

# Realizing the Benefits of RFID

## A Case Study: US Cold Storage Solution Center Dallas, Texas

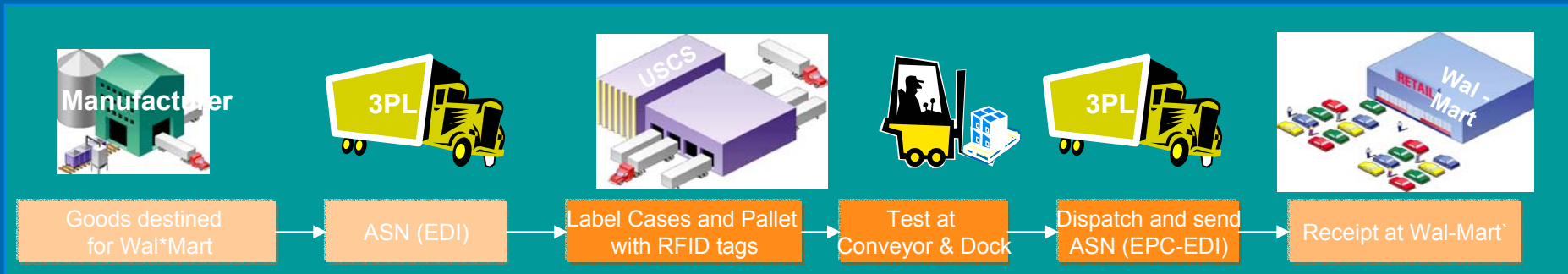


# Cognizant RFID Center for *US Cold Storage & Supplier*

This is a “LIVE” RFID implementation (not a lab) that involves two clients:

Distributor: US Cold Storage, a leading refrigerated warehousing company in USA

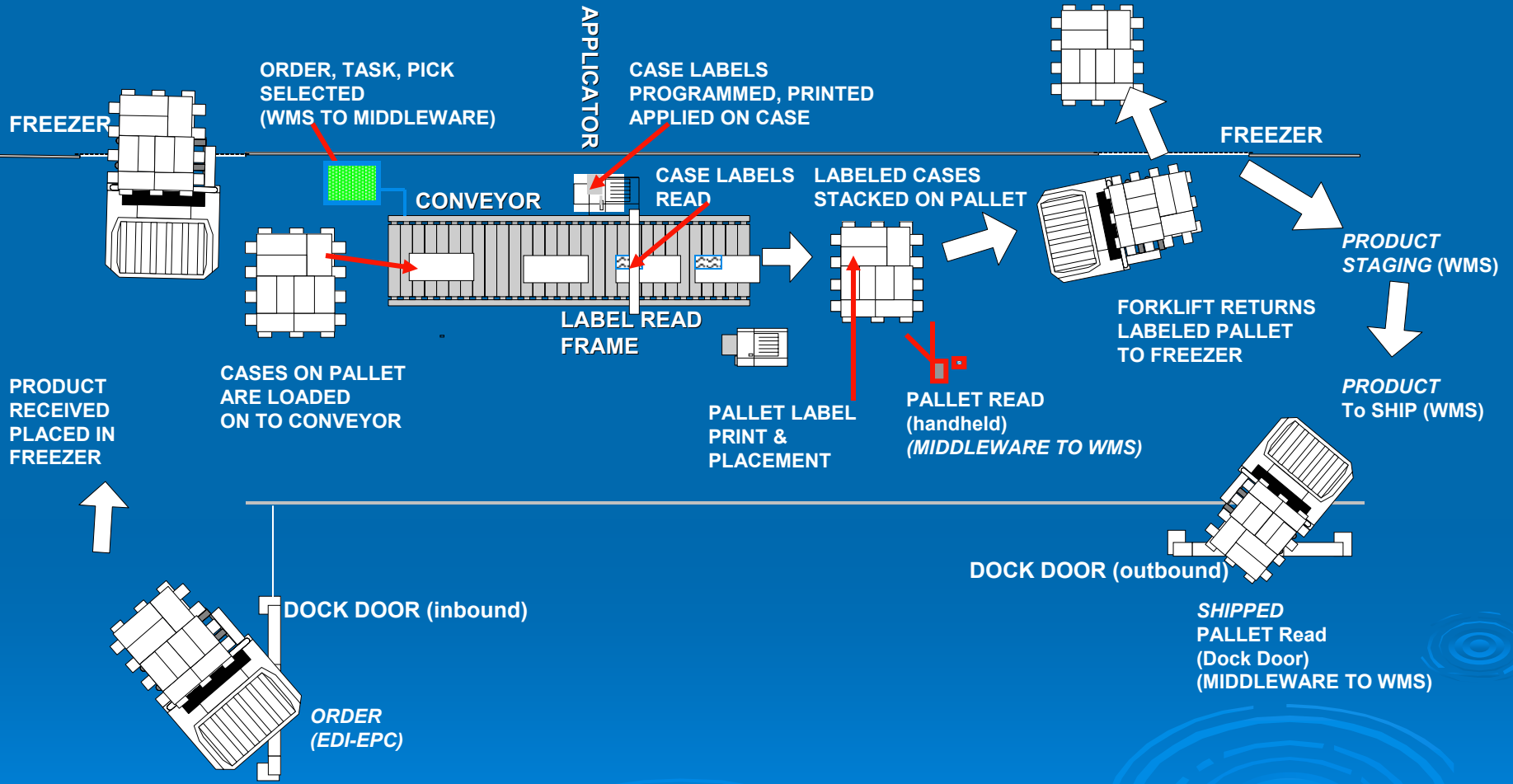
Supplier: Pinnacle Foods Company, a leading food manufacturer which is mandated to comply with Wal-Mart RFID requirements



