Microsoft Dynamics 365

LOOK

The Modern Retailer's Guide to

Distributed Order Management

Dynamics 365 for Retail eBook series

Introduction

E-commerce has not only shifted the way customers purchase products, it has also changed expectations around purchase fulfilment. From delivery times to shipping prices to omnichannel fulfilment, customers expect to have the option to get products however they want. Retailers must find ways to streamline their operations to meet these demands. In this edition of the Modern Retailer's Guide, we're exploring Distributed Order Management – or DOM – to help retailers better understand how this innovative solution can help them provide greater transparency and faster fulfilment, all at a lower cost.

About the Modern Retailer's Guide

We've developed the Modern Retailer's Guide to help retailers understand emerging trends, technologies and concepts. Our goal is to balance simplicity, breadth, depth and technical nuance to explain complex topics in a way that is easy to understand, while still being thorough and useful for modern retailers.

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Chapters

We've broken all of the information down into five easy to understand sections.

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Chapters

01

What is DOM?

We answer this complex question at the most basic level.

What is DOM?

At its most basic level, DOM is an intelligent order brokering system that uses a set of rules to determine the best fulfilment location for an order.

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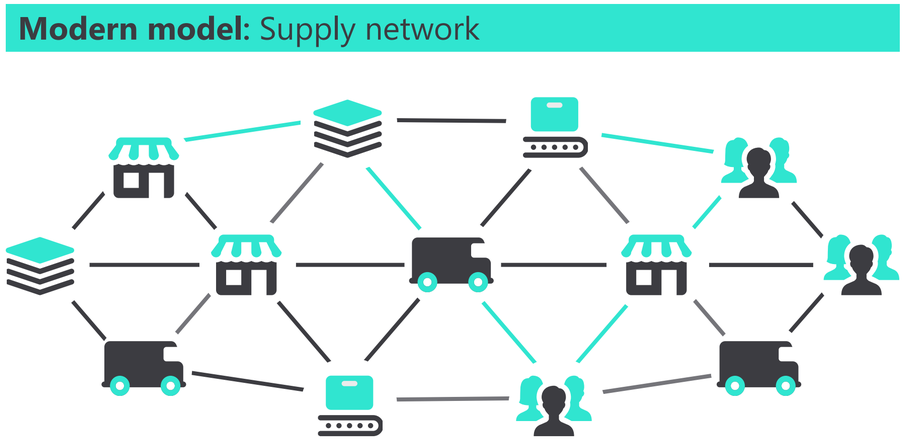
Historically, there has been a relatively well-defined, linear relationship between suppliers, manufacturers, distributors, retailers and customers. When customers purchased a product, this information was sent up the chain. In return, a product was created and delivered: the supply chain. Suppliers provided materials and parts, manufacturers built products, distributors stored and shipped products, retailers sold products and customers purchased products.

While this model has served us well for a long time, today's empowered customers now expect more from businesses. They want to be able to see product inventory availability at stores and online, they want personalised products, they want flexibility in how they purchase with cheaper and varied choices for fulfilment, and they want it all to be faster and less expensive.



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To adapt to these modern demands, the supply chain of the past has morphed into a supply network, where data flows between participants and products can be purchased and fulfilled from multiple channels. Manufacturers may serve as the manufacturer and retailer, and a retailer may serve as the retailer and distributor.

As these supply networks grow increasingly complex, Distributed Order Management (DOM) systems are making order management more intelligent and more efficient. By taking a global view of all inventory across the networks, a DOM system can intelligently broker orders based on a defined set of rules, such as minimising shipping costs and optimising inventory availability. In doing so, it helps save money, improve fulfilment times and helps ensure inventory availability, all of which leads to happier customers.

Before implementing DOM

There are several elements that need to be in place before a retailer can deploy a DOM system. The first involves centralising inventory from across the company into a single inventory management system. This provides visibility and access to inventory from across the organisation, regardless of current location, which provides critical input for the DOM system to leverage when brokering orders.

The second involves connecting your endpoints – purchase channels and fulfilment channels – to this unified system. This enables orders to be placed from any channel and fulfilled from any channel. It also enables inventory volumes to be properly tracked as products are purchased or returned.

Stages

1. Unify data
2. Intelligent order routing
3. Distributed fulfilment

Centralise inventory from across the organisation into a single inventory management system.

Connect your endpoints – purchase channels and fulfilment channels – to this unified system.

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Key concepts

Participants
Order entry
Order orchestration
Order fulfilment

Key concepts

01

To help you better understand how DOM works, we'll start by defining a few key concepts.

