourcing 3<sup>rd</sup> party retailers and manufacturers to support their entire logistics and supply chain needs
  - LG Canada (drop ship and final mile for Costco.ca Canada)
  - US Mattress manufacturer (warehousing, inventory management and final mile for Costco)
- Providing system solutions to increase track and trace
  - Real time visibility all the time for manufacturers, retailers and customers
  - Cost savings and customer experience far out way the concern to protect information
- Enhanced customer experience
  - Multiple items delivered on the same day from multiple sources
  - Visibility and constant communication
- Combining volume to drive down CPC and CPS
  - Increased volume reduces miles between stops
    - attracts better driver teams

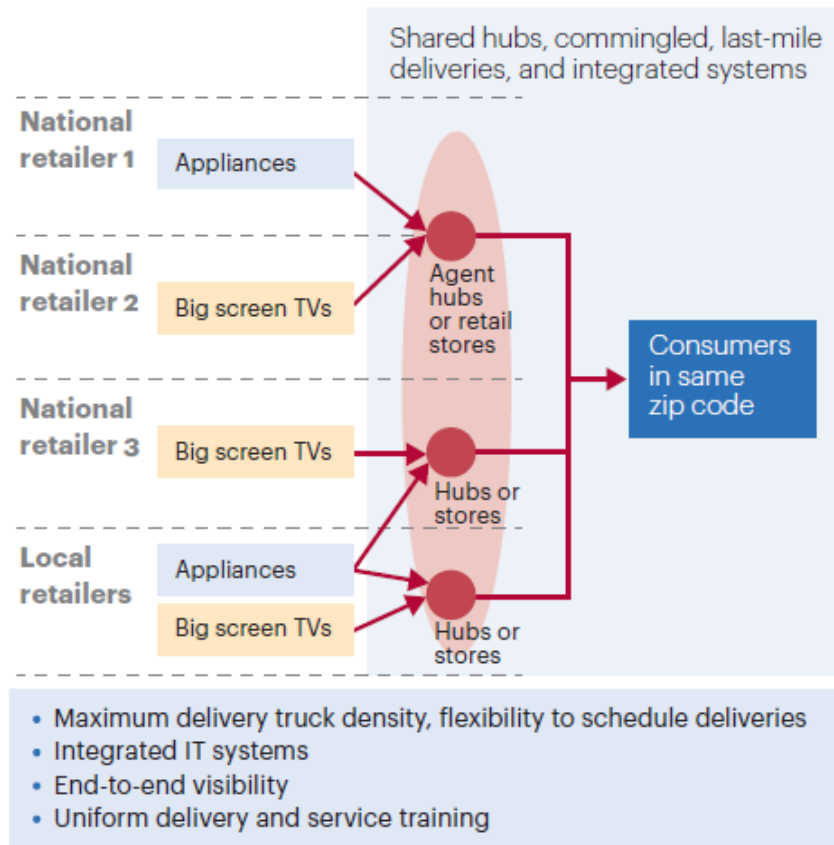
**A home delivery service integrator could transform the industry**

CL1

**Fragmented home delivery**



**Home delivery service integrator**



At Kerney Heavy Lifting required July 2013

**Slide 8**

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**CL1**

Christian Lafrance, 6/29/2016



## *Beyond the physical network*

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- Finding the right software to support this complex business requirement
  - Seamlessly integrated at every point
  - Provides real time visibility
  - Network optimization,
    - point of origin
    - 1<sup>st</sup> mile
    - drop ship
    - final mile
    - direct to home
  - Detailed reporting
  - Inventory integrity.....and the list goes on!
- Ship to Home
  - From point of origin to customer

# Optimized cube



(Welcome testadmin@sears) Logout [Select a language](#)

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Welcome Dashboard Fleet Dashboard Clients Reports Tech Support Admin

