



# PROMAT®

2015

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March 23-26, 2015  
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***E-Commerce is entering  
a new dimension.  
Are your conveyors and  
sorters ready for the  
challenge?***

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**CSS**

**Conveyor & Sortation Systems**

Presented by:

**Stephen Cwiak, Interroll**



**Tim Kraus, Intelligated**



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NEXT.**



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## ***E-Commerce is entering a new dimension. Are your conveyors and sorters ready for the challenge?***

- What we will cover
  - E-Commerce Growth
  - Impact of E-Commerce on the supply Chain
  - Dimensional Pricing Changes
  - What can I do?
    - Immediate opportunities
    - Modifying existing systems
    - Future system designs



## E-Commerce Growth

- E-commerce has become a \$220 billion industry in the US, growing at almost 20 percent per year. \*
- Over the past 20 years, E-Commerce sales have grown to about 6.6% of total retail sales in the US. \*
- Roughly 50 percent of businesses globally do not have a web presence yet: hosting and e-commerce remain an area with huge growth potential
- Fast data connections and the massive adoption of mobile internet on smartphones, tablets and other internet-enabled devices will further bolster this trend



\* US Census Report

## What Should the Material Handling Industry Focus on?

Order Picking and Sorting are the two most cost-intensive areas in a DC.

Focusing on the following areas is imperative to have a positive impact on your business' profitability:

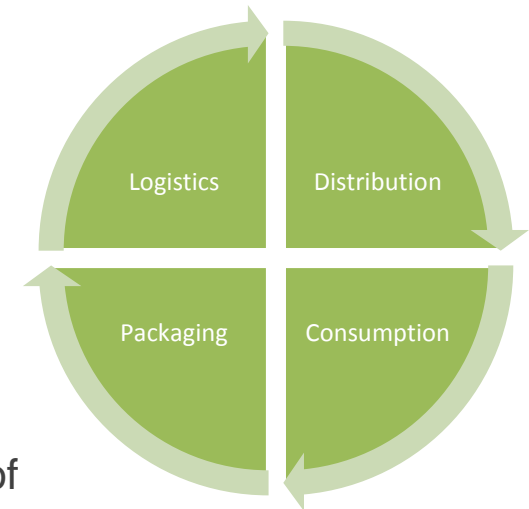
- **Speed** → in a highly competitive environment, speed is of crucial importance to gain an edge over the competition. People want fast deliveries.
- **Availability** → Four out of five consumers will buy only if what they are looking for is immediately available, according to a survey by Accenture.
- **Flexibility** → A scalable system which is adaptable to the changing needs of e-commerce should be a primary attribute for any direct-to-consumer material handling system.
- **Reliability** → Uptime is key. A system that is often down or requires a lot of maintenance will ultimately increase costs.





## Impact of E-Commerce on the Supply Chain

- Analyzing the profitability of public e-commerce retailers, e-commerce's pricing advantages mostly stem from lower profit margins rather than from lower costs.
- The IT infrastructure, DC's, shipping and returns processing required by e-commerce companies can cost as much as running regular stores
- A DC that's designed to support retail stores may not have the right layout, equipment, or processes in place to meet the specific demands of direct-to-consumer fulfillment
- Shipping costs and delivery times have a high impact on customer's purchasing decisions
- **Dimensional weight pricing** will cause a change in the size of packages: how does the material handling industry respond to that shift?



## Dimensional Pricing Changes

**FedEx** Ship Track Manage Learn FedEx Office

**FedEx Newsroom**

Global United States Canada Latin America & Caribbean Europe, Middle East, India & Africa Asia Pacific

**FedEx Announces Pricing Changes**

May 02 2014

MEMPHIS, Tenn., May 2, 2014—FedEx today announced pricing changes for FedEx Freight will increase its published fuel surcharges, effective June 2, 2014. Fuel weight pricing to all shipments of FedEx Freight updates its Canada every week based on published average diesel fuel prices. With the Freight's fuel surcharge remains one of the lowest among the major less-than-truckload carriers, FedEx Freight's fuel surcharge remains one of the lowest among the major less-than-truckload carriers. These changes apply to all FedEx Freight shipments governed by the FXF 10 applicable FedEx Freight® shipments within the contiguous U.S., between the Puerto Rico, the U.S. Virgin Islands and Canada, and within Canada.

