

Supply Chain Strategy: How to Assess, Design and Optimize Your Supply Chain Network

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Agenda

- Supply Chain Management Definition
- Strategic vs. Tactical Synchronization
- Impediments to Success
- Improving Profitability and Competitiveness
- Simple Case Study
- Inventory Positioning
- Quick Supply Chain Design Tips

Supply Chain Management

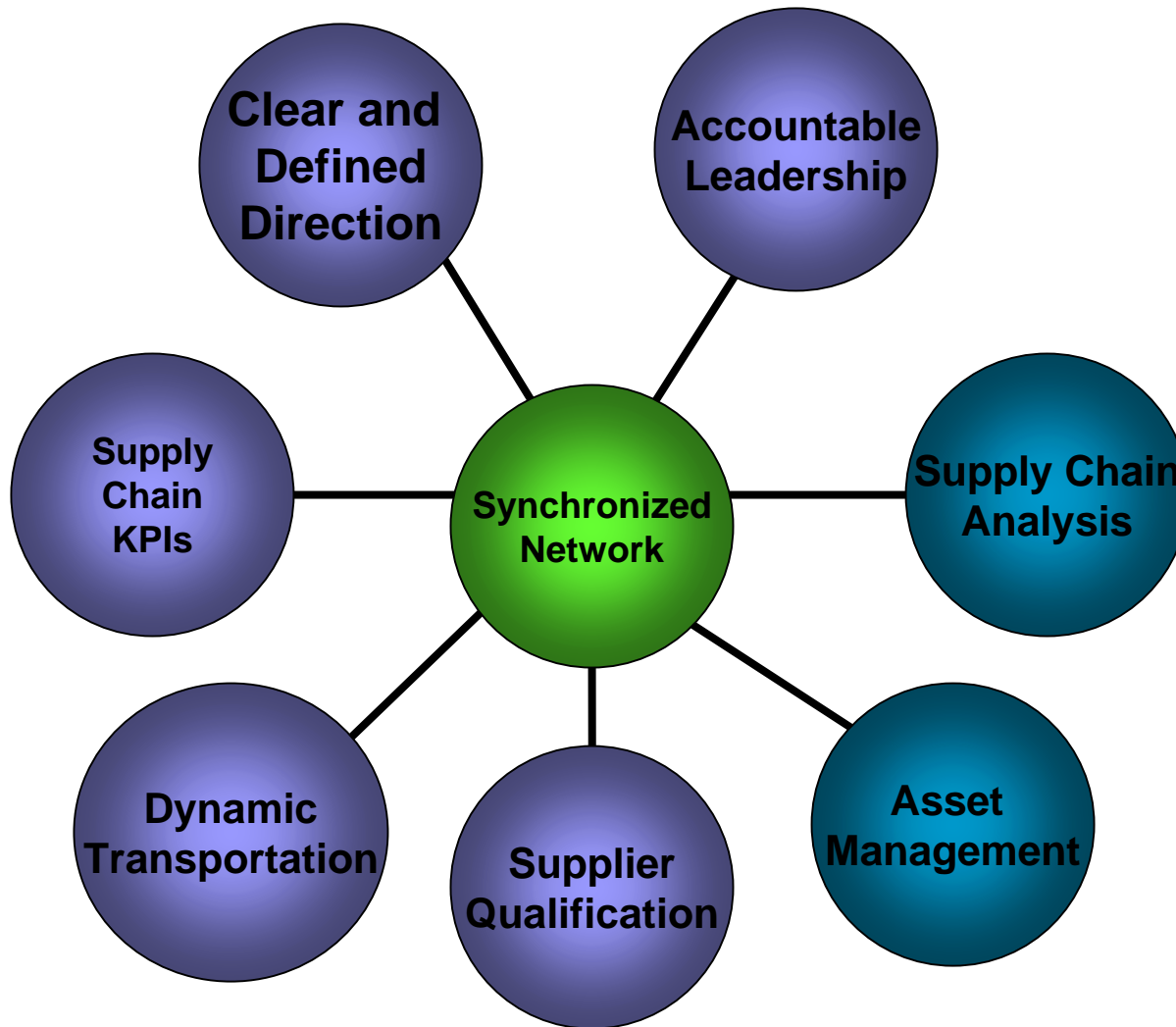
- Supply Chain Management encompasses the planning and management of activities involved in sourcing and procurement, conversion and all Logistics Management activities. Importantly, it also includes the coordination and collaboration with channel partners, which can be suppliers intermediaries, third party service providers, and customers. In essence, Supply Chain Management integrates supply and demand management within and across companies”.

2004 CSCMP Definition of supply chain management

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Strategic Synchronization



Supply Chain Competitiveness

- Strategic Network Design Vs....
 - Pick the Optimal Number, Location(s), and Size of Warehouses
 - Optimize the Trade-offs Between Number of Facilities and Service Levels
 - Optimize the Trade-offs Between Transportation and Warehousing Costs
 - Determine Optimal Sourcing Strategy
 - Determine Best Distribution Channels
 - Determine Best Mode of Transportation

Tactical Synchronization



Supply Chain Competitiveness

- Tactical Planning
 - Develop an Optimal Supply Chain Plan for the Next 3-12 Months
 - Optimize the Trade-offs Between Production, Inventory and Warehousing
 - Identify Potential Supply Chain Bottlenecks Early to Avoid Disruptions and Costs
 - Share Supply Chain Plan With Geographically Dispersed Managers
 - Share Supply Chain Production Plan With Each of the Plant Managers
 - Provide Warehouse Managers With Shipping and Storage Requirements

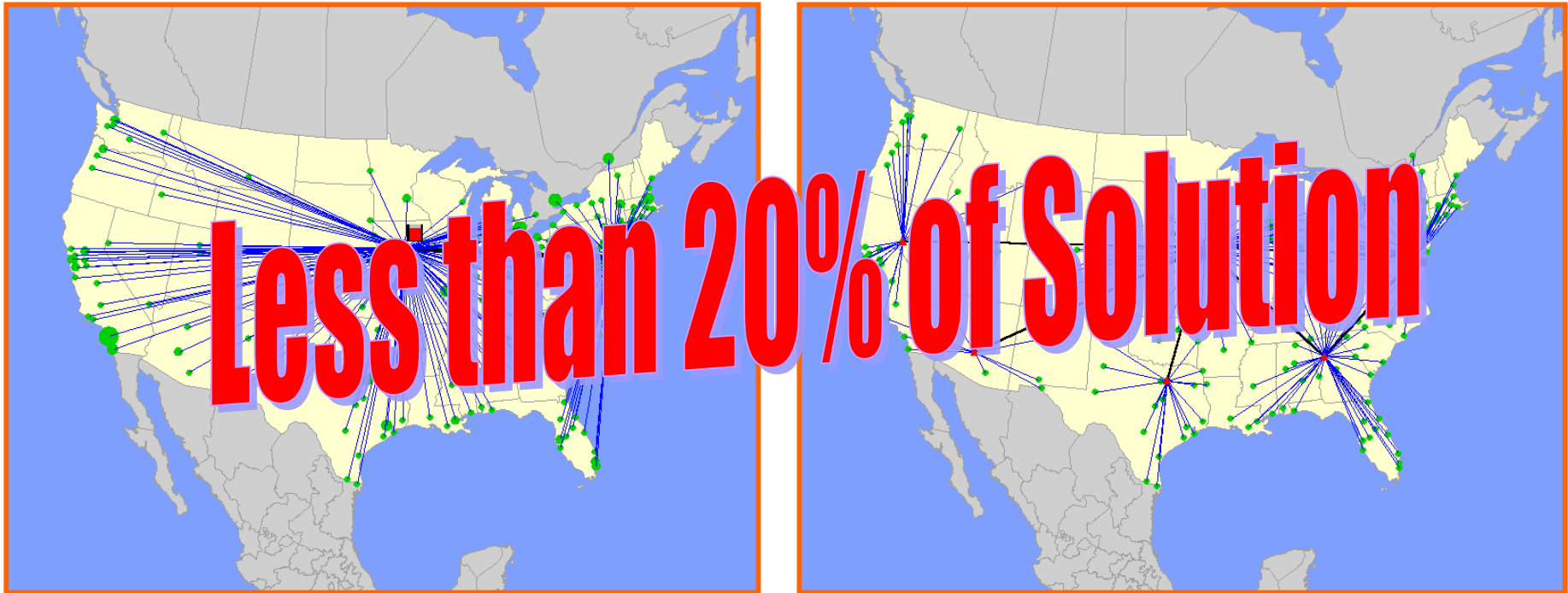
Supply Chain Challenge



■ The Impact

- Excessive Inventory Due to Extra Safety Stock to protect from Demand Variability

Network Rationalization



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Impediments to Success



Organizational Accountability

Myth: Senior management must act accountably before the organization can be accountable.

Truth: Middle management must act accountably as a unified team before the organization can be accountable.

Executives focus on External Drivers

- Changes in Customer Expectations
- Technology Advancements
- Societal Needs
- Competitive Trends
- Trends in Supplier Markets
- Financial Constraints
- Market Trends

Organizational Accountability

The role of middle management:

- Middle Managers are responsible for the global operations of the organization, the culture that ensures effective functioning and linkage between departments and the monitoring of organizational performance to ensure that business outcomes are achieved.
- Middle Managers are responsible for the performance of their respective departments and for eliminating dysfunctional habits in their departments that prevents departmental and organization success.