02 Participants

03 Order entry

04 Order orchestration

05 Order fulfilment

Participants

01 02 03 04 05

There are five types of participant:

1. Suppliers
Suppliers, including couriers and third-party logistics companies, provide the materials, parts and services that are needed for the manufacturers to produce a final product.

2. Manufacturers
Manufacturers design, develop and produce final products.

3. Distributors
Distributors store products and deliver products to retail locations and customers.

4. Retailers
Retailers are the entity from which customers purchase a product, either in-store or online.

5. Customers
Customers are the buyers and end users of products.

Redefining roles
Despite these well-defined roles, in the modern supply network, there is increasing fluidity between these roles. Or, perhaps it would be more accurate to say that participants are increasingly taking on multiple roles. For example, direct-to-consumer programmes are enabling manufacturers to act as the retailer, selling directly to customers, while more retailers are acting as distributors, using parts of their physical shops to serve as mini-distribution centres. And, through the gig and sharing economies, many customers are producing and selling goods of their own, with some even acting as distributors, delivering goods to their final destination.

Access to information
A major variable, that has been both a cause and effect of these changes, has been increased access to data across the supply network. In the traditional supply chain model, data typically flowed upstream, with unnecessary data being removed as orders were funnelled between participants. There was generally very little data flowing downstream, particularly to the customer. But, as customers have demanded greater transparency – and other participants have sought greater visibility to improve decision making and optimise performance – participants across the network have had to work closer, which includes sharing information across the network. In essence, this global data allows the supply network to operate as a single, cohesive unit instead of separate, linked entities. It has also played a large role in participants taking on new roles.

Order entry

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Order source (channel)
Order sources – sometimes referred to as purchase channels – as the name suggests, are any source or channel that a customer may order or purchase a product through. This includes, but is not limited to, catalogues, over-the-phone, in-store, vending machines, online, on mobile, voice-enabled devices and social media.

Order Management System
An Order Management System is a software system that intakes and processes orders, including order entry; processing returns and refunds; tracking customer orders; managing inventory levels; packing and shipping; and synchronising orders across channels.

Order orchestration

01

Sourcing
Sourcing is the process of determining from which location or supplier an order should be shipped.

02

Fulfilment rules
Fulfilment rules are a set of predefined rules that are used in deciding where to broker an order. For example, rules may specify that orders should be shipped from the closest physical location, from the location that has the lowest shipping cost, from the closest location where all products are available to be shipped together or from the location with the highest supply level of the ordered product.

03

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Rule exceptions
Certain rules may have exceptions based on extraneous factors. For example, a rule may stipulate that an order be shipped from the closest location. However, the closest location to a customer in south Texas may be in Mexico. In this circumstance, the business may opt to ship the product from a location in the US. Customers may also manually create exceptions, such as selecting in-store pickup at a location far from their home address.

05

Fulfilment rule details

Rule	Description
Minimum inventory rule	The minimum inventory level rule defines a quantity buffer for a store/warehouse which will not be considered by DOM for the purpose of fulfilment. A minimum inventory can be defined per store/warehouse for a category, product or product variant.
Fulfilment location priority rule	The location priority rule allows the user to define preferred warehouses and stores for specific categories, products or product variants.
Partial orders rule	This fulfilment type rule allows the user to say that a specific warehouse or group of warehouses will not process split orders or split order lines.
Offline fulfilment location rule	The location offline rule allows the user to specify a warehouse, or group of warehouses, that are offline for DOM assignment of orders.
Maximum rejects rule	The maximum rejections rule allows the user to define a threshold for which the DOM processor will mark an order or order line for exception, and exclude it from further processing.
Maximum distance rule	The maximum distance rule allows the user to define a maximum distance from the warehouse or retail store that the warehouse will ship to. Overlapping maximum distance rules will apply the smallest maximum distance.
Maximum orders rule	The maximum orders rules allow the user to define the maximum number of whole orders the warehouse can process per day.

Order orchestration

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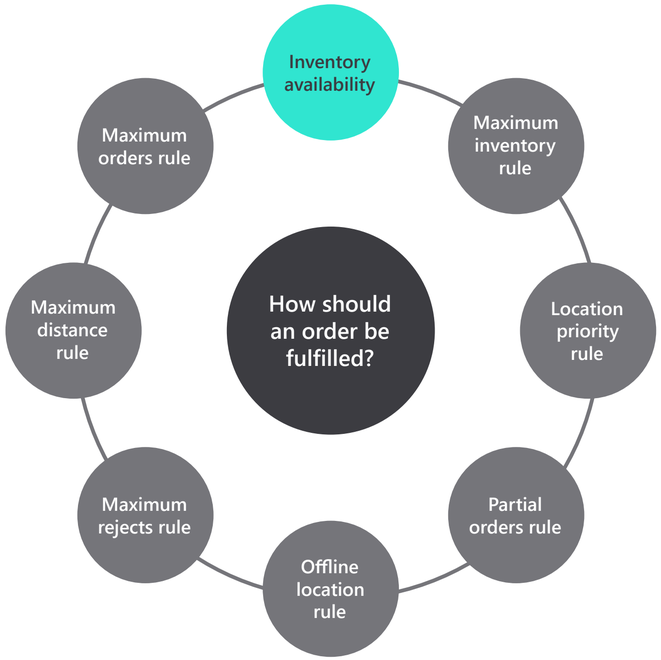
Order brokering
Order brokering is the actual process of intaking an order, the logic of deciding where to send the order and the action of sending the order to the chosen participant to be fulfilled. At its core, the purpose of a DOM system is to intelligently broker orders.