## Realizing the Benefits of RFID:

- Improved RFID products: label materials, adhesive, tag type & orientation
- Improved operations: Re-engineer process to optimize bulk and mixed pallets
- Case labeling using conveyor and applicator as well as mobile printing and reading
- Development of operational measurements
  - Tools for capturing tag read performances
  - Tools for testing the labeling process from order to case to pallet
- Development and deployment of end-to-end interfaced systems and utilities

# Full Process Cycle - RFID Operation at US Cold Storage



# Order & Task Selected

FREEZER

ORDER, TASK, PICK  
SELECTED  
(WMS TO MIDDLEWARE)

APPLICATOR

CONVEYOR

LABEL READ  
FRAME

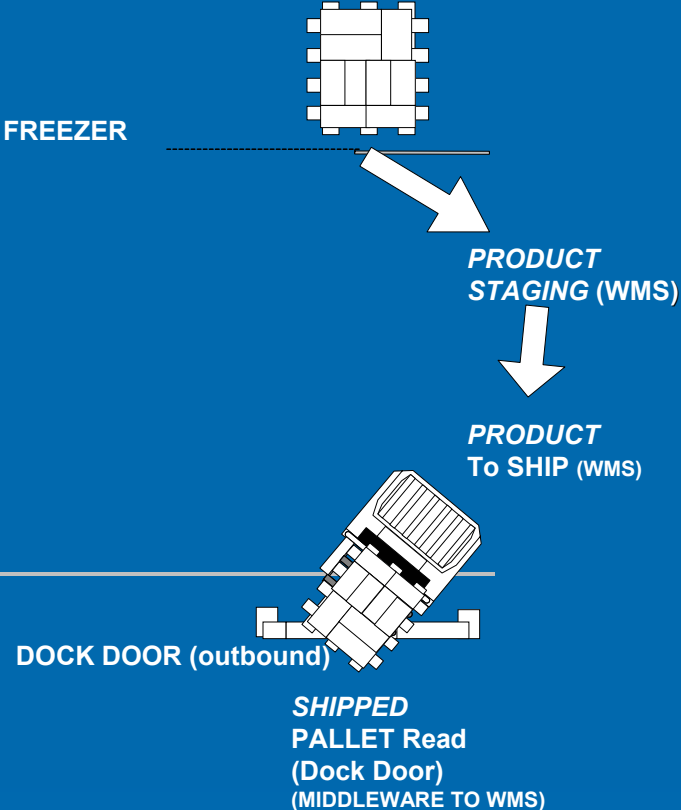


Assign Cases to Label &  
Interface WMS to Middleware



Touch Screen Selection (Order, Task, Pick)