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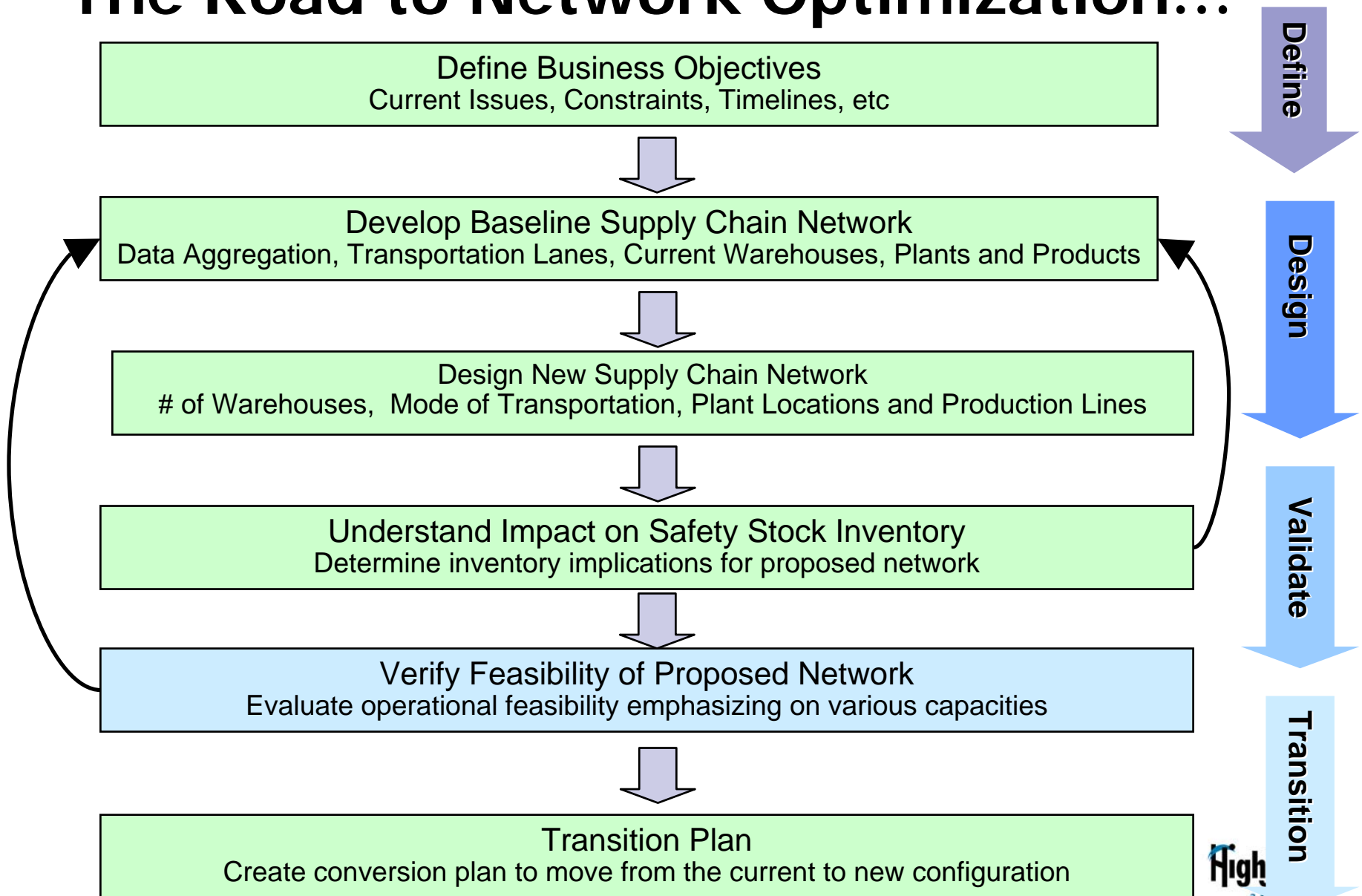


Improving Profitability and Competitiveness with Logistics Network Analysis

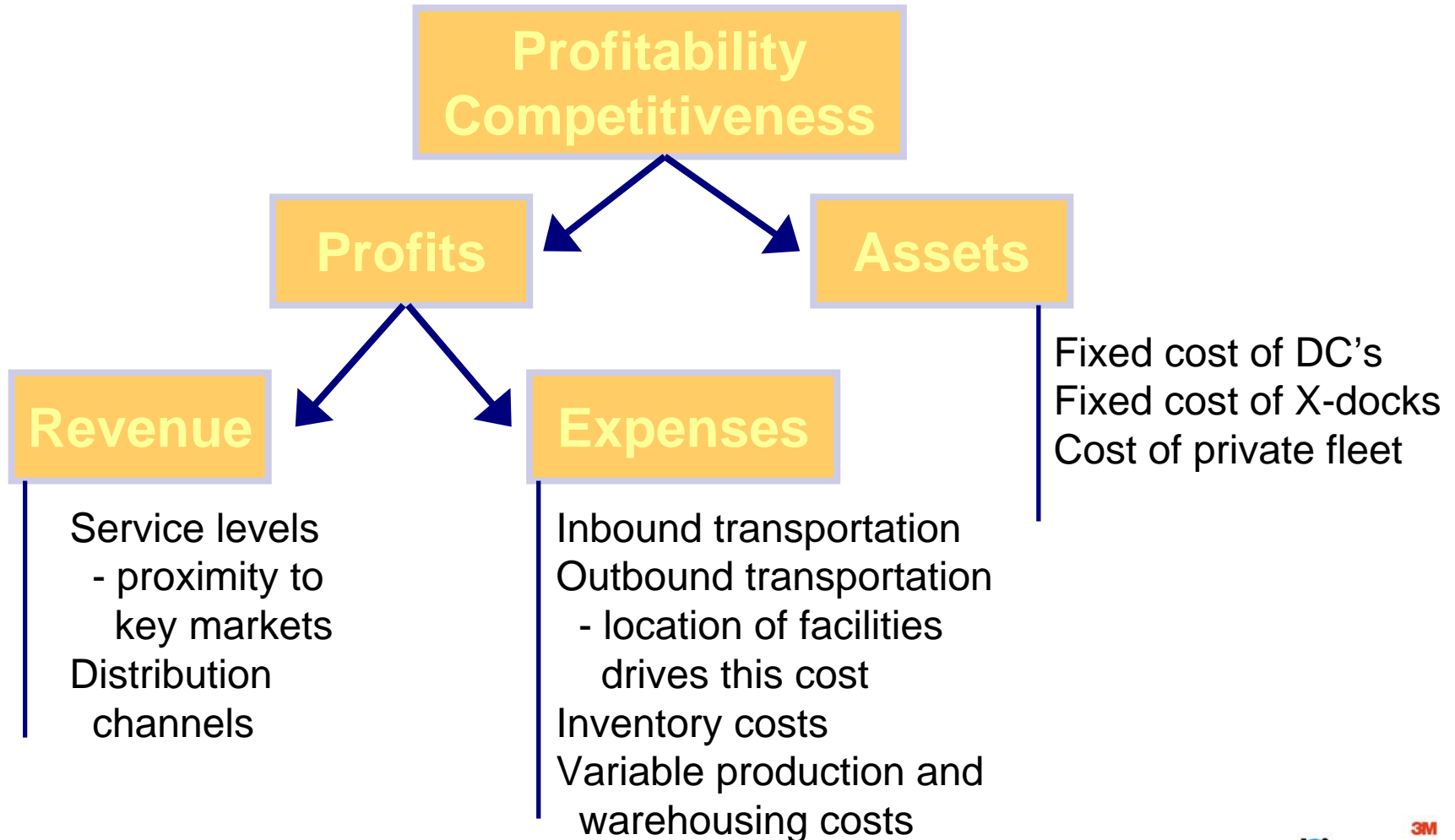
Why Optimize Your Network.....

- Evaluate the optimal distribution network to reduce transportation costs and improve service
- Determine how to optimally consolidate two networks prior or after a merger
- Develop additional distribution strategy
- Quickly respond to RFP's
- Perform due diligence studies