Effective January 1, 2015, FedEx Ground will apply dimensional weight pricing. FedEx Ground applies dimensional weight pricing only to packages measuring change will align the FedEx Ground dimensional weight pricing with FedEx Ex Dimensional weight pricing is a common industry practice that sets the transport volume—the amount of space a package occupies in relation to its actual weight.

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**UPS Announces Dimensional Weight Changes**

Atlanta, June 17, 2014

*New Pricing Addresses Industry Trend, Promotes Packaging Efficiency and Environmental Responsibility*

UPS® (NYSE:UPS) today announced that, beginning December 29, 2014, in the United States, dimensional weight will be utilized to calculate the billable weight of a shipment on all UPS® Ground services and UPS® Standard to Canada packages. UPS already applies this method for UPS air services (domestic and international), UPS Standard™ to Mexico ground services and for UPS® Ground packages and UPS® Standard to Canada packages measuring 3 cubic feet in size or larger.

"UPS has been researching the potential expansion of dimensional-weight pricing for a number of years because it enables us to more appropriately align rates with costs which are influenced by both the size and weight of packages," said Alan Gershenson, UPS executive vice president and chief commercial officer.

Recent e-commerce shipping trends have resulted in a decrease of package density. For example, the package weight compared to the physical exterior dimension is declining. This trend causes cargo space to be less efficiently utilized, resulting in an increased cost per package.

The company believes that as a result of the dimensional weight pricing method, more shippers will seek to optimize their packaging practices. These efforts will reduce excess packaging materials and overall package sizes, leading to related reductions in fuel use, vehicle emissions and transportation costs.

As an industry leader in sustainable transportation practices, UPS provides solutions to assist customers with more efficient package solutions. The UPS® Business Design and Tool Lab helps

May 2, 2014

June 17, 2014

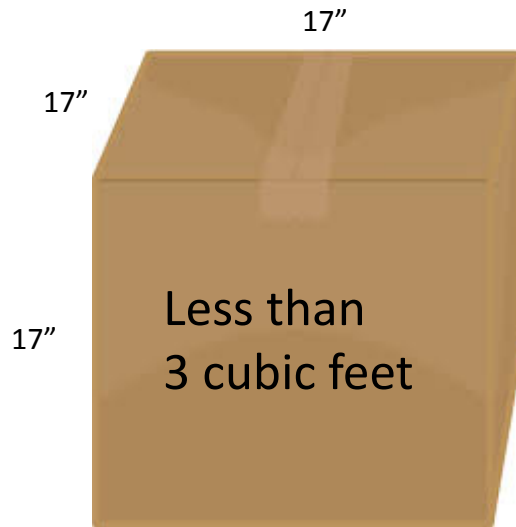
*“Recent e-commerce shipping trends have resulted in a decrease of package density.”*

*“This trend causes cargo space to be less efficiently utilized, resulting in an increased cost per package.”*

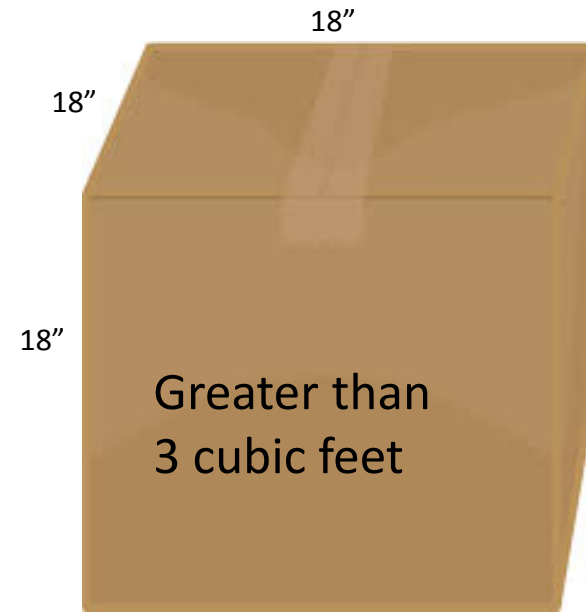


## Dimensional Pricing Changes

- 2014 Pricing



Priced calculated  
by actual weight



Priced calculated  
by dimensional weight  
(or actual weight if larger)