Fulfilment plan
A fulfilment plan is an output from the order brokering process. In essence, it provides a plan of which products will be sourced from which locations.

Order lines considered by DOM

- Unbrokered order lines
- Brokered order lines marked as exception which are below the maximum attempt threshold
- Order lines not marked as Pickup
- Order lines not marked for Direct delivery
- Order lines not manually excluded
- Order lines not On hold



Location with lowest cost that meets rules to fulfil an order line is assigned

Order fulfilment

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Order routing
Order routing is the process of sending the orders to the appropriate participants for fulfilment, as defined in the fulfilment plan.

02

Fulfilment nodes
Fulfilment nodes are participants in the fulfilment process, including physical stores and warehouses.

03

Delivery modes
Delivery modes are the ways a product is delivered, including ship-to-store, in-store pickup and free 2-day home delivery.

04

Omnichannel order fulfilment
Omnichannel order fulfilment provides customers with the ability to buy through any purchase channel – including in-store and online – and receive the product from any channel, including scenarios such as in-store purchase and pickup, buy online and pickup in store, and buy online then ship to home.

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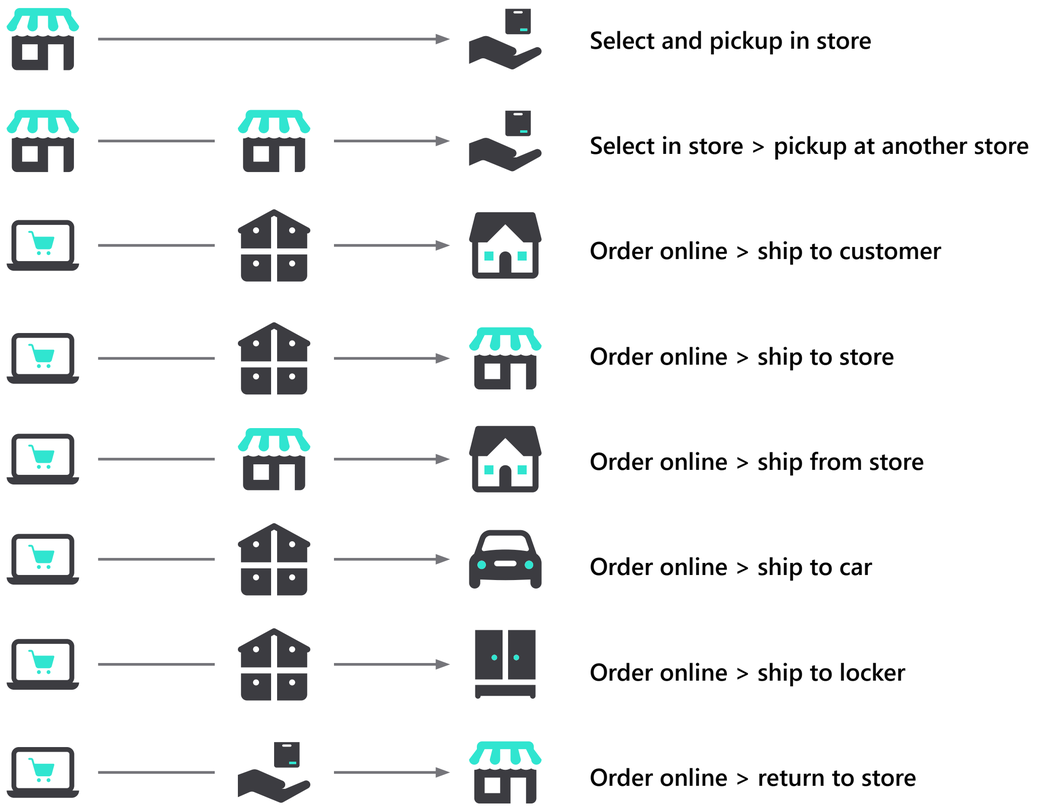

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How it works

From the initial order to the final delivery, we walk you through how DOM works.