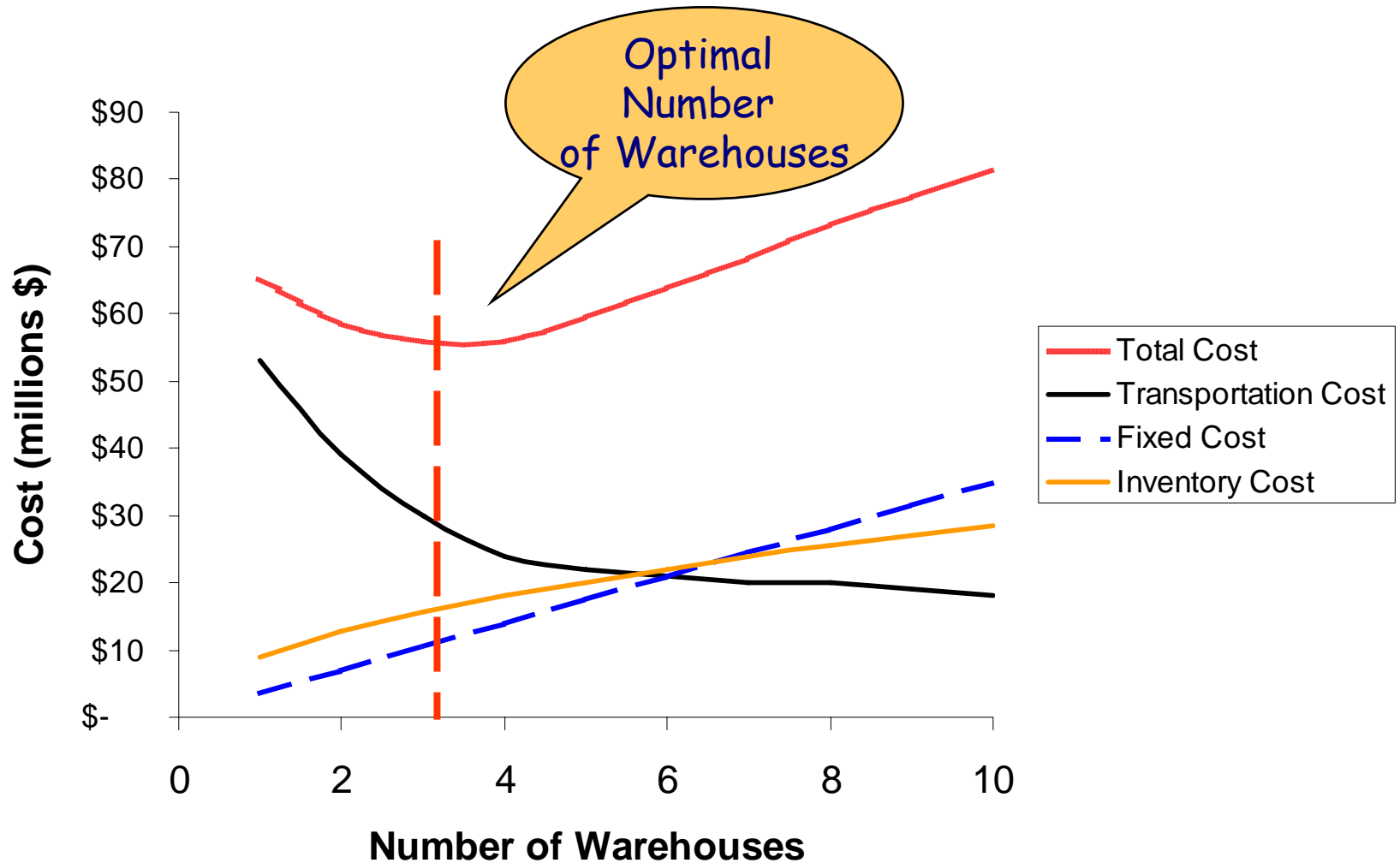
The Road to Network Optimization...



Key Drivers of Profitability



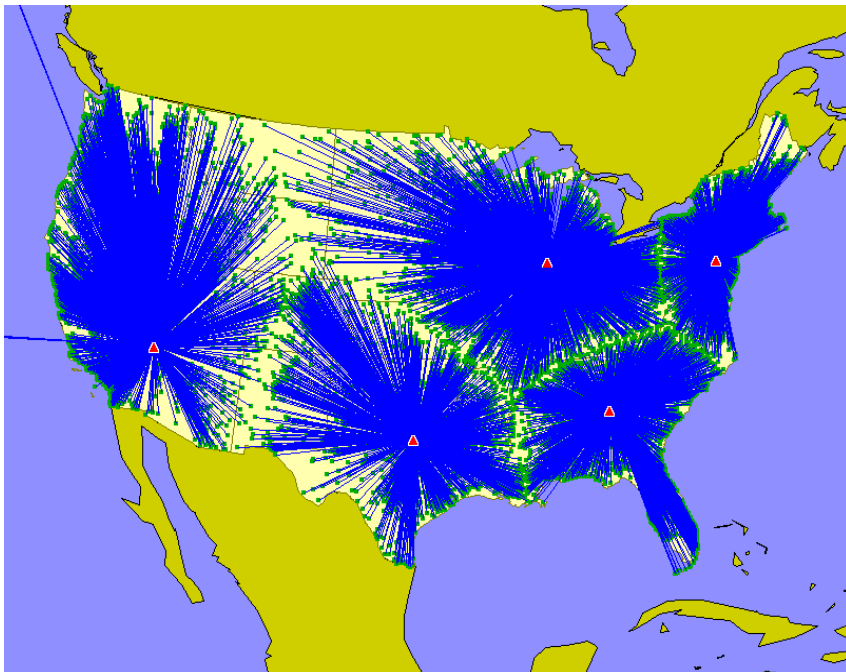
Network Rationalization



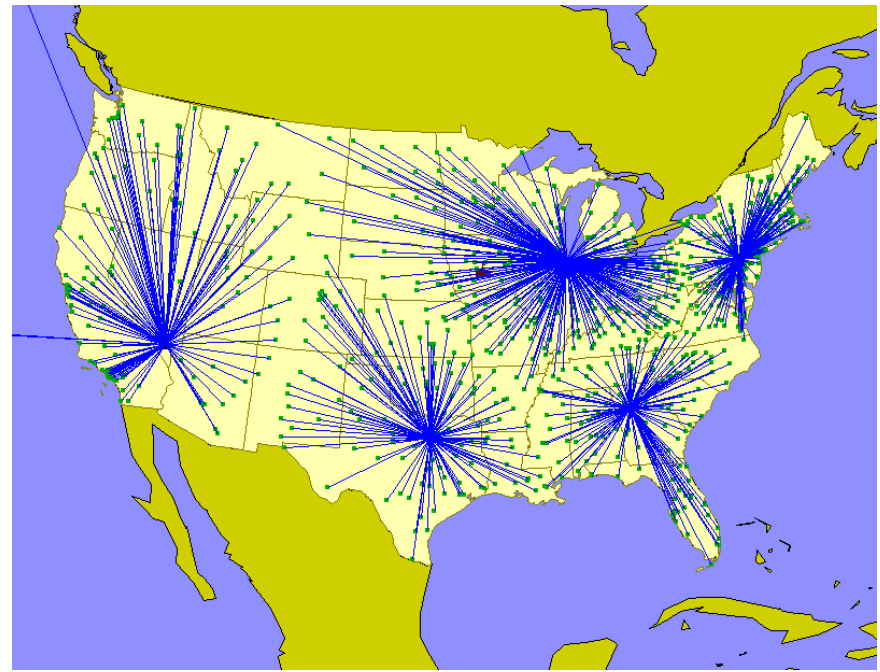
Example Analysis

The additional complexity did not add value to the analysis

Total Cost:\$5,796,000
Total Customers: 18,000

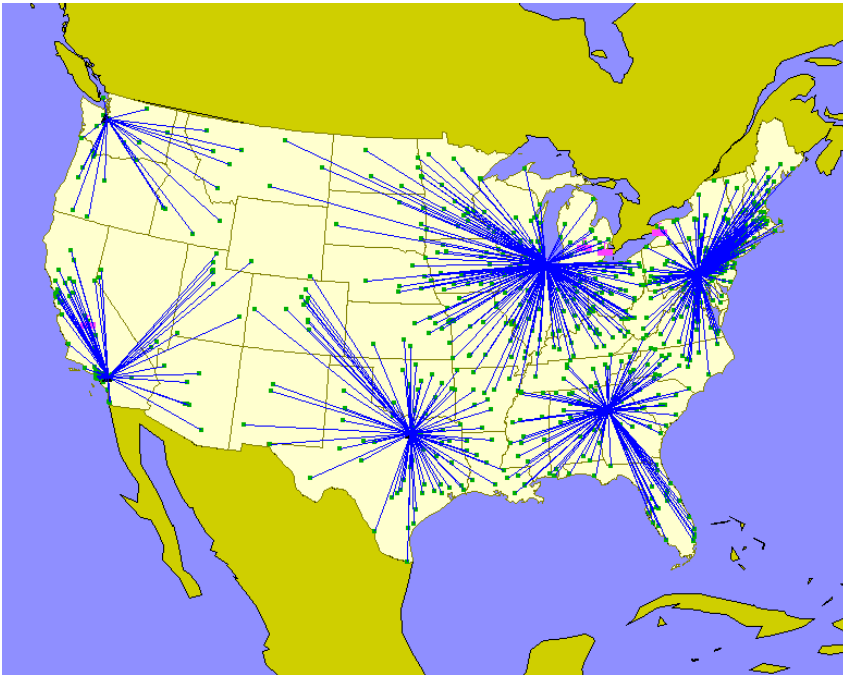


Total Cost:\$5,793,000
Total Customers: 800

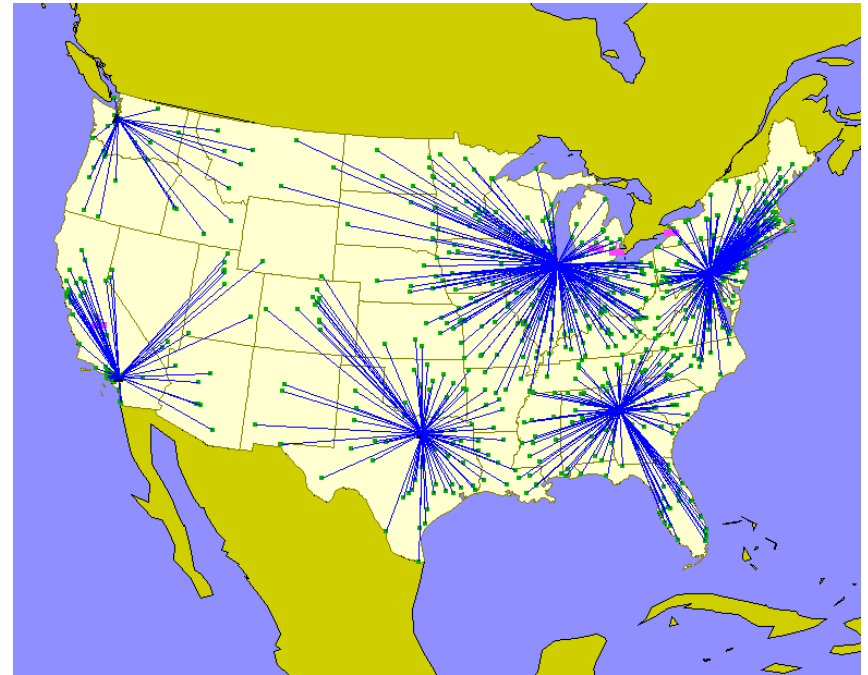


Example Analysis

Total Cost:\$104,564,000
Total Products: 46



Total Cost:\$104,636,000
Total Products: 4



Cost Difference: -0.07%

You could run the analysis with either 46 or 4 product families.
With 4, forecast accuracy may be higher