## Dimensional Pricing Changes

- 2015 Pricing



Any size

Priced calculated  
by dimensional weight  
(or actual weight if larger)



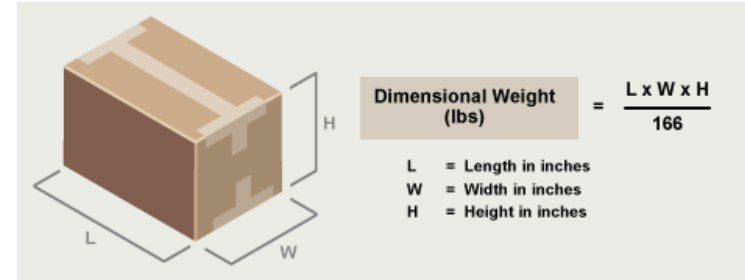
Any size

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## Dimensional Pricing Changes

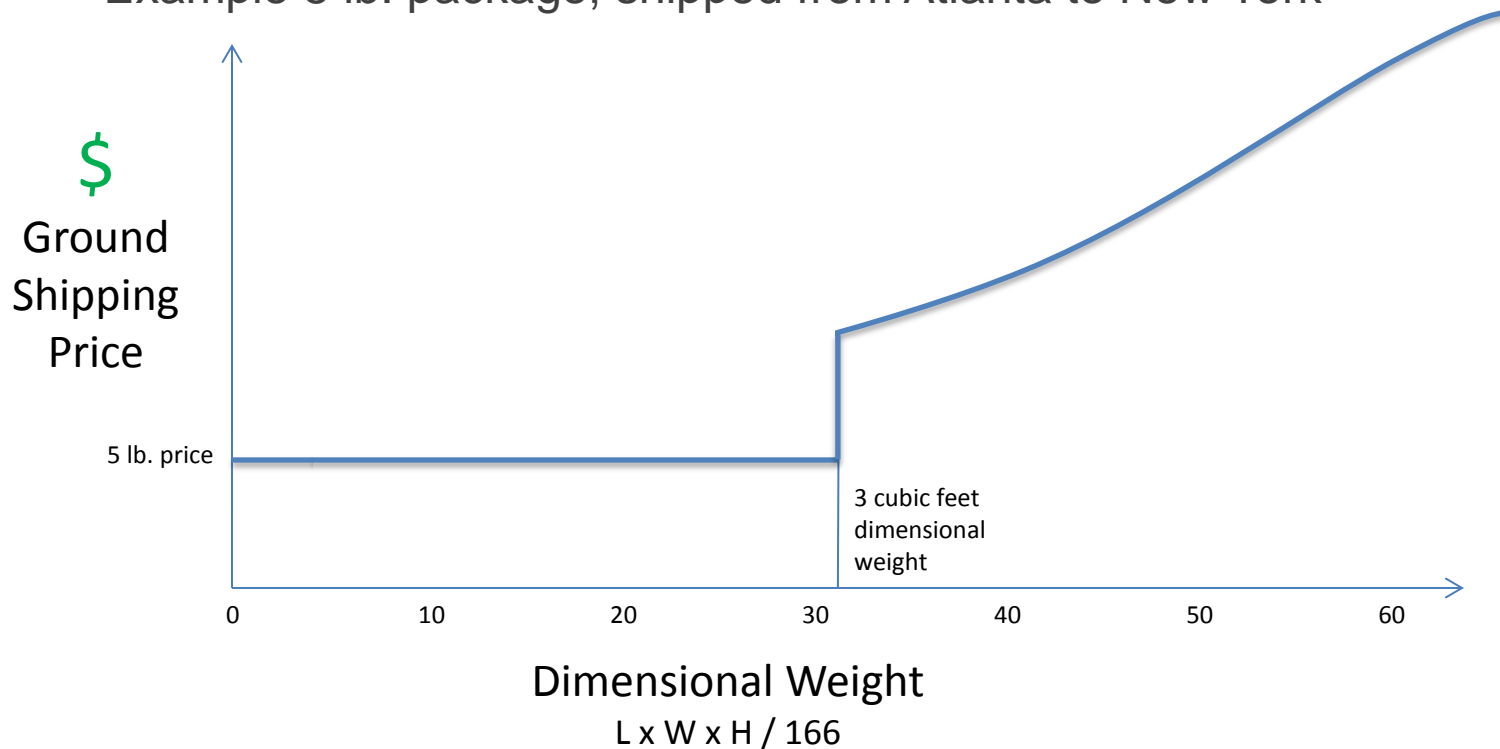
- Dimensional weight = theoretical weight of a package calculated at a density chosen by the parcel carrier
- This allows parcel carriers to better correlate the volume consumed on a truck to the price charged for delivery