# Delivery Cycle – Product Ship - USCS Solution Center

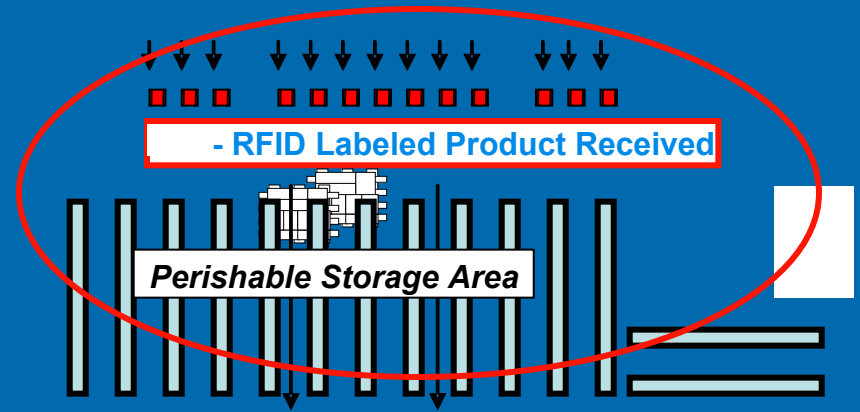


## Product Track (Actual)

-----Product-----						
No.	Description	Unique Case ID	Product Status	Location	Date	Time
9104524	HMAN BUFFALO CHKN	106507-700000004	Order	Pinnacle to USCS	8/24/05	10:00
			Product Picked	USCS DC	8/25/05	9:30
			Product Labeled	USCS DC	8/25/05	9:45
			Ship From USCS	USCS DC	8/26/05	11:00



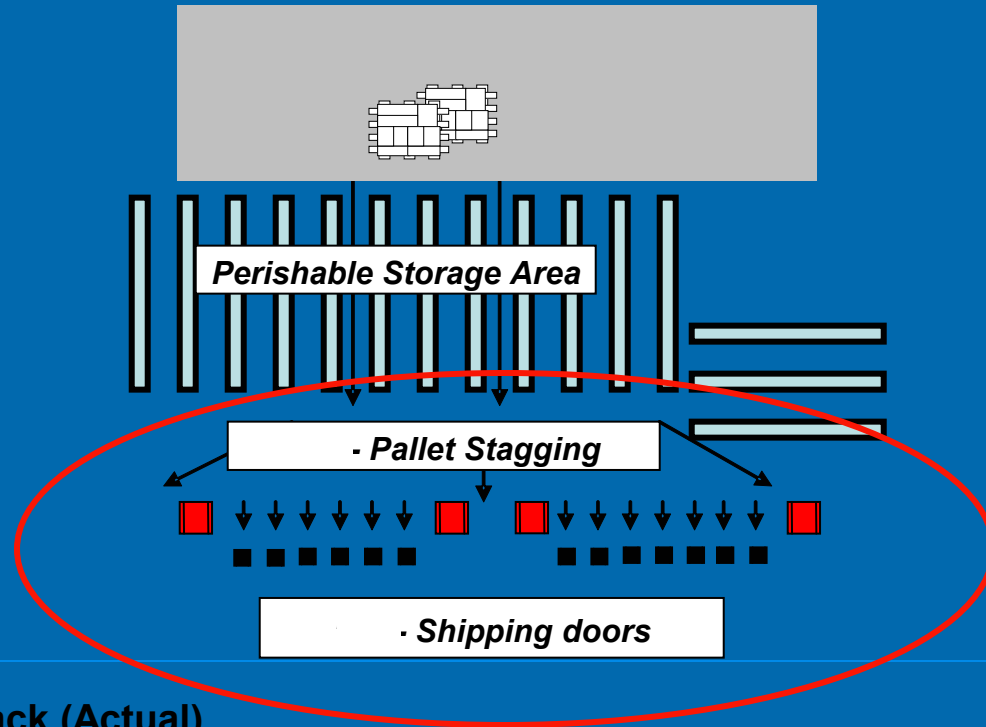
# Delivery Cycle – Receive Product – Wal\*Mart DC



## Product Track (Actual)

-----Product-----						
No.	Description	Unique Case ID	Product Status	Location	Date	Time
9104524	HMAN BUFFALO CHKN	106507-700000004	Order	Pinnacle to USCS	8/24/05	10:00
			Product Picked	USCS DC	8/25/05	9:30
			Product Labeled	USCS DC	8/25/05	9:45
			Ship From USCS	USCS DC	8/26/05	11:00
			Arrive Wal*Mart DC	Wal*Mart DC	8/26/05	4:30