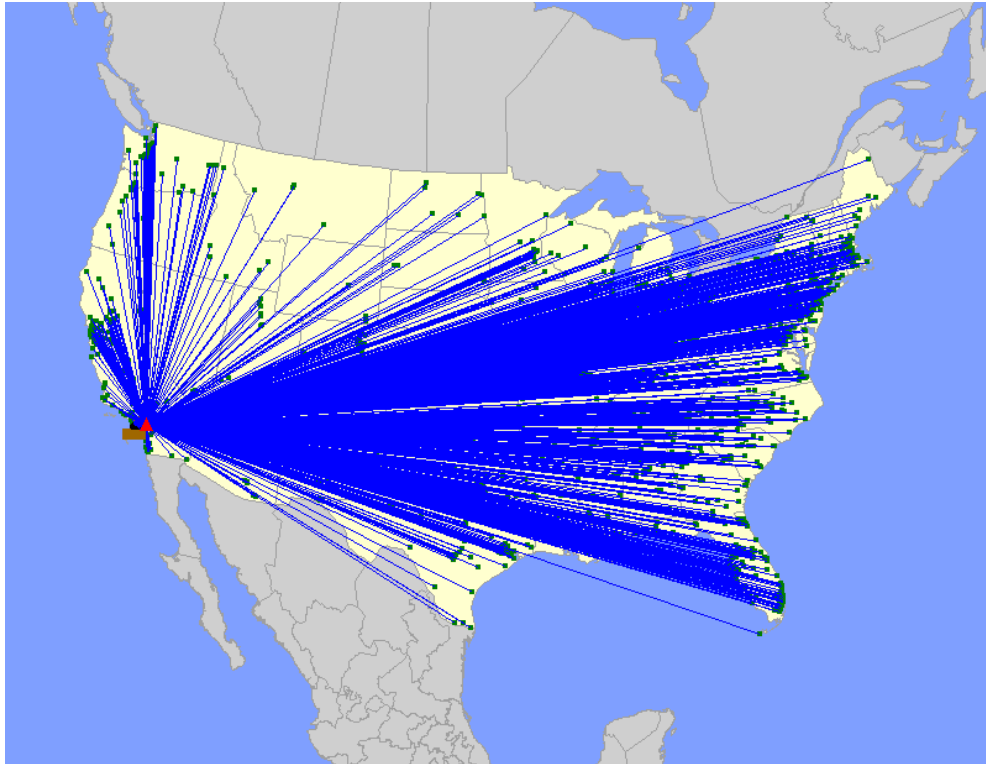
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Case Study - CPG

- Current 3PL was not performing to CPG Company's Standards
- The CPG Company wanted to know the optimal number, size, and location of distribution centers
- The CPG Company wanted a new 3PL Strategy and Partner
- Average Mean Transportation Time was 6 days from Dock to Dock – Customer Score Card was below Big 3 Standards (Wal-Mart, K-Mart/Sears and Target)

Base Line Model



Plants

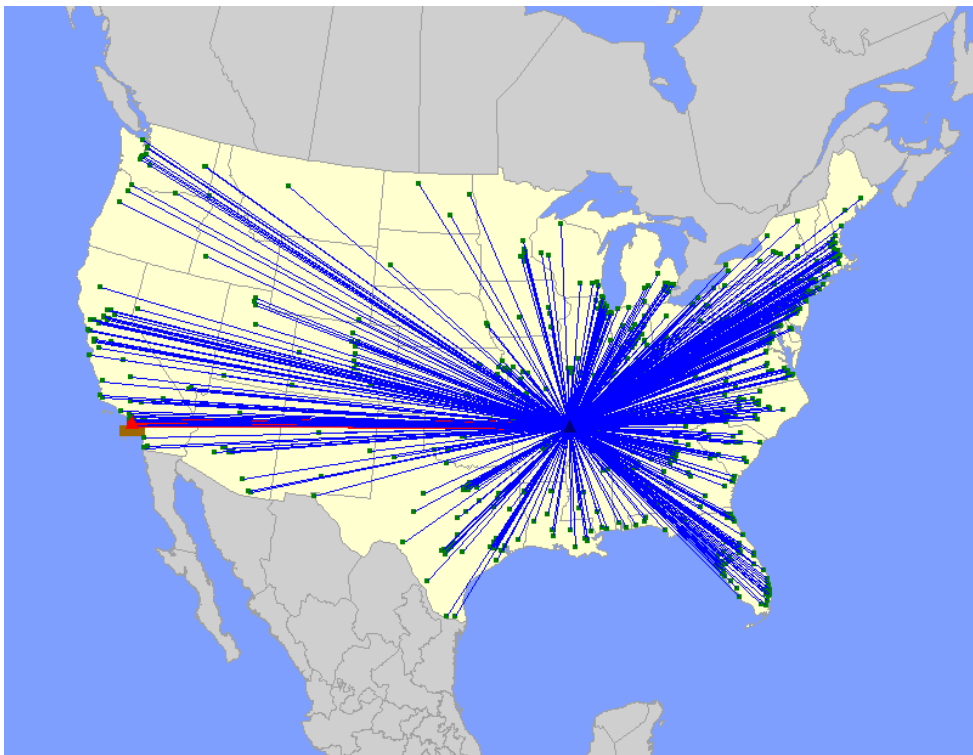
- South East China

DC's

- Ontario, Ca

Scenario	Drayage/In-transit	Inbound	Outbound	Total Cost
Baseline	\$234,895	\$0	\$3,680,122	\$3,915,016

Optimized Greenfield

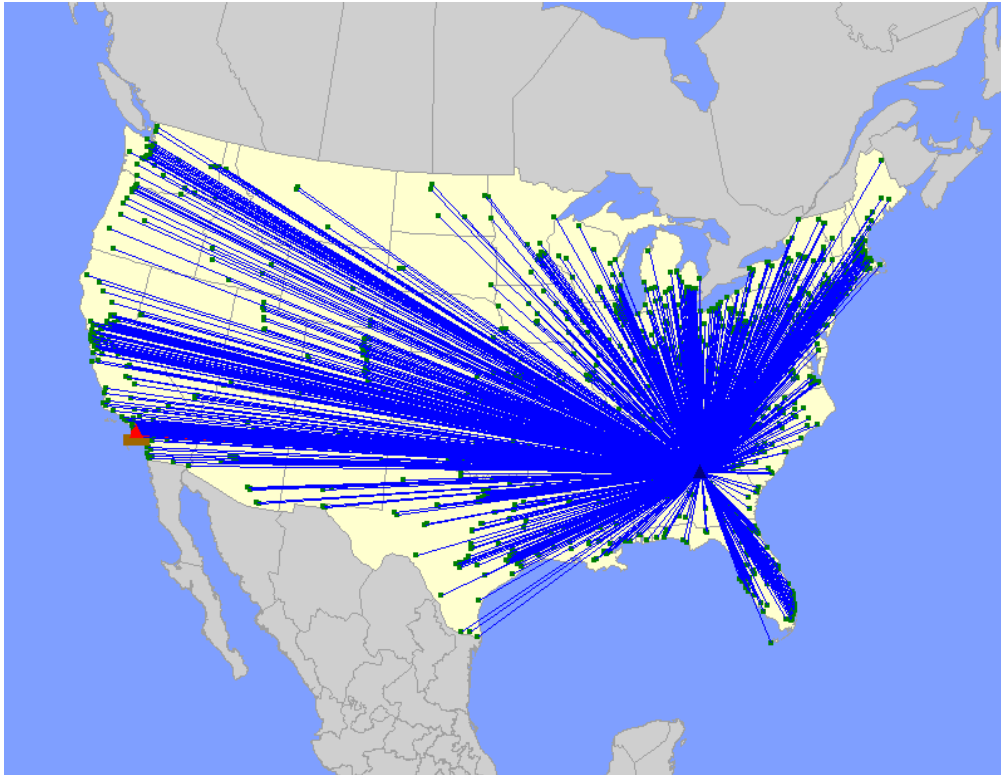


DC's

- Jonesboro, AR

Scenario	Drayage/In-transit	Inbound	Outbound	Total Cost
Greenfield	\$356,329	\$670,989	\$2,689,278	\$3,716,596