## Dimensional Pricing Changes

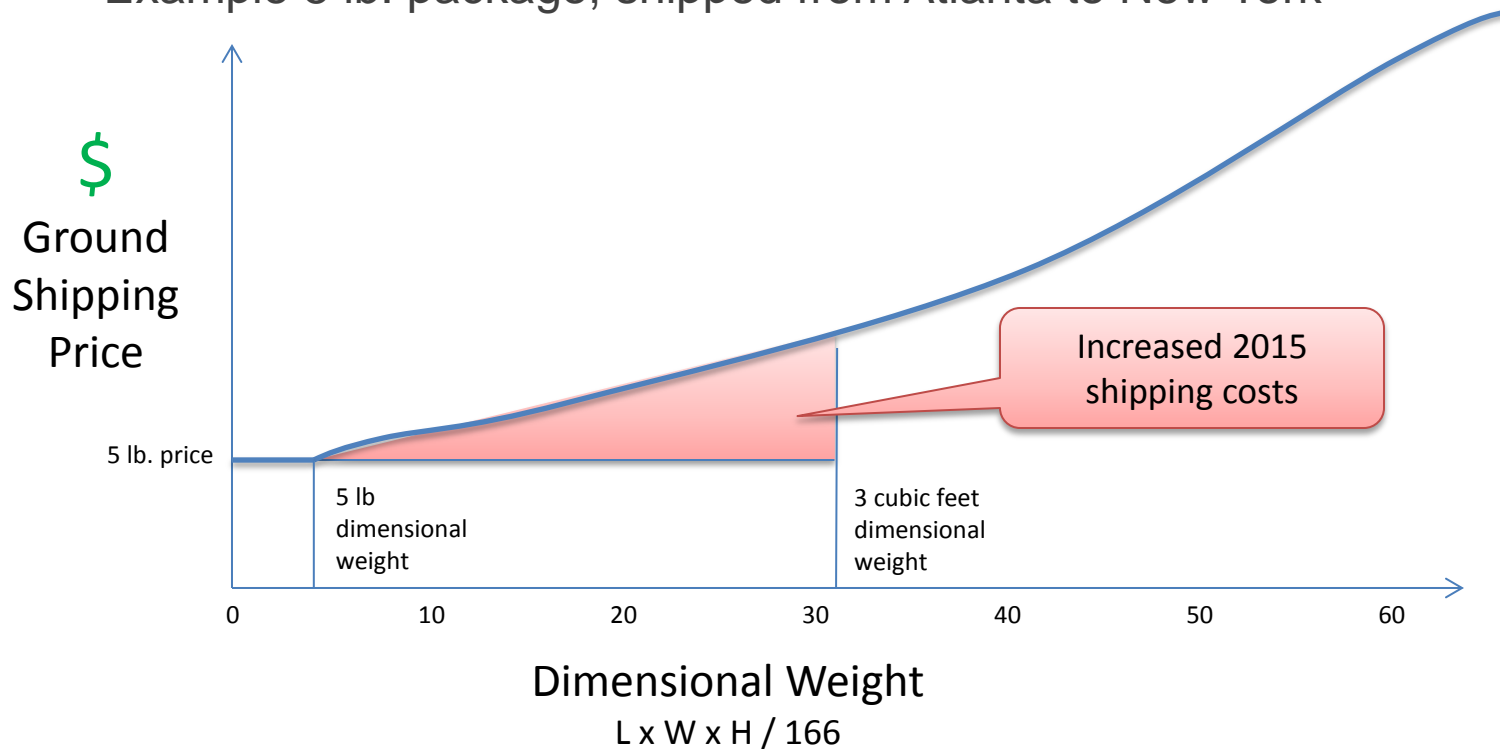
- 2014
  - Example 5 lb. package, shipped from Atlanta to New York