How it works

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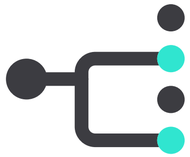
01 Customer makes a purchase

A customer purchases a product that requires some form of fulfilment.

02 Order received by business

The Order Management System receives the sales order.



03 Order intelligently brokered by DOM

The DOM system creates a fulfilment plan for the order based on the fulfilment rules.

04 Order distributed to appropriate location

The order is sent to the participant(s) as defined by the fulfilment plan.

05 Product delivered to customer

The product is shipped from the respective participant(s) to the customer.

Intelligent order brokering

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Order intelligently brokered by DOM
Intelligent order brokering is at the heart of what a DOM system does and the value it provides. The process through which it brokers orders – as defined below – provides a detailed summary of the steps involved in this process. However, it's worth noting that the parameters and rules which govern this process can be as simple or as complex as one would like.

> **Note:** These parameters and rules can and should be modified over time to optimise the DOM system's output.

Order lines considered by DOM
The DOM system reads the order lines to determine any parameters which may impact its analysis.

Order assessed based on fulfilment rules
The DOM system analyses the order based on the fulfilment rules.

Fulfilment plans created and compared
The DOM system analyses the possible fulfilment plans and compares the outputs of these plans.

Plan approved and implemented
The DOM system selects the optimal fulfilment plan and approves it for implementation.

Exceptions to the fulfilment plan handled
The DOM system identifies and manages exceptions to the fulfilment plan.

Consider order lines

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Order lines considered by DOM

After an order is placed, the Order Management System verifies the order and sends it to the DOM system to be processed. Upon receiving the order, the DOM system reviews the order lines for information which may impact how the order should be processed. For example, if part of a customer's order was received at the time they made an in-store purchase, or if a customer requested in-store pickup at a specific store where inventory is available, the DOM system does not need to broker these order lines. Thus, the DOM system will only consider order lines that are unbrokered and require brokering.

- **Unbrokered order lines**
- **Brokered order lines marked as exception which are below the maximum attempt threshold**
- **Order lines not marked as Pickup**
- **Order lines not marked for Direct delivery**
- **Order lines not manually excluded**
- **Order lines not On hold**

Fulfilment rules

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Order assessed based on fulfilment rules
After the order lines are considered by the DOM system, the order is evaluated based on the fulfilment rules and the inventory position across the locations in the network. As discussed, these rules are defined by the retailer and may include optimising for inventory availability, distance from destination or shipping cost.

Rule order
It is worth noting that these rules may exist in a defined order, sequentially. For example, a retailer may choose to first optimise orders for inventory availability, then to minimise the number of packages and, finally, for the lowest cost.

Conditional rules
In addition to being sequential, rules may also be conditional, so based on a defined customer or product criteria. For example, the DOM system may prioritise delivery speed for loyalty programme members, while it may prioritise cost for non-loyalty members. For purchases over a certain volume, it may prioritise location, while it may prioritise inventory availability for smaller items.

These conditions may also include other conditional parameters, such as geography or time. For example, a retailer may apply a rule to maximise inventory availability, but only consider distributors within 1000 miles of the delivery destination. Or, they may apply the same rule, but only to distributors who can deliver the product within 72 hours.