# Delivery Cycle – Ship Product – Wal\*Mart DC

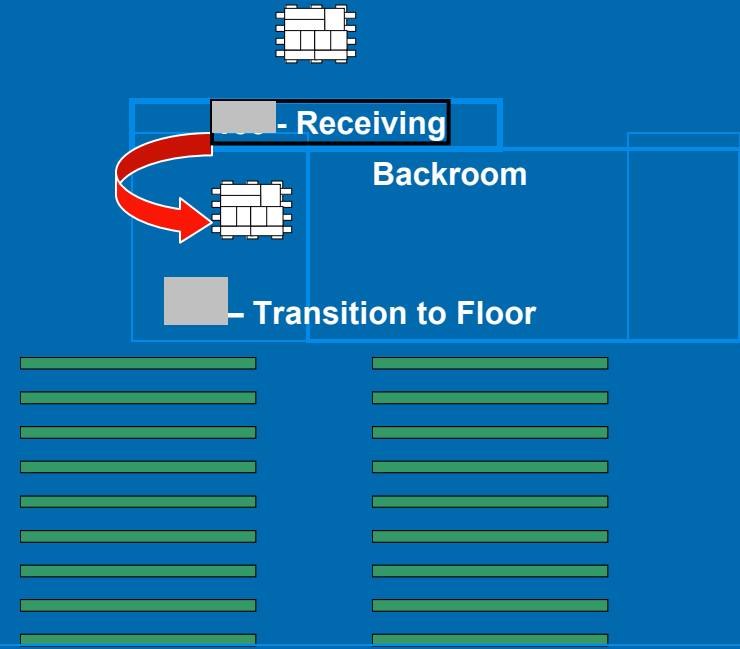


## Product Track (Actual)

-----Product-----

No.	Description	Unique Case ID	Product Status	Location	Date	Time
9104524	HMAN BUFFALO CHKN	106507-700000004	Order	Pinnacle to USCS	8/24/05	10:00
			Product Picked	USCS DC	8/25/05	9:30
			Product Labeled	USCS DC	8/25/05	9:45
			Ship From USCS	USCS DC	8/26/05	11:00
			Arrive Wal*Mart DC	Wal*Mart DC	8/26/05	4:30
			→ Prepare to Ship to Store Wal*Mart DC		9/2/05	19:01

# Partner Delivery Cycle – Receive Product – Wal\*Mart Store



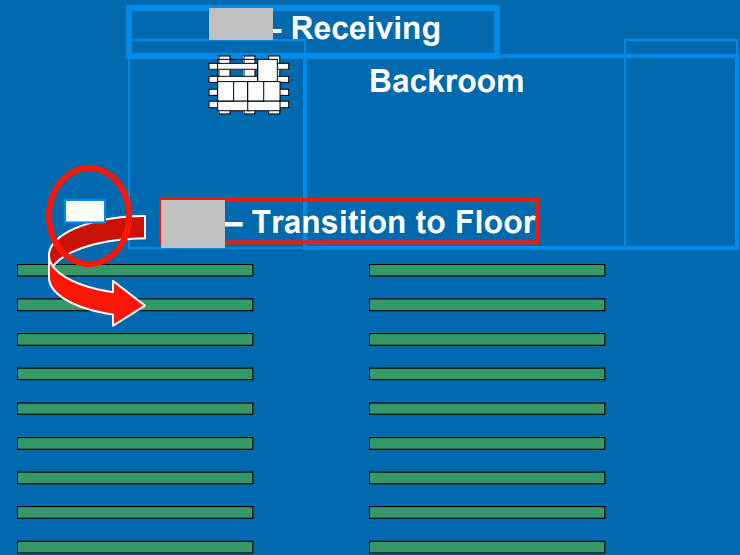
## Product Track (Actual)

-----Product-----

No.	Description	Unique Case ID	Product Status	Location	Date	Time
9104524	HMAN BUFFALO CHKN	106507-700000004	<b>Order</b>	<b>Pinnacle to USCS</b>	<b>8/24/05</b>	<b>10:00</b>
			Product Picked	USCS DC	8/25/05	9:30
			Product Labeled	USCS DC	8/25/05	9:45
			Ship From USCS	USCS DC	8/26/05	11:00
			Arrive Wal*Mart DC	Wal*Mart DC	8/26/05	4:30
			Prepare to Ship to Store	Wal*Mart DC	9/2/05	19:01
			<b>Receive at Store 426</b>	<b>Store 426</b>	<b>9/3/05</b>	<b>4:30</b>



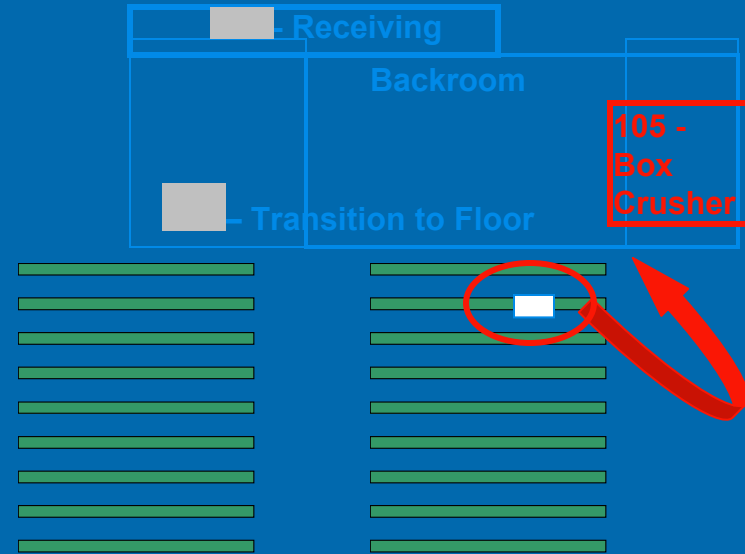
# Delivery Cycle – Product to Floor – Wal\*Mart Store