Optimized Constrained

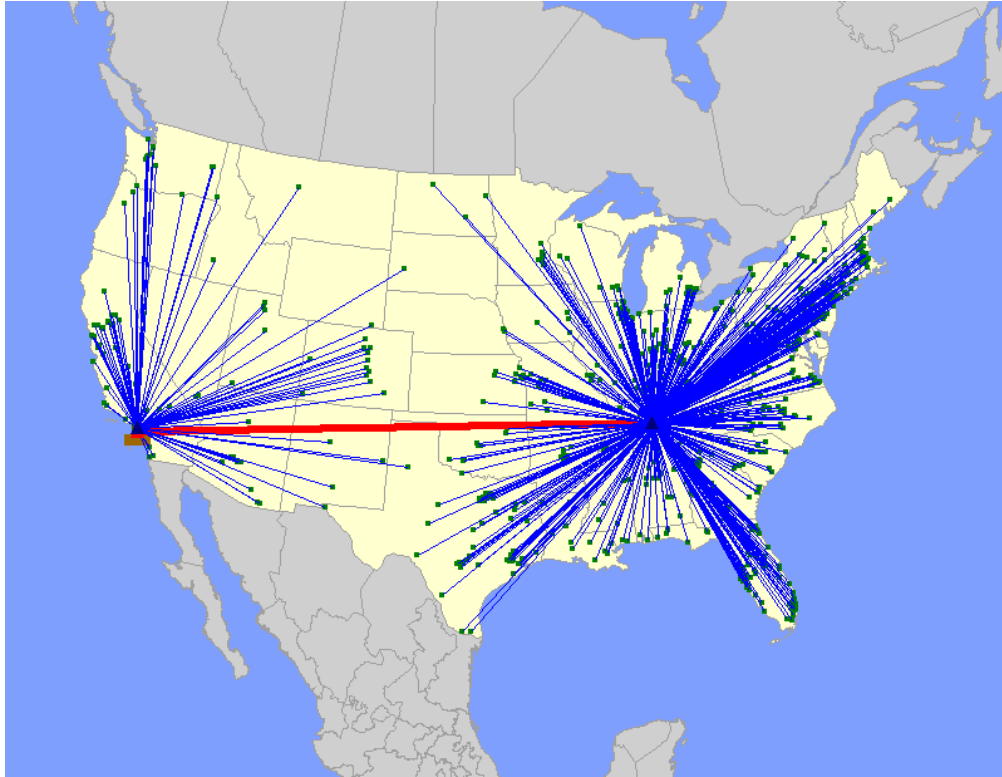


DC's

- Atlanta, GA

Scenario	Drayage/In-transit	Inbound	Outbound	Total Cost
Greenfield	\$357,761	\$ 849,813	\$2,801,226	\$4,008,800

2 DC Optimized Greenfield

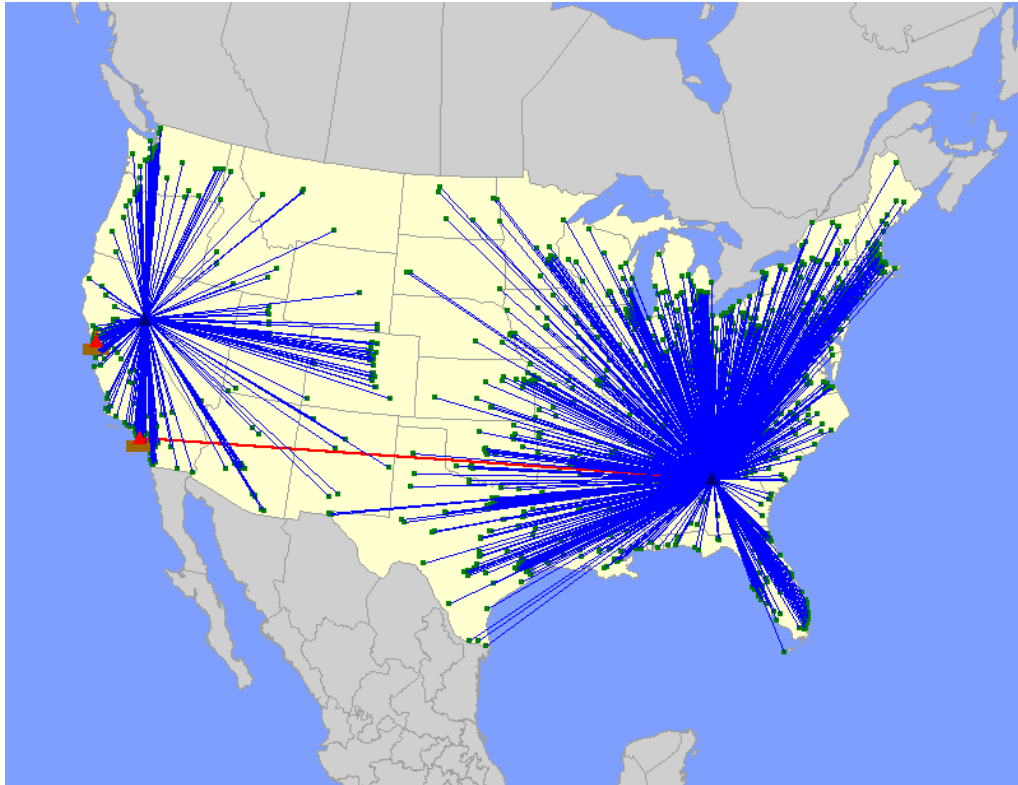


DC's

- Ontario, CA
- Nashville, TN

Scenario	Drayage/In-transit	Inbound	Outbound	Total Cost
Greenfield 2-Sites	\$322,299	\$ 585,874	\$2,365,479	\$3,273,652

2 DC Optimized Constrained



DC's

- Atlanta, GA
- Spark, NV

Scenario	Drayage/In-transit	Inbound	Outbound	Total Cost
Constrained 2-Sites	\$315,650	\$ 772,630	\$2,437,674	\$3,525,954

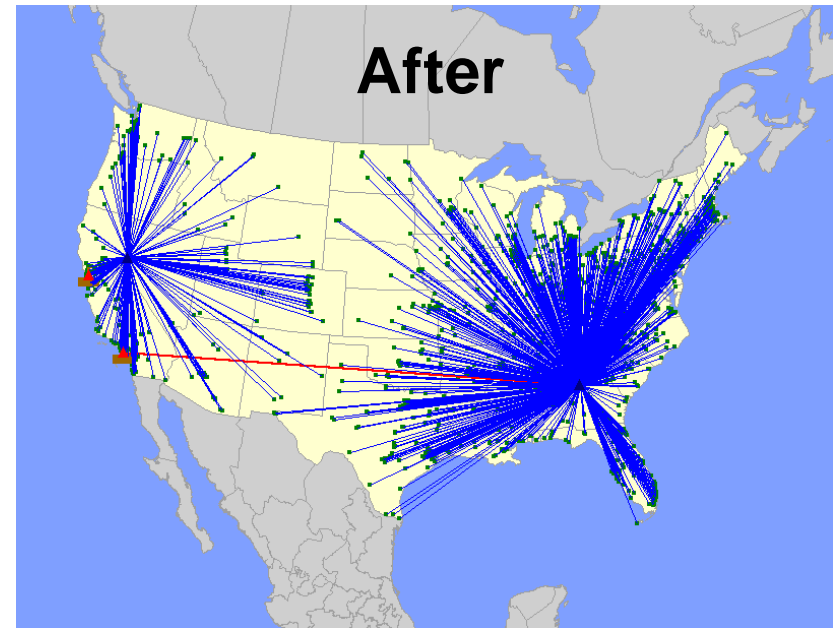
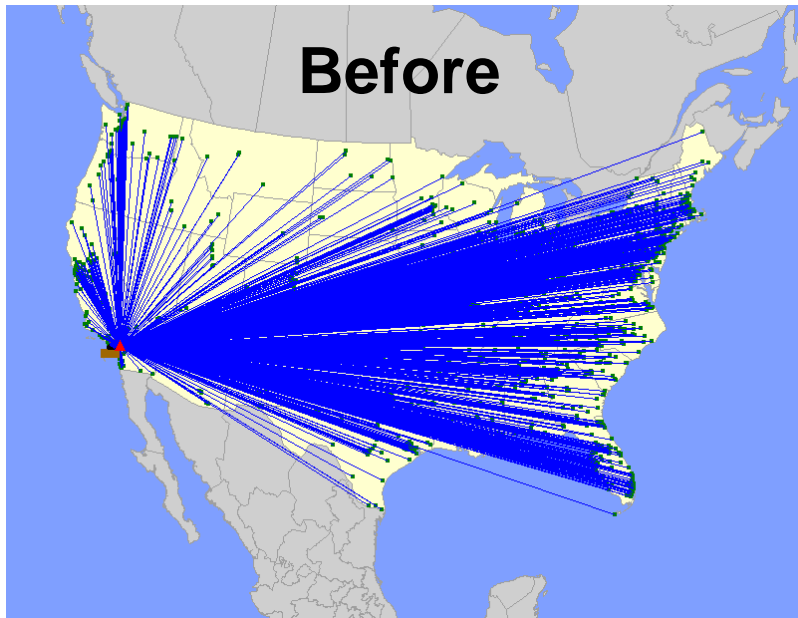
Optimal Network Improves Customer Service