Fulfilment plans

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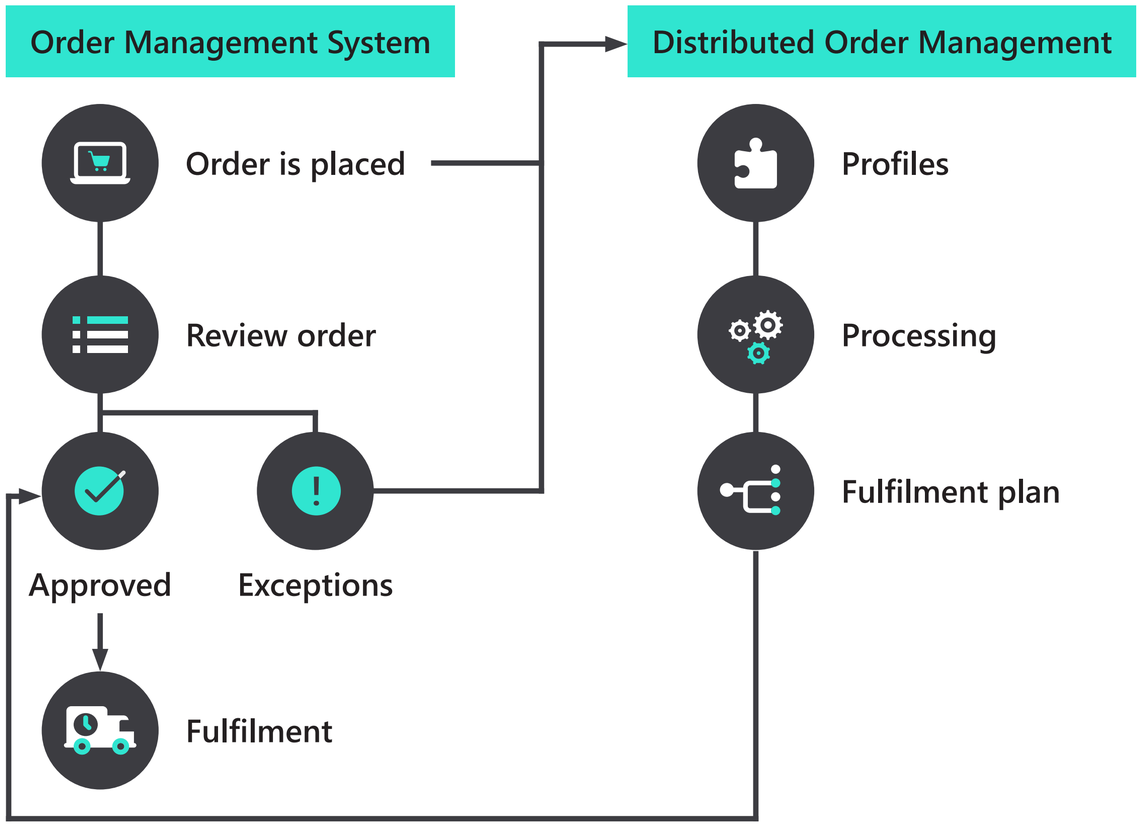
Fulfilment plans created and compared
With the order lines considered and rules defined, the DOM system will create a list of all fulfilment plans that aren't excluded by the rules. Organisations can run the same set of orders with different fulfilment policies through DOM, which results in different fulfilment plans. Different KPIs for these fulfilment plans can be compared to determine the best fulfilment plan for the set of order lines.

Plan approved and implemented
The DOM system ranks the fulfilment plan based on the rules, ultimately selecting a plan it deems best. This plan is approved and orders are distributed to the respective participants. The recommended plan can be auto-approved or manually approved and orders distributed to the participants.

Exceptions to the fulfilment plan handled
From time to time, DOM systems may come across orders with exceptions to the fulfilment plan. These may include orders with manual exceptions, such as an order that is being expedited for a customer, a customer who is picking up a product directly from a distribution centre or a product that is out of stock.



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Benefits and challenges

We discuss the benefits DOM can provide, as well as current challenges.

Benefits and challenges

01

Improved order promising
With access to more inventory and fulfilment options, Distributed Order Management systems enable retailers to more reliably promise delivery dates.

02

Better inventory management
With greater visibility into inventory and purchase patterns across the organisation, retailers are able to more intelligently manage inventory volumes and distribution.

03

Improved delivery times
By intelligently routing orders to the most optimal fulfilment location, retailers are able to speed up the sales lead time and delivery time.

04

Reduced operating costs
By leveraging more efficient fulfilment channels and locations, retailers can reduce waste and save money on fulfilment.

05

Improved lifetime customer value
Beyond improving fulfilment flexibility and delivery times, DOM provides retailers with the opportunity to optimise fulfilment based on variables such as lifetime value, loyalty and social influence.

Every store is a fulfilment centre
One of the biggest challenges for modern retailers is managing both their brick and mortar locations, as well as all of the infrastructure required to operate an e-commerce business. With DOM, retailers can leverage existing brick and mortar locations as fulfilment centres, both for shipping and pickup, to help maximise the value of these existing assets, provide customers with more flexible fulfilment options and to improve delivery times and costs by shipping from a nearby store as opposed to a warehouse in a remote location.

As the retail industry evolves in a new era, DOM is enabling brick and mortar shops to shift towards this type of multi-functional use.

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Use cases

We'll look at scenarios to help illustrate how DOM works and its benefits in real life situations.

Use cases

01

Fulfil from anywhere

If a customer in Seattle wants to order a product from a retailer and there is only one product left – which resides at a retail location in Miami – DOM enables that customer to order the product. The DOM system allows that physical store in Miami to operate as a distribution centre, fulfilling the order and shipping it to the Seattle customer.

02

Reduce fulfilment times

Orders can be routed to reduce fulfilment time. This may be to the store closest to the customer, a fulfilment centre with the highest bandwidth or a distribution centre with the largest volume of products.