## Dimensional Pricing Changes

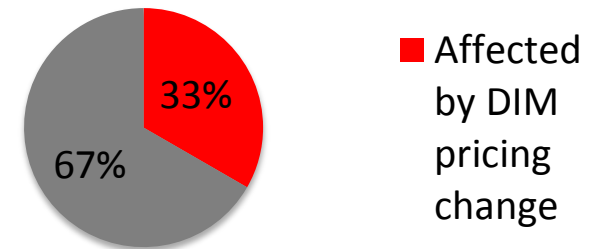
- 2015
  - Example 5 lb. package, shipped from Atlanta to New York



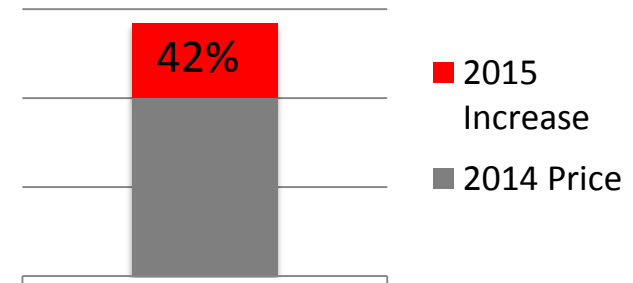
## How will DIM pricing affect me?

- Shipping cost increases
  - The Wall Street Journal reported that greater than 1/3 of all current ground shipments will see pricing increases if no change is made to their size
  - Example, A 5-pound package with a volume less than 3 cubic feet can increase in shipping price by 42% for a delivery less than 250 miles