Total Cost:\$3,915,000

Average Distance to Customer: 1,560 Miles

Total Cost:\$3,525,954

Average Distance to Customer: 450 Miles



Agenda

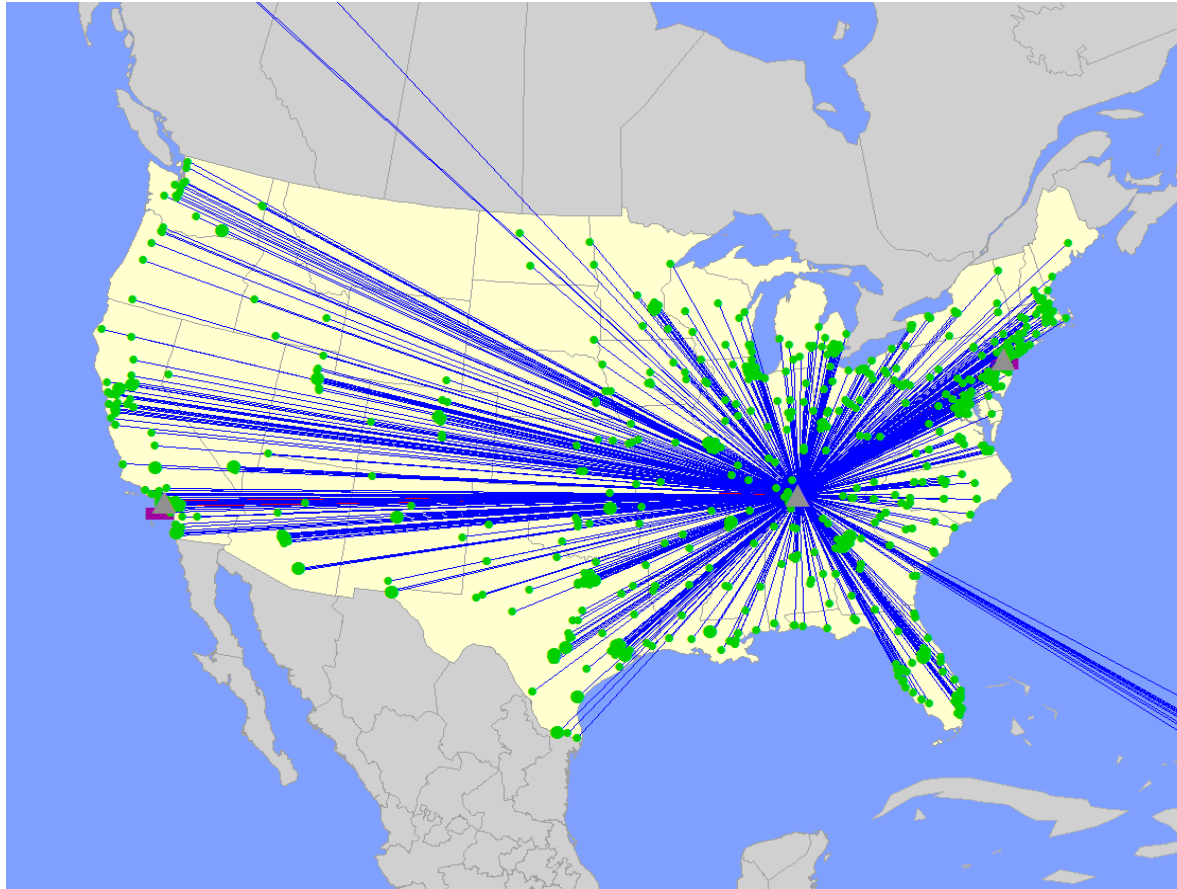
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Retail Division Inventory Position

	Units	Dollars	\$ / Unit
In Stores			
Footwear	934,680	\$ 30,237,281.36	32.35
Accessories	557,924	\$ 3,551,693.48	6.37
Units	1,492,604	\$ 33,788,974.84	22.64
Other			
Footwear	190,076	\$ 6,433,416.46	33.85
Accessories	147,932	\$ 664,805.44	4.49
Units	338,008	\$ 7,098,221.90	21.00
Totals			
Overall in store - shoes	4,358,200	\$ 127,261,311	29.20
Overall in store - access	2,710,244	\$ 11,852,217	4.37
Overall in LDC - shoes	828,009	\$ 24,437,179	29.51
Overall in LDC - access	1,242,993	\$ 2,718,467	2.19
% inventory at LDC	23%	16%	
% inventory at stores	77%	84%	