03

Send customers to a nearby store

If a customer is shopping in-store, but the product they are seeking is not available, a store associate can look up the product and reserve it at a nearby store so that the customer can go and purchase it at the other location.

04

Prioritise valued customers

Particularly in times when there is limited inventory, a retailer may opt to have the system prioritise high-value customers. For example, if two customers place an order around the same time and there is only one product available, it may choose to prioritise the higher-value customer based on calculated lifetime customer value.

05

Better manage inventory

When a high-demand product is ordered online, DOM enables the retailer to optimise which distribution centre or store the product is shipped from to help ensure that all of its locations maintain a minimum level of that product in stock.

Scenario

01

Fashion retailer
Headquartered in New York, NY

02

2 distribution centres (Denver, CO and Atlanta, GA)

30 stores in the US, including Seattle, San Francisco, Houston and New York City

03

Sales order
Customer lives in Phoenix, AZ

04

Looking for the perfect ensemble to wear

05

Scenario

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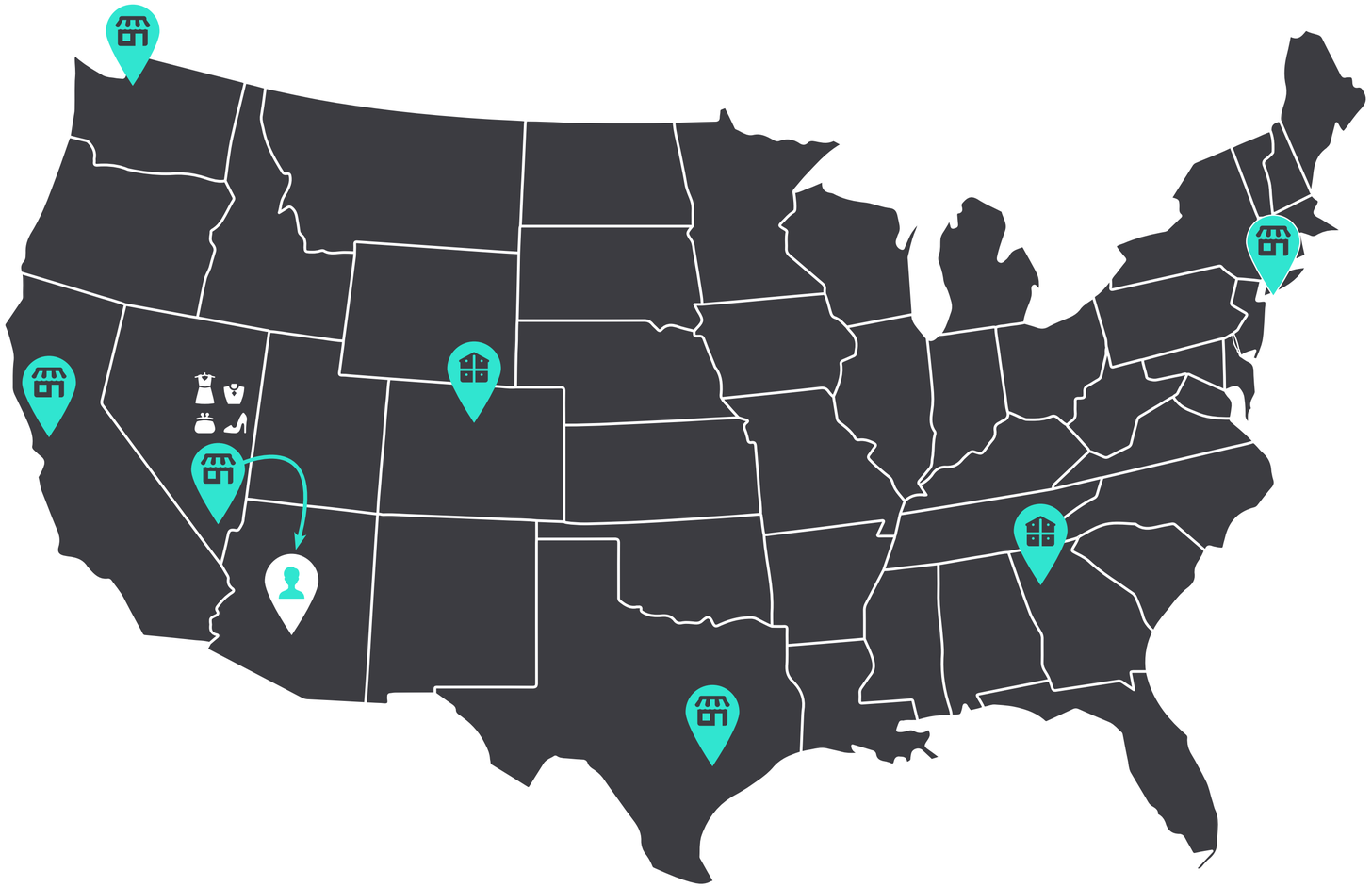
No inventory constraints
Split orders: Yes
Location offline: No
Maximum orders: No constraint
Location priority: No