## Route Management

[Previous page](#) |

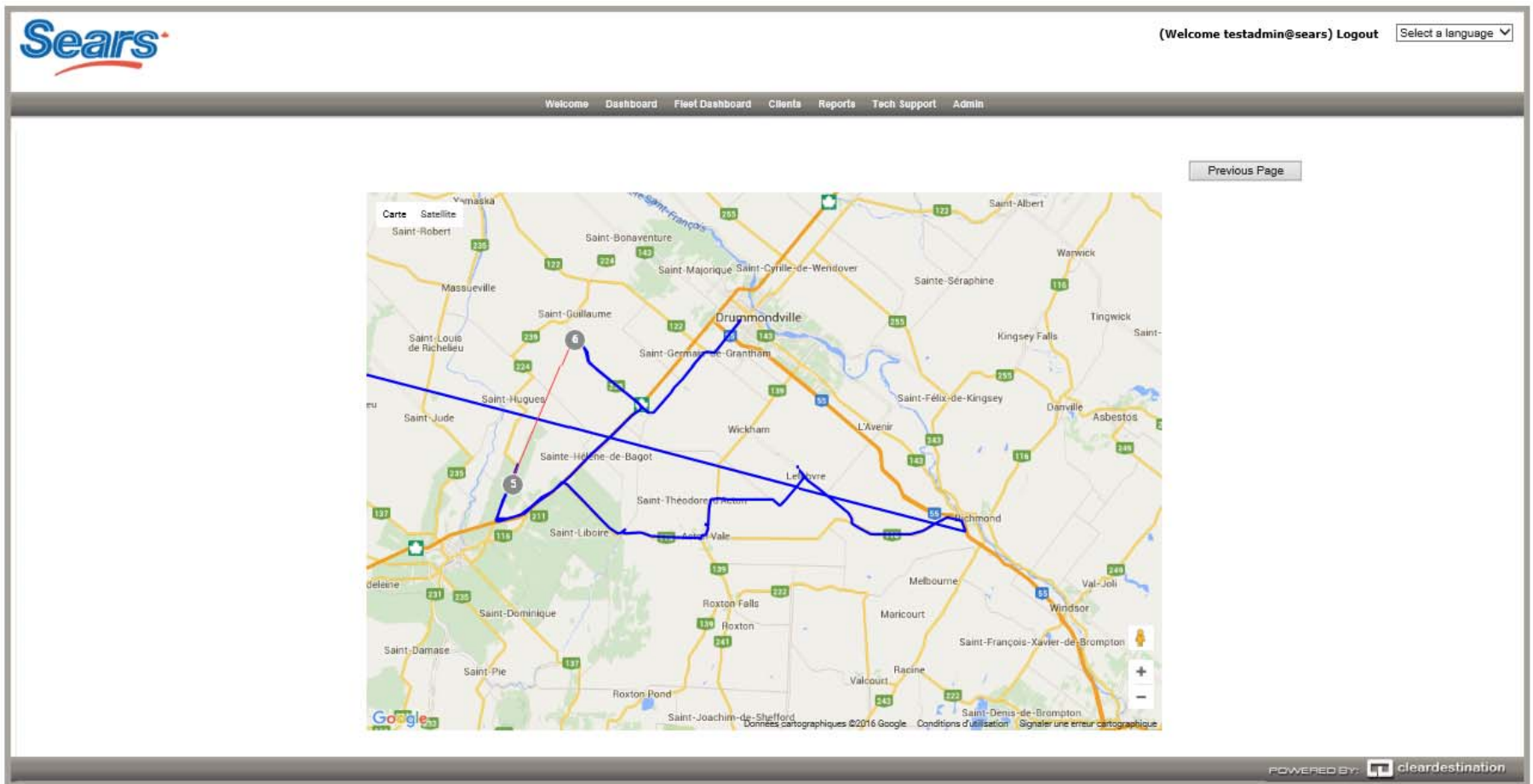
|                 |                      |
|-----------------|----------------------|
| Employee No :   |                      |
| Name :          | Lecharité            |
| First Name :    | Sébastien            |
| Phone :         | Number not available |
| Started on :    |                      |
| Left on :       |                      |
| Schedule Date : | 5/4/2016             |

[Display road map](#)