Note: Based on units and \$ inventory in Arthur as of week ending 7/24/200

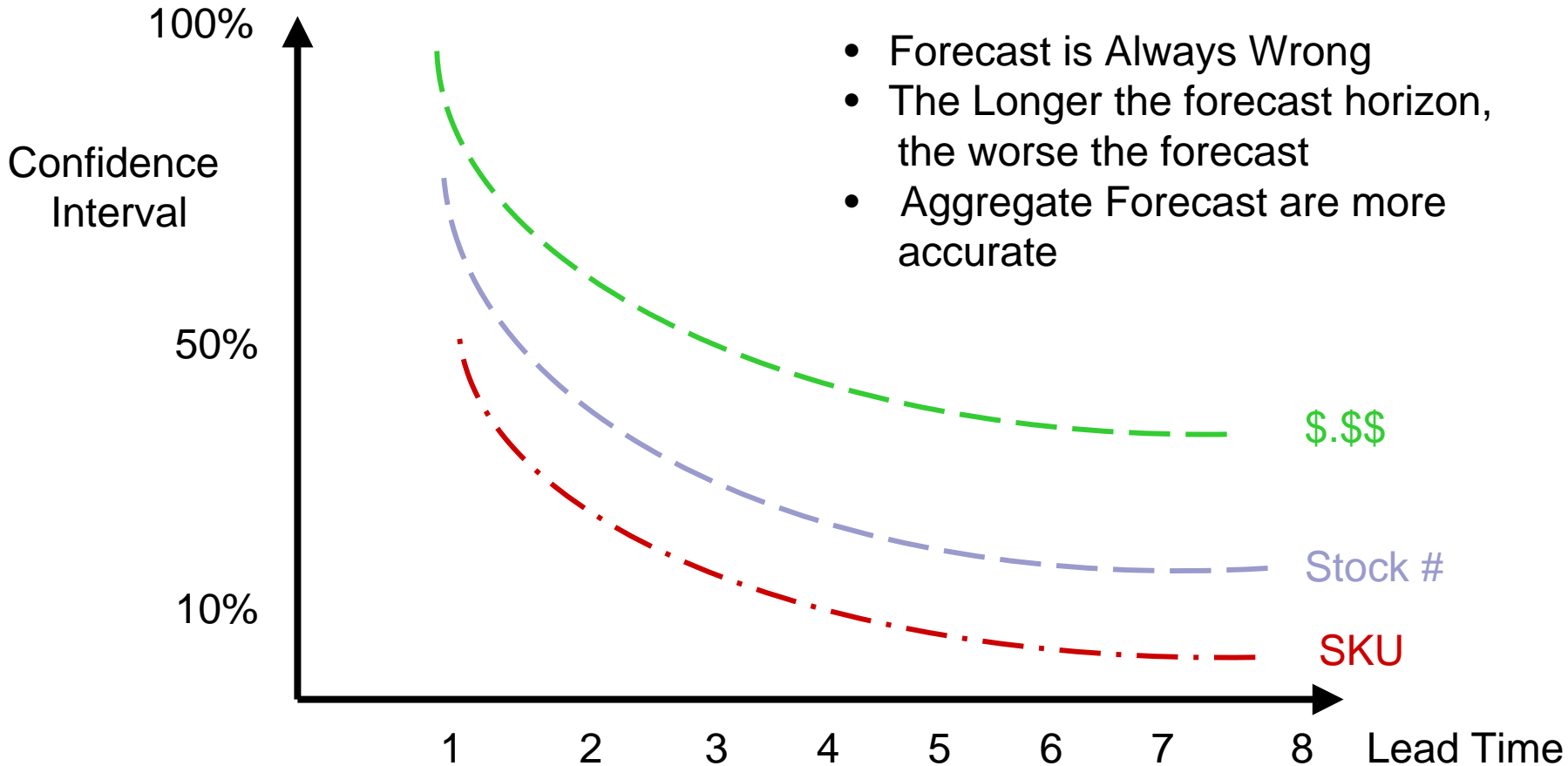
Current Retailer Network



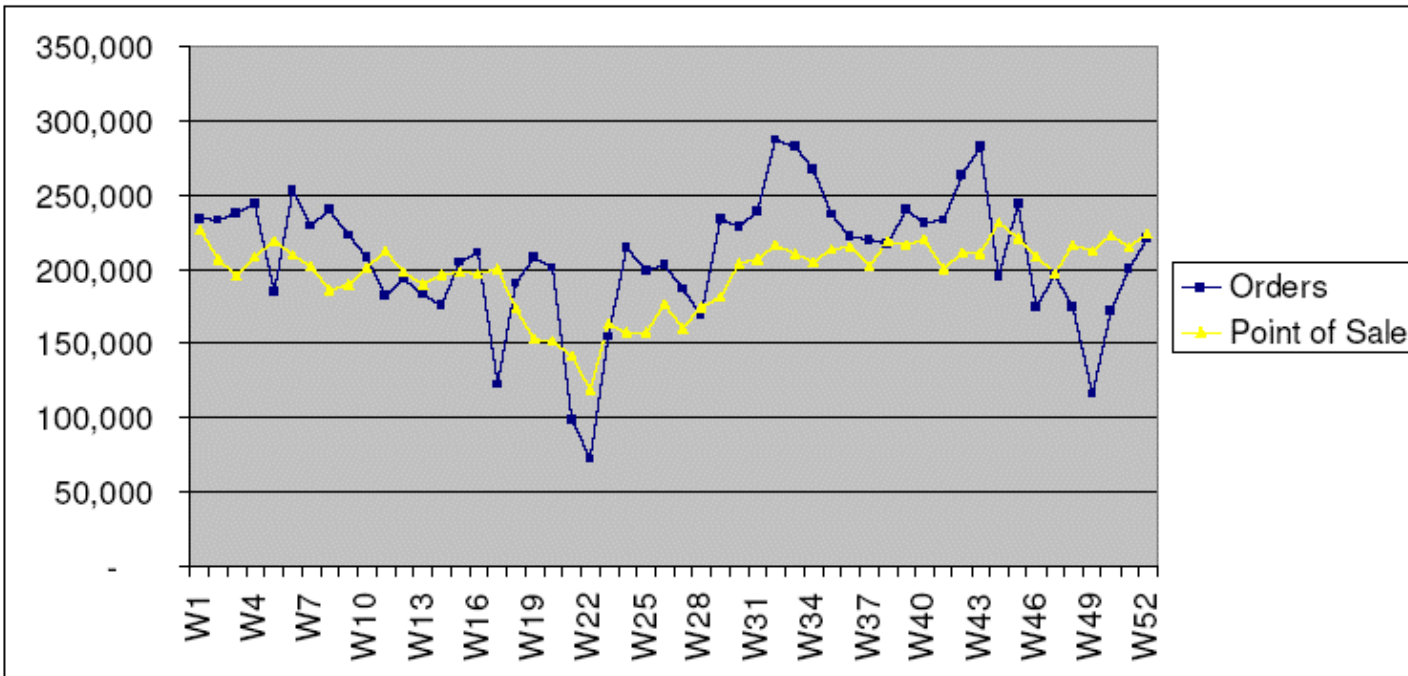
Supply Chain Challenge

- The Strategy – Most Companies Use Push Based Supply Chains Strategies
 - Production and Distribution Strategies are based upon Retailer's order not on customer demand
- The Problem – The Bullwhip Effect
 - Retailer Orders Variability is greater than customer demand Variability

Forecast Accuracy



Replenishment Orders vs. POS



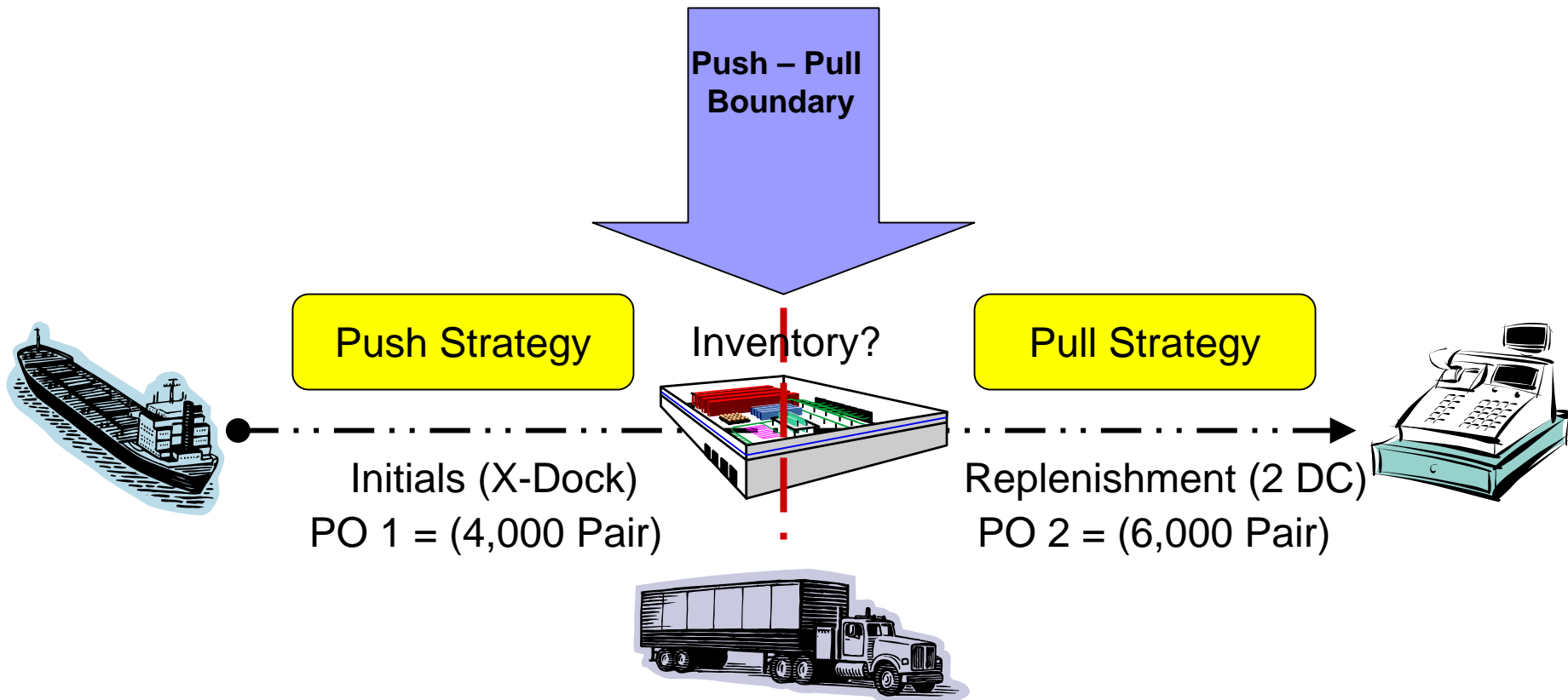
Coefficient of Variation:

Orders : 0.19

Point of Sale: 0.10

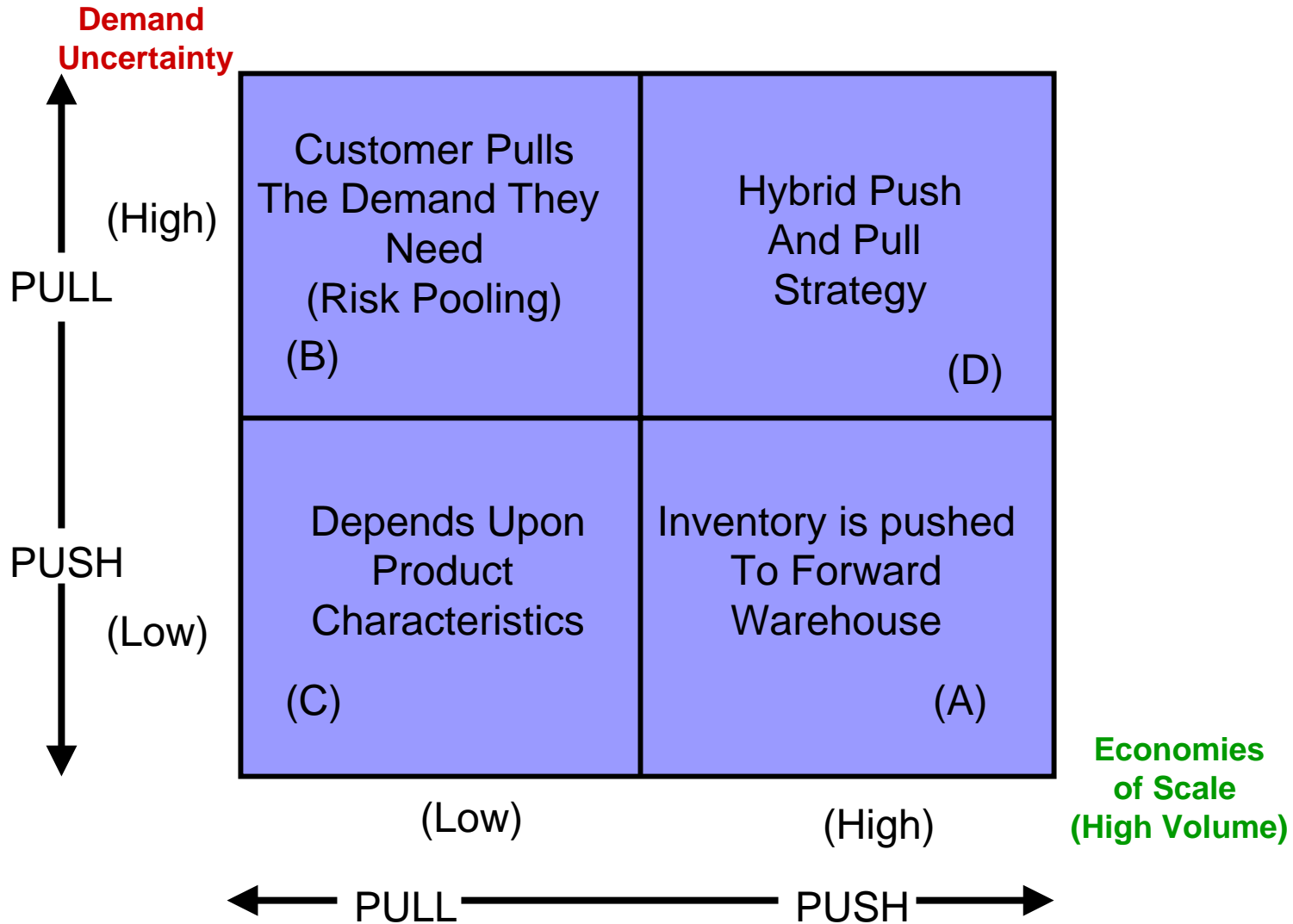


Push – Pull Supply Chains

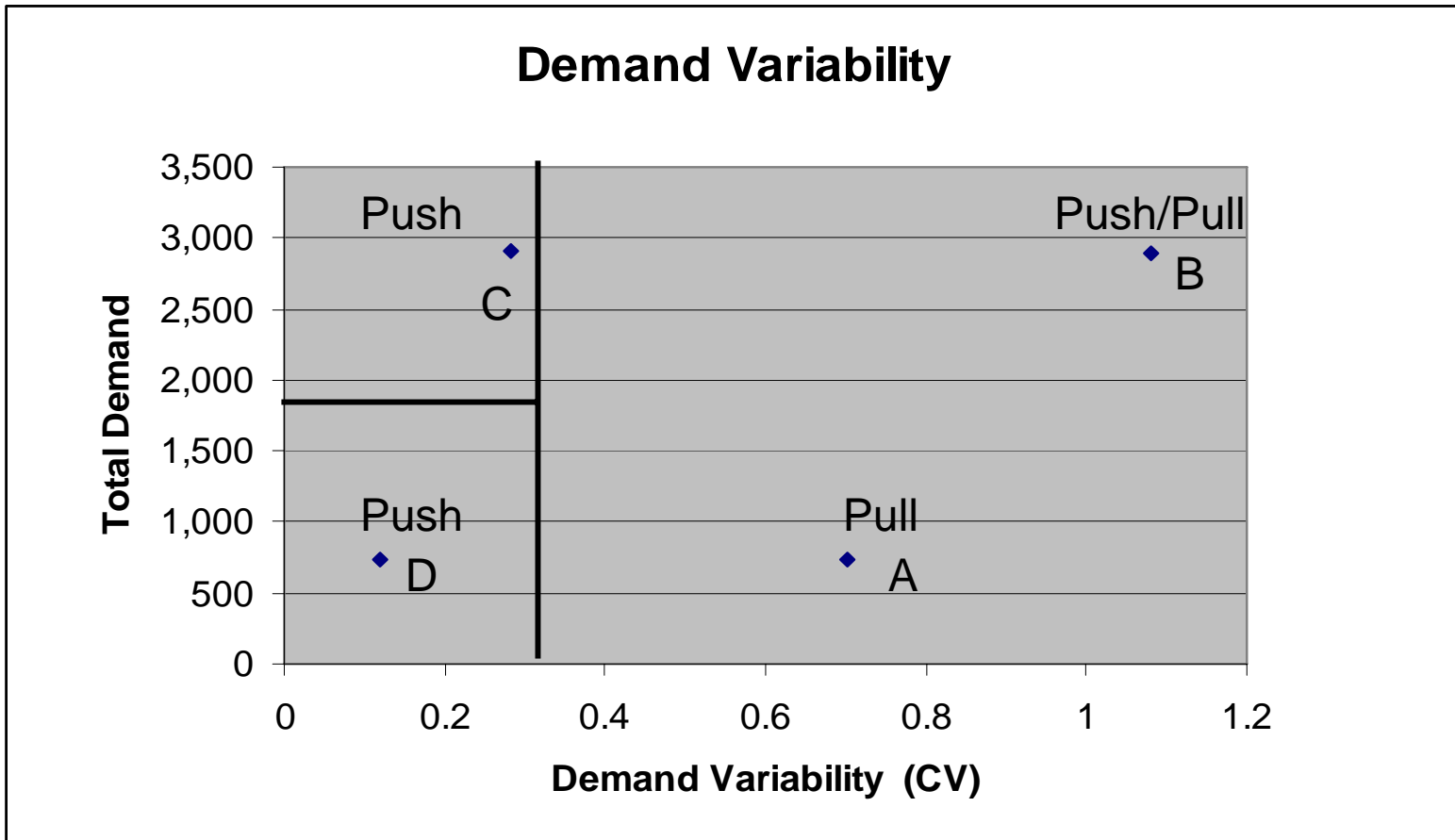


Supply Chain Time Line

Push vs. Pull Supply Chain

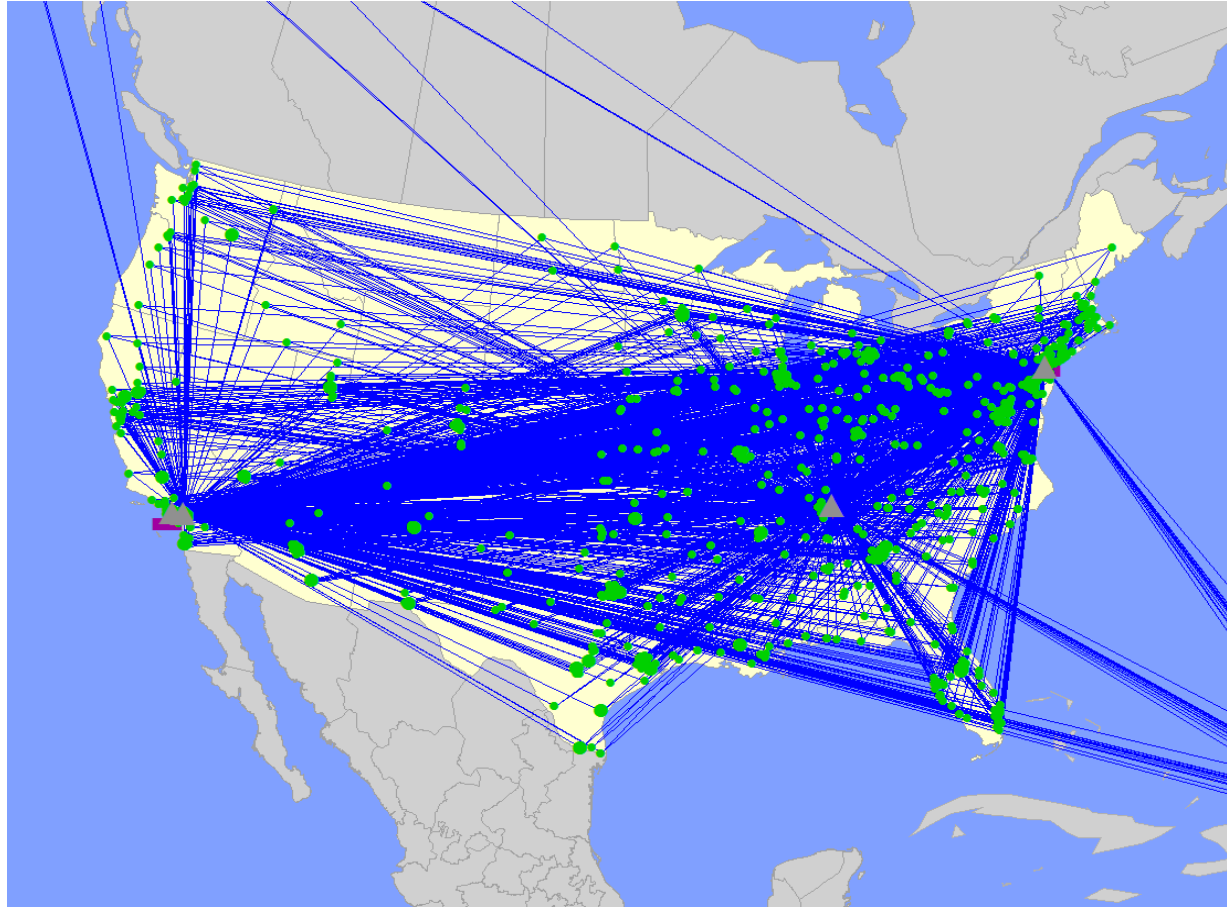


Push vs. Pull



	Weekly Avg Sales Demand	STD	CV	Demand
Stock # A	45.69	32.05	0.70	731
Stock # B	181.06	195.41	1.08	2897
Stock # C	181.44	51.03	0.28	2903
Stock # D	45.63	5.44	0.12	730

Future Network



Savings Opportunities

Scenario	Baseline	Asia-West	Asia-All	Asia/Europe-All
Inbound Transportation	\$ 3,034,011	\$ 2,723,407	\$ 1,853,166	\$ 1,703,726
Outbound Transportation	\$ 10,887,406	\$ 10,373,465	\$ 11,850,813	\$ 11,964,705
DC Variable Costs (HUDD/LDC)	\$ 14,533,148	\$ 13,580,425	\$ 10,911,112	\$ 9,703,767
DC Fixed Costs	\$ 2,288,403	\$ 2,288,403	\$ 2,288,403	\$ 2,288,403
In Transit Holding Costs	\$ 536,533	\$ 399,887	\$ 439,646	\$ 423,284
TOTAL COST	\$ 31,279,501	\$ 29,365,587	\$ 27,343,141	\$ 26,083,886
Diff vs. Baseline	\$ -	\$ (1,913,914)	\$ (3,936,361)	\$ (5,195,616)
% Diff vs. Baseline	\$ -	-6.1%	-12.6%	-16.6%

Inventory Positioning Impact

Driver	Impact	Driver Suggested by
Reduced Forecast Error	<1%	Management
Longer lead-times to customer	<1%	Management
Inventory Positioning	30%	Global Optimization
Synchronization	0 – 19%*	Global Optimization
Changing Transit Times	9%	Global Optimization
Changing Shipment Frequency	11%	Global Optimization

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Supply Chain Design Tips

- Sensitivity Analysis
 - Service vs. Cost Impact
 - Validity of Model
 - Break the Model
- Transition Cost Analysis
 - Enabling Technology Cost
 - Employee Severance Cost
 - Start up and Tear Down Cost
- Qualitative Analysis
 - Business Continuity
 - Risk Assessment
- Model Accuracy to 2% of current operating financials
- Economic Return on Investment
- What Next Factor?
 - Inventory Analysis and Deployment
 - Transportation Analysis and Deployment
 - Technology Analysis and Deployment