	Inventory				Approximate distance to Phoenix (miles)
SEA	2	3	1	1	1,421
LAS	1	1	1	1	296
SFO	1	2	1	0	752
DEN	20	14	5	7	850
IAH	1	3	2	4	1,174
ATL	10	7	20	20	1,806
NYC	2	3	1	2	2,405



Scenario

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Minimum inventory constraints

All stores (dress: 1, handbag: 1)

Split orders: Yes

Location offline: No

Maximum orders: No constraint

Location priority: No

	Inventory				Approximate distance to Phoenix (miles)
SEA	2	3	1	1	1,421
LAS	1	1	1	1	296
SFO	1	2	1	0	752
DEN	20	14	5	7	850
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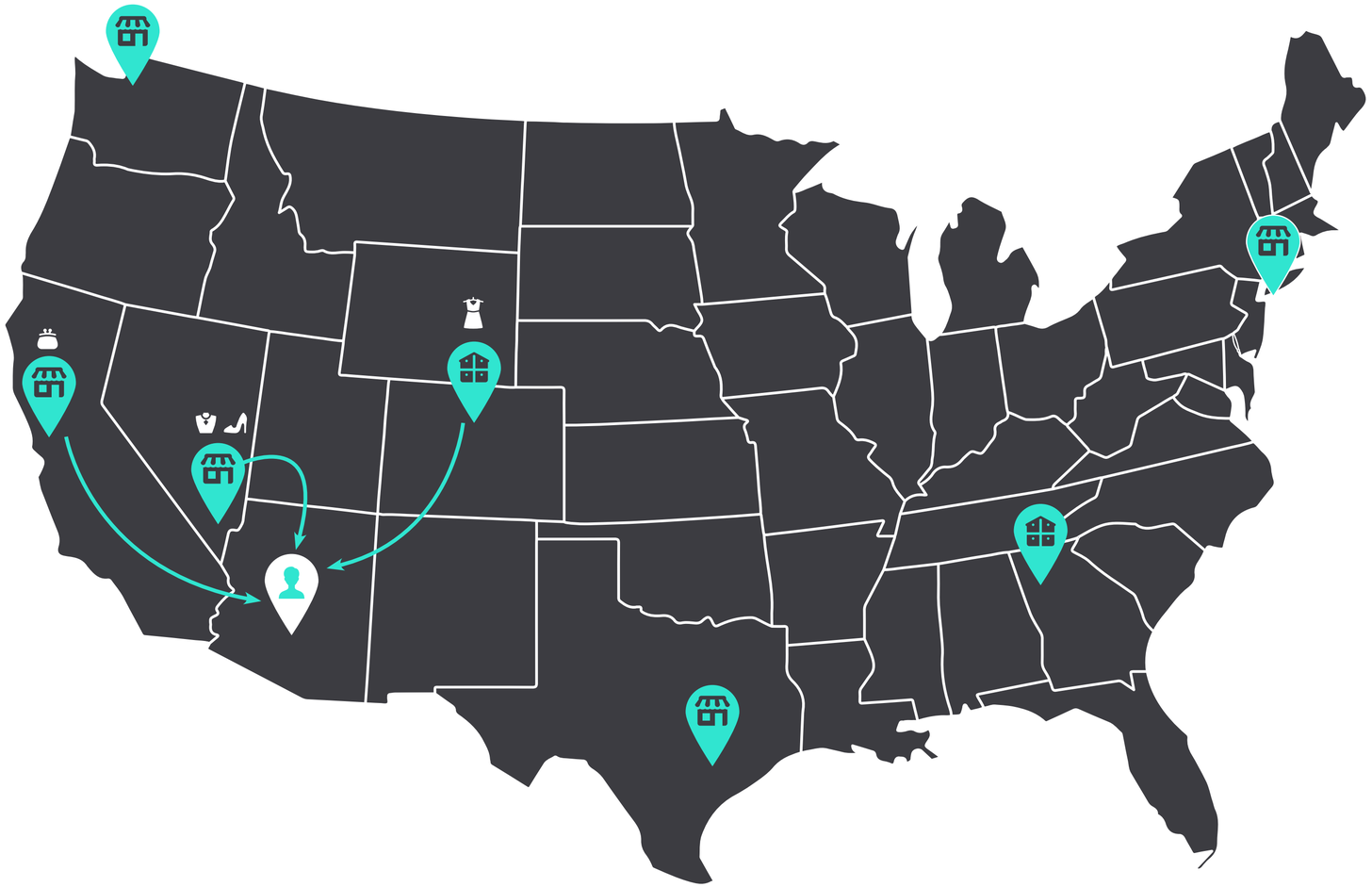