Route

| File                    | Route Name  | Road Order $\Delta$ | Reference No.              | Client         | Street                | City              | Postal Code | Phone Number  | Items | Items Value | Items Volume | Status    | Sub-Status | Delivery Date | Planned Time | Retal Time | Time Window Pickup Start Time | Time Window Pickup End Time | Planned KM | Confirmation 24H              | Signature           | Damage | Driver Remark |
|-------------------------|-------------|---------------------|----------------------------|----------------|-----------------------|-------------------|-------------|---------------|-------|-------------|--------------|-----------|------------|---------------|--------------|------------|-------------------------------|-----------------------------|------------|-------------------------------|---------------------|--------|---------------|
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
| <a href="#">Display</a> | 110 RLS.SHE | 5                   | 013830220572, 013830221858 | DUBE KEVIN     | 465, RANG 3 O         | ST-SIMON-DE-BAGOT | J0H 1Y0     | (450)808-3441 | 3     | \$0.00      | 31.00        | Completed |            | 5/4/2016      | 10:05 AM     | 9:48 AM    | 9:10 AM                       | 11:10 AM                    | 19.49      | Answered By Human             | <a href="#">Yes</a> | No     |               |
| <a href="#">Display</a> | 110 RLS.SHE | 6                   | 013830221894               | LAFORCE NICOLE | 1, 291 DU CORDON RANG | SAINT-GUILLAUME   | J0C 1L0     | (819)396-4597 | 1     | \$0.00      | 21.00        | Completed |            | 5/4/2016      | 10:39 AM     | 10:40 AM   | 9:40 AM                       | 11:40 AM                    | 19.60      | Answered By Answering Machine | <a href="#">Yes</a> | No     |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |
|                         |             |                     | Other                      |                |                       |                   |             |               |       |             |              |           |            |               |              |            |                               |                             |            |                               |                     |        |               |

# Optimized route



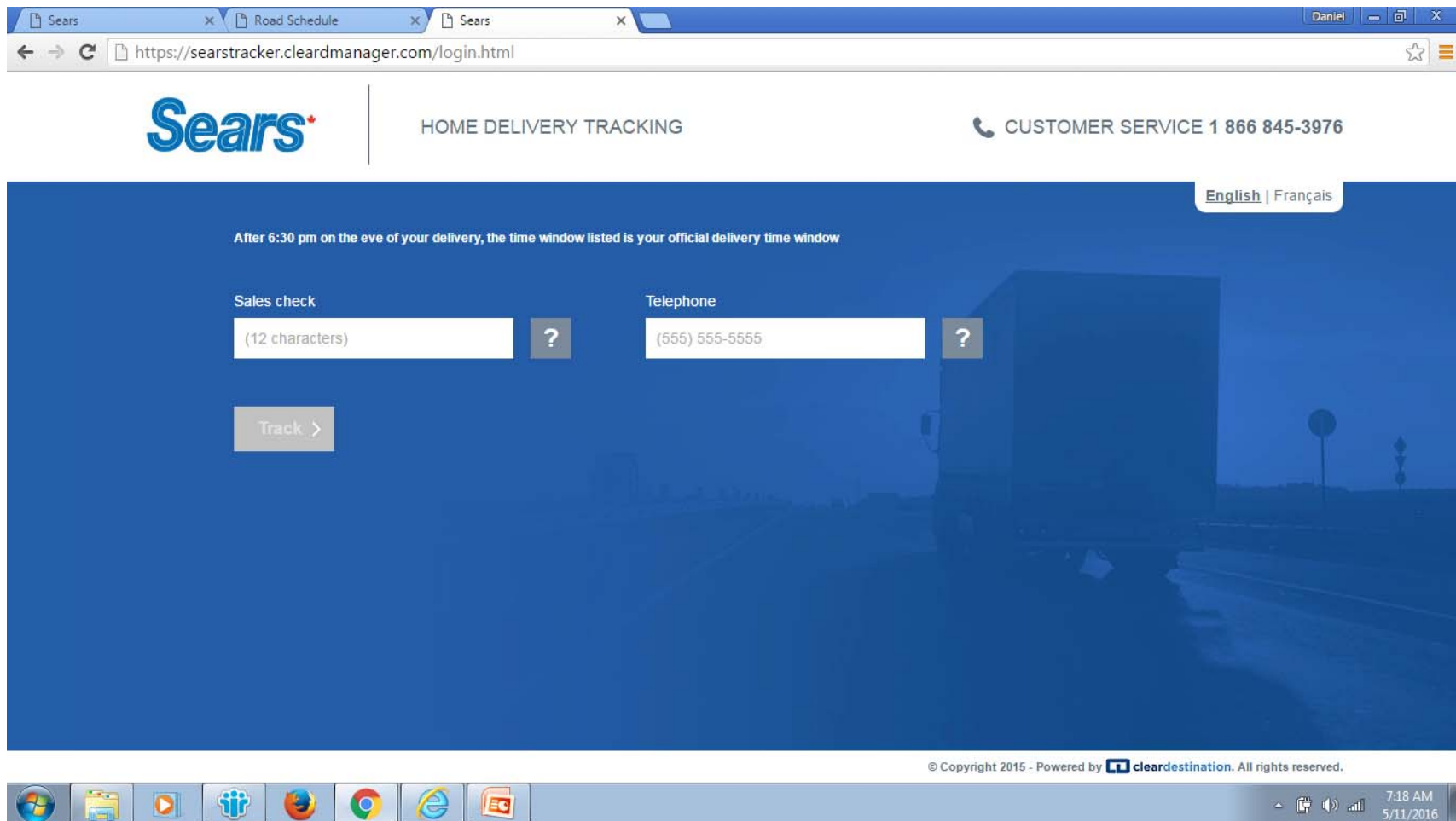
The screenshot displays a web application interface for route optimization. At the top left is the Sears logo. To the right of the logo is a user login area with the text "(Welcome testadmin@sears) Logout" and a language selection dropdown menu. Below the header is a navigation bar with links: "Welcome", "Dashboard", "Fleet Dashboard", "Clients", "Reports", "Tech Support", and "Admin".