### All Ground Shipments



### 5lb, >3' square, >250 miles





## What can I do?



1. Immediate Changes



2. Existing Conveyor and Sortation System Changes



3. Future System Design Changes



## What can I do?



1. Immediate Changes

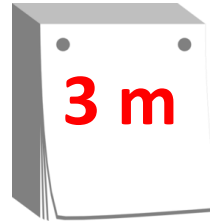


2. Existing Conveyor and Sortation System Changes

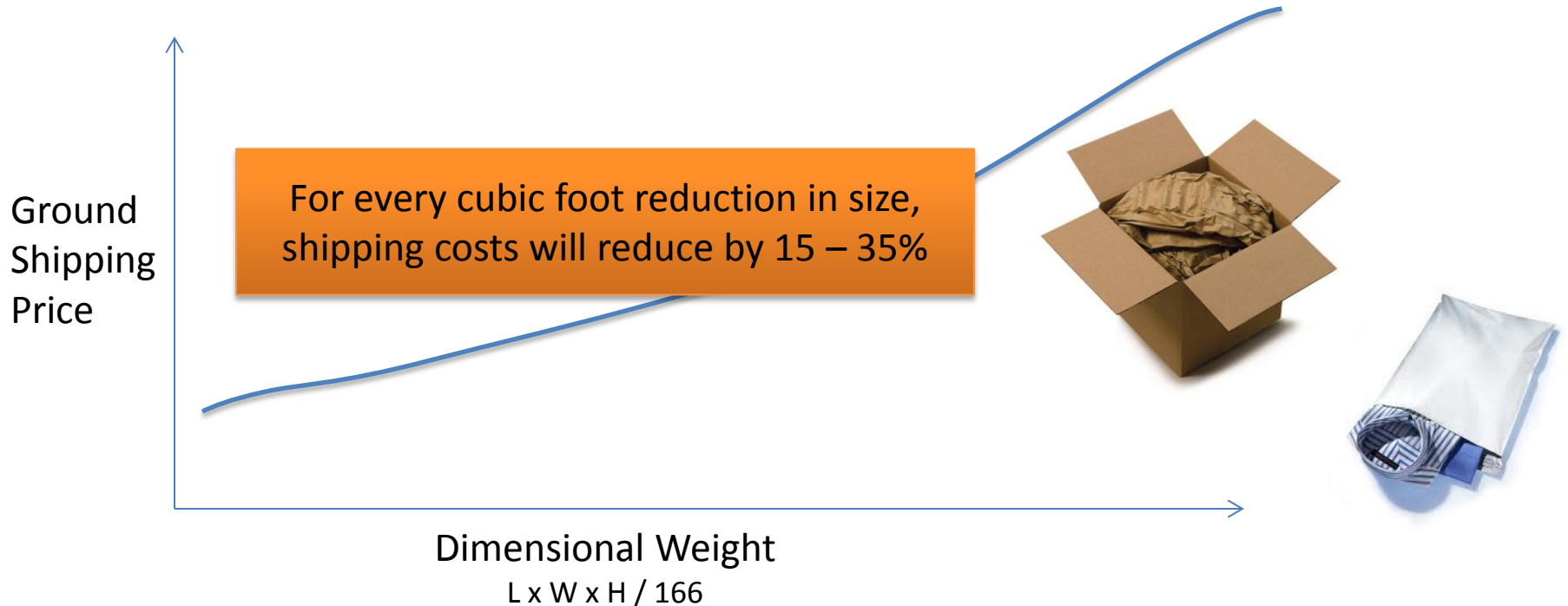


3. Future System Design Changes

## What can I do? – Immediate Changes

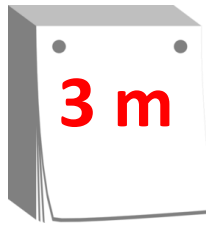


- Reduce packaging sizes



## What can I do? – Immediate Changes

- Re-negotiate with carriers
  - Many consulting companies specialize in this service
- On-demand packaging solutions
  - Machines that create cartons on demand based on optimal size
- Cartonization software
  - Software which systematically tells packers the optimal size to use based on SKU dimensions and available package sizes
- Rate shopping software
  - Software which shops optimal carrier based on size, weight, destination and negotiated rates







## What can I do?



1. Immediate Changes



2. Existing Conveyor and Sortation System Changes



3. Future System Design Changes



## What can I do? – Existing Conveyor and Sortation System Changes



- Tote conveyors
  - Small parcels
  - Non-conveyables



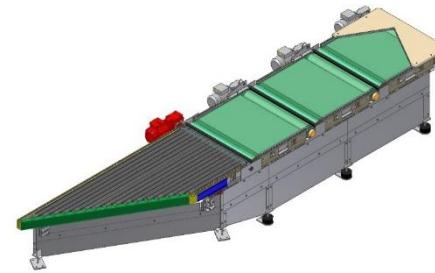


## What can I do? – Existing Conveyor and Sortation System Changes



- Induction Process

- Manual
- Semi-Auto
- Auto
- Hybrid



## What can I do? – Existing Conveyor and Sortation System Changes



- Identification Process
  - Multi-sided
  - Dimensioning
- Sorter alternative uses
  - Order picking
  - Sequencing
  - Replenishing





## What can I do?



1. Immediate Changes

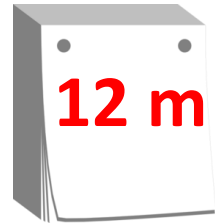


2. Existing Conveyor and Sortation System Changes



3. Future System Design Changes

## What can I do? – Future System Design Changes



- Two common types of conveyor & sortation systems

### Singulated Flow System



Pack-out



Singulated Accumulation



Merge



Sortation

### Bulk Handling System



Pack-out



Bulk flow

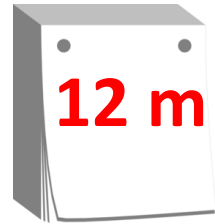


Singulation



Sortation

## What can I do? – Future System Design Changes



- More Bulk Handling
  - Remove the difficulties of handling polybags by making distribution and fulfillment systems look like bulk flow parcel systems
  - Singulation could be manual or automatic
  - Sortation could be sliding shoe, modular belt, tilt tray, cross belt, etc