## Product Track (Actual)

-----Product-----						
No.	Description	Unique Case ID	Product Status	Location	Date	Time
9104524	HMAN BUFFALO CHKN	106507-700000004	<b>Order</b>	<b>Pinnacle to USCS</b>	<b>8/24/05</b>	<b>10:00</b>
			Product Picked	USCS DC	8/25/05	9:30
			Product Labeled	USCS DC	8/25/05	9:45
			Ship From USCS	USCS DC	8/26/05	11:00
			Arrive Wal*Mart DC	Wal*Mart DC	8/26/05	4:30
			Prepare to Ship to Store	Wal*Mart DC	9/2/05	19:01
			Receive at Store 426	Store 426	9/3/05	4:30
			<b>Sent to Store Floor</b>	<b>Store 426</b>	<b>9/3/05</b>	<b>6:38</b>

# Delivery Cycle – Product to Shelf – Wal\*Mart Store



## Product Track (Actual)

-----Product-----

No.	Description	Unique Case ID	Product Status	Location	Date	Time
9104524	HMAN BUFFALO CHKN	106507-700000004	<b>Order</b>	<b>Pinnacle to USCS</b>	<b>8/24/05</b>	<b>10:00</b>
			Product Picked	USCS DC	8/25/05	9:30
			Product Labeled	USCS DC	8/25/05	9:45
			Ship From USCS	USCS DC	8/26/05	11:00
			Arrive Wal*Mart DC	Wal*Mart DC	8/26/05	4:30
			Prepare to Ship to Store	Wal*Mart DC	9/2/05	19:01
			Receive at Store 426	Store 426	9/3/05	4:30
			Sent to Store Floor	Store 426	9/3/05	6:38
			<b>Product on Shelf</b>	<b>Store 426</b>	<b>9/3/05</b>	<b>13:24</b>

# Realizing the Benefits - Product Delivery Cycle

DATE	USCS	WAL-MART DISTRIBUTION CENTER		WAL-MART RETAIL STORE		
	CASE SHIPPED	-RECEIVING	PALLET SHIPPING	RECEIVING INTO BACKROOM	TRANSITION TO FLOOR	PRODUCT ON SHELF
26-Aug	106507-700000004	106507-700000004				
.....						
2-Sep			106507-700000004			
3-Sep				106507-700000004	106507-700000004	106507-700000004
.....						
16-Sep	106339-7000000037					
	106339-7000000047					
17-Sep		106339-7000000037				
		106339-7000000047				
18-Sep						
19-Sep						
20-Sep						
21-Sep						
22-Sep						
23-Sep	106336-7000000052		106339-7000000047	106339-7000000047		
24-Sep		106336-7000000052	106339-7000000037		106339-7000000047	106339-7000000047
			106336-7000000052			
25-Sep				106339-7000000037	106339-7000000037	106339-7000000037
26-Sep						
27-Sep				106336-7000000052		
28-Sep					106336-7000000052	106336-7000000052

Example of 4 separate RFID labeled products tracked from shipment to Wal-Mart store shelf

# RFID - Realizing The Benefits

## Proven Benefits to USCS and Pinnacle

- **Tighter Inventory Control**
- **Provides Timely & Real-Time Tracking of Products Across the Supply Chain**
- **Ensures Case/Pallet Shipment Accuracy and Eliminates Scanning at the Dock**
- **Centralizes & Concentrates RFID Physical, Information & Operation Services**
- **Provides Improved Supply Partner Communication**
- **Standardizes the Product Delivery Process**
- **Assists in the Elimination of Errors**
- **Provides Services that Comply with Retail Mandates and Requirements**

## Wal-Mart Benefits - Results of Oct 14<sup>th</sup> Wal-Mart internal study

- **16% Reduction in Out-of-Stock**
- **10% Reduction in Manual Orders**
- **63% Improvement in Material Movement Effectivity**

# The Cost/Benefit Curve