The main content area features a map of a region in Quebec, Canada, centered around Drummondville. A blue line represents an optimized route connecting several locations. The route starts at a point labeled '5' near Saint-Hippolyte-de-Bagot, passes through Saint-Germain-de-Grantham, Drummondville, and Saint-Félix-de-Kingsey, ending at a point labeled '6' near Saint-Guillaume. Other locations visible on the map include Saint-Robert, Massueville, Saint-Louis-de-Richelieu, Saint-Jude, Saint-Hugues, Wickham, L'Avenir, Saint-Félix-de-Kingsey, Denville, Asbestos, Saint-Theodore, Vale, Melboume, Windsor, Saint-Denis-de-Brompton, Saint-Joachim-de-Shefford, Saint-Denis-de-Brompton, Saint-Damase, Saint-Pie, Saint-Dominique, Saint-Liboire, Roxton Falls, Roxton, Maricourt, Racine, Valcourt, and Saint-François-Xavier-de-Brompton. The map includes a Google logo and copyright information: "Données cartographiques ©2016 Google. Conditions d'utilisation Signaler une erreur cartographique".

At the bottom right of the map area, there is a "Previous Page" button and a "POWERED BY: cleardestination" logo.

## Online tracking tool

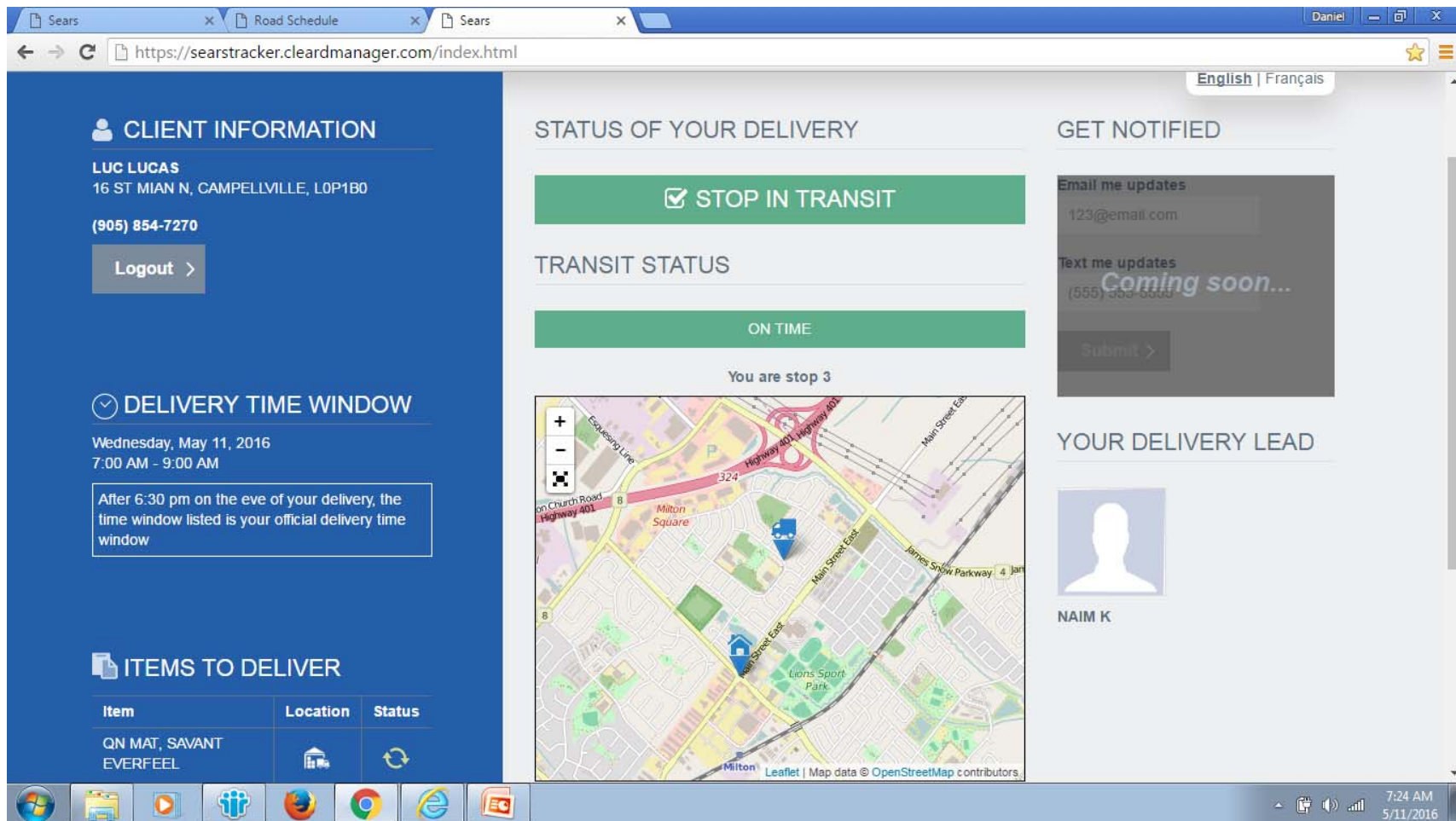
- customizable to the needs of the manufacturer or retailer (LG portal)