Scenario

01

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Minimum inventory and split order constraints

All stores (dress: 1, handbag: 1)

Split orders: *No*

Location offline: SFO

Maximum orders: No constraint

Location priority: No

	Inventory				Approximate distance to Phoenix (miles)
					
SEA	2	3	1	1	1,421
LAS	1	1	1	1	296
SFO	1	2	1	0	752
DEN	20	14	5	7	850
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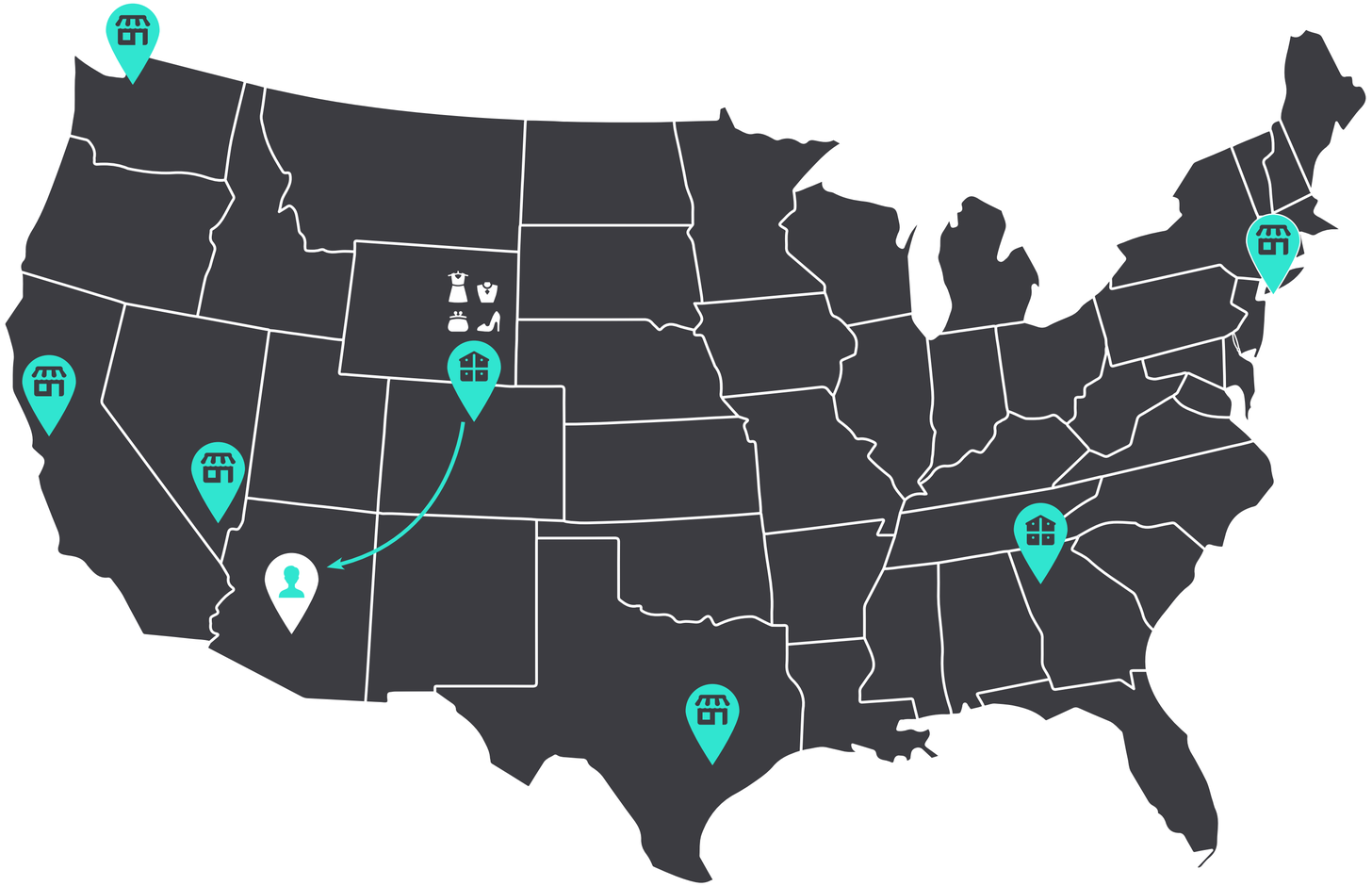

LOOK

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