### Bulk Handling System



Pack-out



Bulk flow

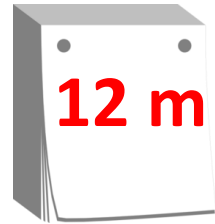


Singulation



Sortation

## What can I do? – Future System Design Changes



- More Precise Accumulation, Merging and Gapping for Singulated Flow Systems
  - Polybag handling makes maintaining singulated flow more difficult
  - Polybags make high throughput merging and sortation more difficult

### Singulated Flow System



Pack-out



Singulated Accumulation



Merge

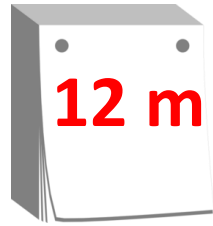


Sortation



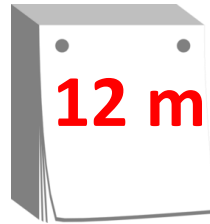
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# What can I do? – Future System Design Changes

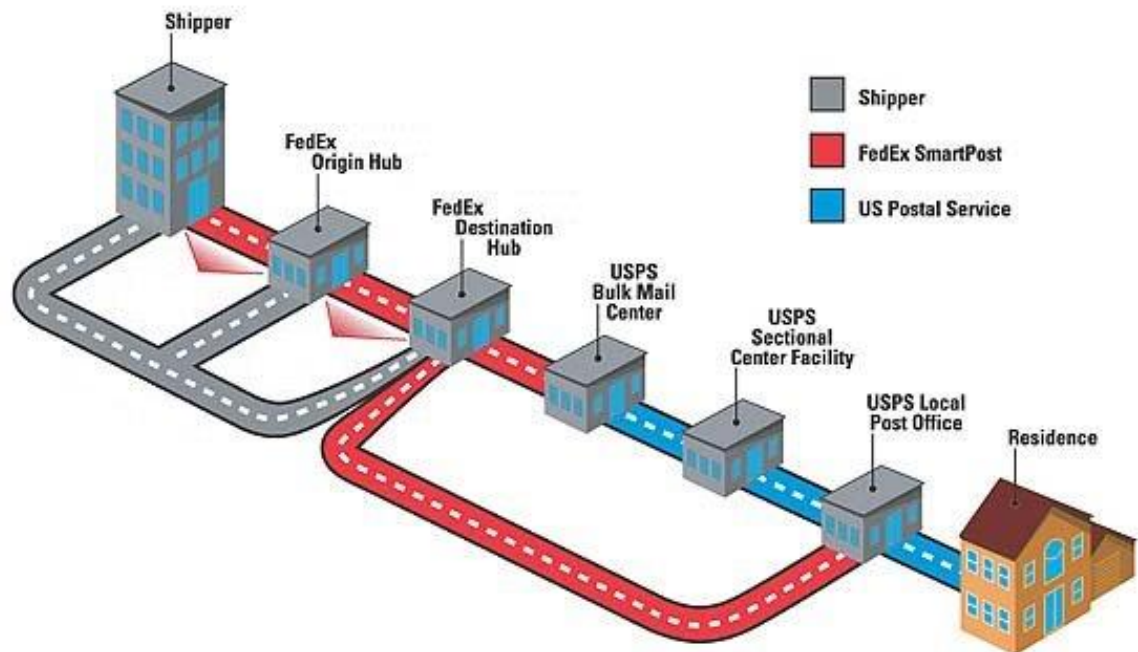


Merge

## What can I do? – Future System Design Changes



- Zone skipping
  - Reduce shipping costs with more pre-sorting in the facility
  - This eliminate stops through traditional parcel routes and reduces shipping rates



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## ***For More Information:***

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