The screenshot shows a web browser window with three tabs: 'Sears', 'Road Schedule', and 'Sears'. The address bar displays 'https://searstracker.clearmanager.com/login.html'. The page header features the Sears logo, the text 'HOME DELIVERY TRACKING', and a phone icon with the number 'CUSTOMER SERVICE 1 866 845-3976'. A language selector shows 'English | Français'. Below this, a blue banner contains the text: 'After 6:30 pm on the eve of your delivery, the time window listed is your official delivery time window'. The main content area has two input fields: 'Sales check' with '(12 characters)' and a question mark icon, and 'Telephone' with '(555) 555-5555' and a question mark icon. A 'Track >' button is positioned below the 'Sales check' field. At the bottom, a copyright notice reads '© Copyright 2015 - Powered by cleardestination. All rights reserved.' The Windows taskbar at the bottom shows icons for Internet Explorer, File Explorer, and other applications, with the system tray displaying the time '7:18 AM' and date '5/11/2016'.

## Online tracking tool

- real time visibility for customer.....avoid the costly “not at home”



The screenshot displays a web browser window with the URL `https://searstracker.clearmanager.com/index.html`. The interface is divided into several sections:

- CLIENT INFORMATION:**
  - LUC LUCAS**
  - 16 ST MIAN N, CAMPPELLVILLE, L0P1B0
  - (905) 854-7270
  - [Logout >](#)
- DELIVERY TIME WINDOW:**
  - Wednesday, May 11, 2016
  - 7:00 AM - 9:00 AM
  - After 6:30 pm on the eve of your delivery, the time window listed is your official delivery time window
- ITEMS TO DELIVER:**

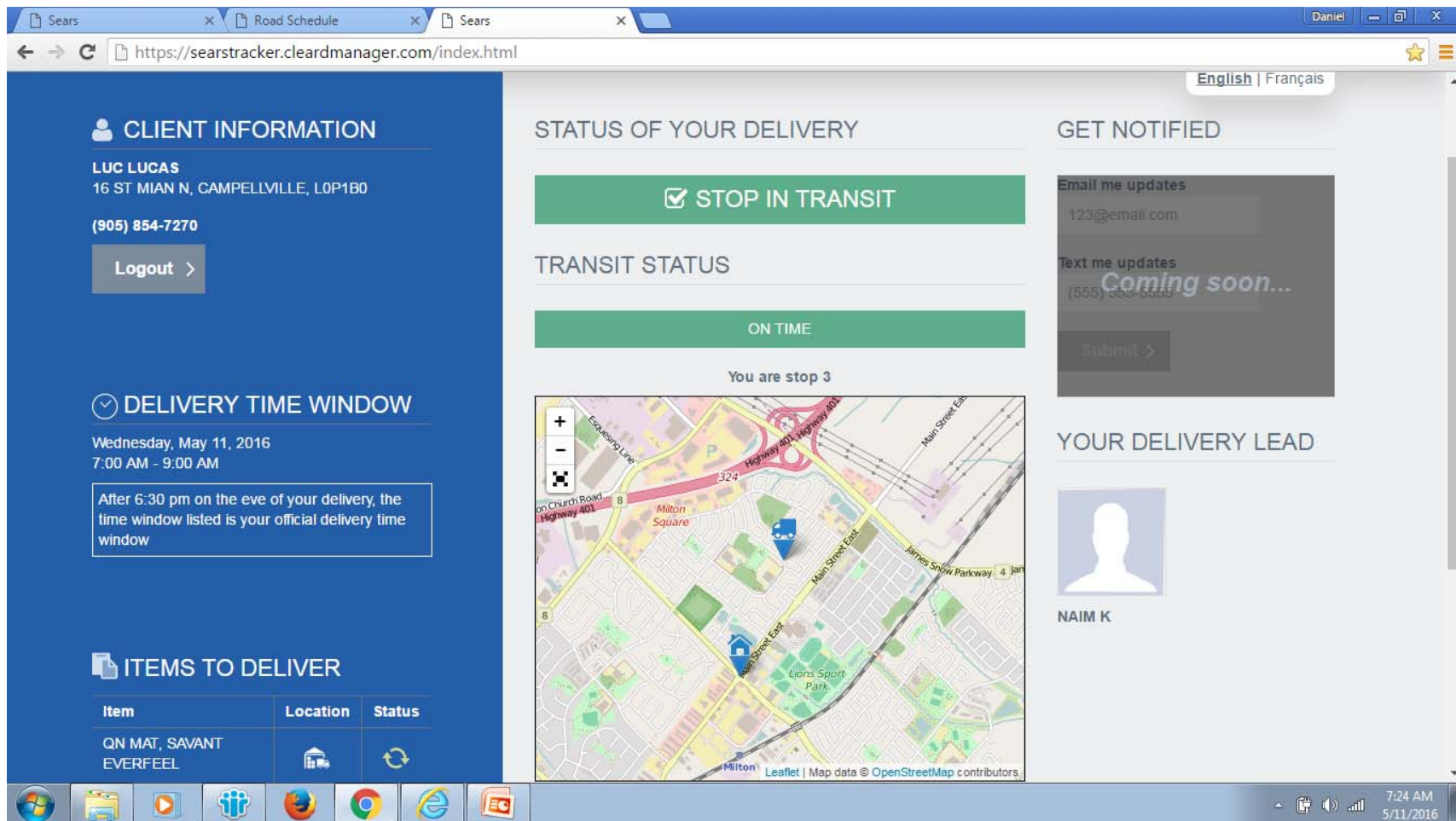
| Item                    | Location | Status |
|-------------------------|----------|--------|
| QN MAT, SAVANT EVERFEEL |          |        |
- STATUS OF YOUR DELIVERY:**
  - STOP IN TRANSIT
- TRANSIT STATUS:**
  - ON TIME
  - You are stop 3
- Map:** A map showing the delivery route in Milton, Ontario, with a blue truck icon indicating the current location.
- GET NOTIFIED:**
  - Email me updates:** 123@email.com
  - Text me updates:** (555) 555-5555 *Coming soon...*
  - [Submit >](#)
- YOUR DELIVERY LEAD:**
  - 
  - NAIM K

The Windows taskbar at the bottom shows the time as 7:24 AM on 5/11/2016.



# Online tracking tool

- customizable consumer communication



The screenshot shows a web browser window with the URL <https://searstracker.clearmanager.com/index.html>. The page is in English and features a blue sidebar on the left and a main content area on the right.

**CLIENT INFORMATION**  
LUC LUCAS  
16 ST MIAN N, CAMPPELLVILLE, L0P1B0  
(905) 854-7270  
[Logout >](#)

**DELIVERY TIME WINDOW**  
Wednesday, May 11, 2016  
7:00 AM - 9:00 AM  
After 6:30 pm on the eve of your delivery, the time window listed is your official delivery time window

**ITEMS TO DELIVER**

| Item                    | Location | Status |
|-------------------------|----------|--------|
| QN MAT, SAVANT EVERFEEL |          |        |

**STATUS OF YOUR DELIVERY**  
 STOP IN TRANSIT

**TRANSIT STATUS**  
ON TIME

You are stop 3

**GET NOTIFIED**  
Email me updates  
123@email.com  
Text me updates  
(555) 555-5555  
*Coming soon...*  
[Submit >](#)

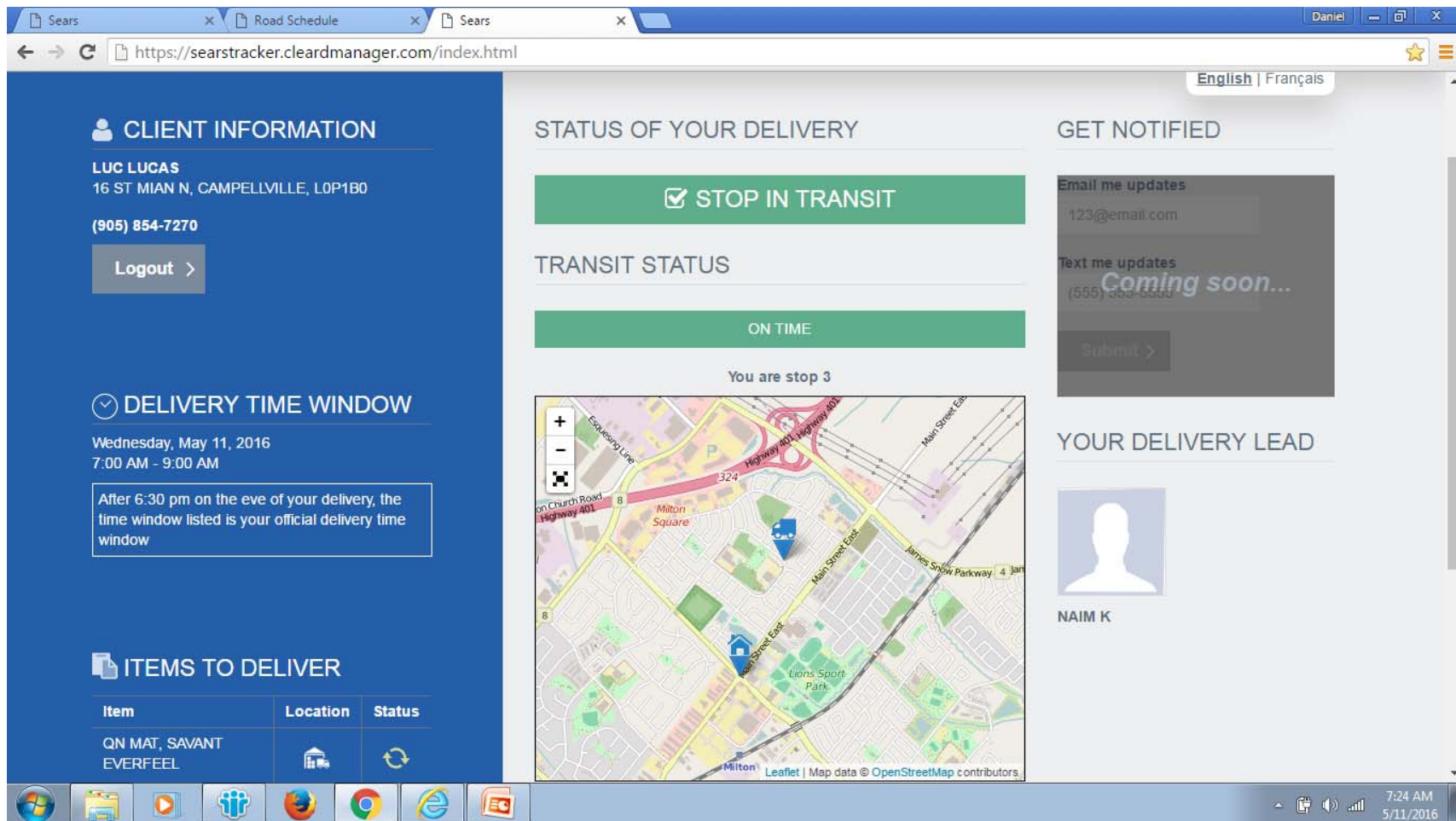
**YOUR DELIVERY LEAD**  
  
NAIM K

The map shows a delivery route in Milton, Ontario, with a blue truck icon at the current location. The map includes labels for Expressing Line, Highway 401, Milton Square, Main Street East, James Snow Parkway, and Lions Sport Park.

Windows taskbar at the bottom shows the time as 7:24 AM on 5/11/2016.

# Online tracking tool

- off setting fraud and security risk by adding identifiable carrier information



The screenshot shows a web browser window with the URL <https://searstracker.clearmanager.com/index.html>. The page is in English and displays the following sections:

- CLIENT INFORMATION:** LUC LUCAS, 16 ST MIAN N, CAMPPELLVILLE, L0P1B0, (905) 854-7270. A Logout button is present.
- DELIVERY TIME WINDOW:** Wednesday, May 11, 2016, 7:00 AM - 9:00 AM. A note states: "After 6:30 pm on the eve of your delivery, the time window listed is your official delivery time window".
- ITEMS TO DELIVER:** A table with columns Item, Location, and Status.

| Item                    | Location | Status |
|-------------------------|----------|--------|
| QN MAT, SAVANT EVERFEEL |          |        |
- STATUS OF YOUR DELIVERY:** A green button with a checkmark and the text "STOP IN TRANSIT".
- TRANSIT STATUS:** A green button with the text "ON TIME".
- Map:** A map showing the delivery route. A red line indicates the route, with a blue location pin at the current stop. The text "You are stop 3" is displayed above the map. The map includes labels for Expressing Line, Highway 401, Milton Square, Main Street East, James Snow Parkway, and Lions Sport Park.
- GET NOTIFIED:** Two sections: "Email me updates" with a text input field containing "123@email.com" and a "Submit" button; and "Text me updates" with a text input field containing "(555) 555-5555" and a "Submit" button. A "Coming soon..." watermark is visible over the text input field.
- YOUR DELIVERY LEAD:** A profile picture placeholder and the name "NAIM K".

The Windows taskbar at the bottom shows the time as 7:24 AM on 5/11/2016.

## *Ship to Home benefits - bigger picture*

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- Ship to Home solution
  - Leveraging manufacturers inventory from multiple sources direct to consumer
  - Streamlined tools to manage the origin to consumer process
  - Optimizing the efficiency of freight movement
    - point of origin tracking
    - 1<sup>st</sup> mile
    - drop ship
    - final mile
- Real time alerts focused on maximizing cubage
  - Not important who you are it's about where you are
- Faster and reduced delivery cycles

## *Ship to Home benefits*

- Reduced operational costs
- Reduced capital expenditures
- Reduced carbon footprint
- And ultimately
  - Improved customer experience
  - Improved sales platform

## Conclusion

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- Ship to home with support and input from Sears Canada is working towards changing collaborative to hyperconnected supply chain
- Ship to Home and Sears Canada have teamed up to lower costs associated to transportation at Sears Canada – proven success
- The Ship to Home program will benefit all retailers and product suppliers by reducing costs and increasing customer experience.
- Maximum collaboration equals maximum savings