

OPERATIONS SUMMIT

EXCLUSIVELY ABOUT DIRECT-TO-CUSTOMER OPERATIONS & FULFILLMENT

The Unique Challenges of Smaller Orders: A Real World Experience

Gary Meyer

Senior Director of Distribution
Herbalife North America

Sam Flanders

President
Warehouse Management Consultants

Memphis, May 2, 2012



2wmc – <http://www.2wmc.com> **Warehouse Management Consultants**

- **Founded in 1999**
- **We Work Exclusively for Our Clients**
- **Find “Quick Wins” and Help with Long Term Design/Strategy**
- **Work Cooperatively with Chosen Vendors to Get the Best**
- **We Know all Solutions from Simple/Inexpensive to more Costly**
- **We use Scientific Analysis to Impartially Find the Best Solution**
- **Help Keep Vendors Honest / Focused after the Check Clears**
- **Our Focus is on Your Long Term Success**





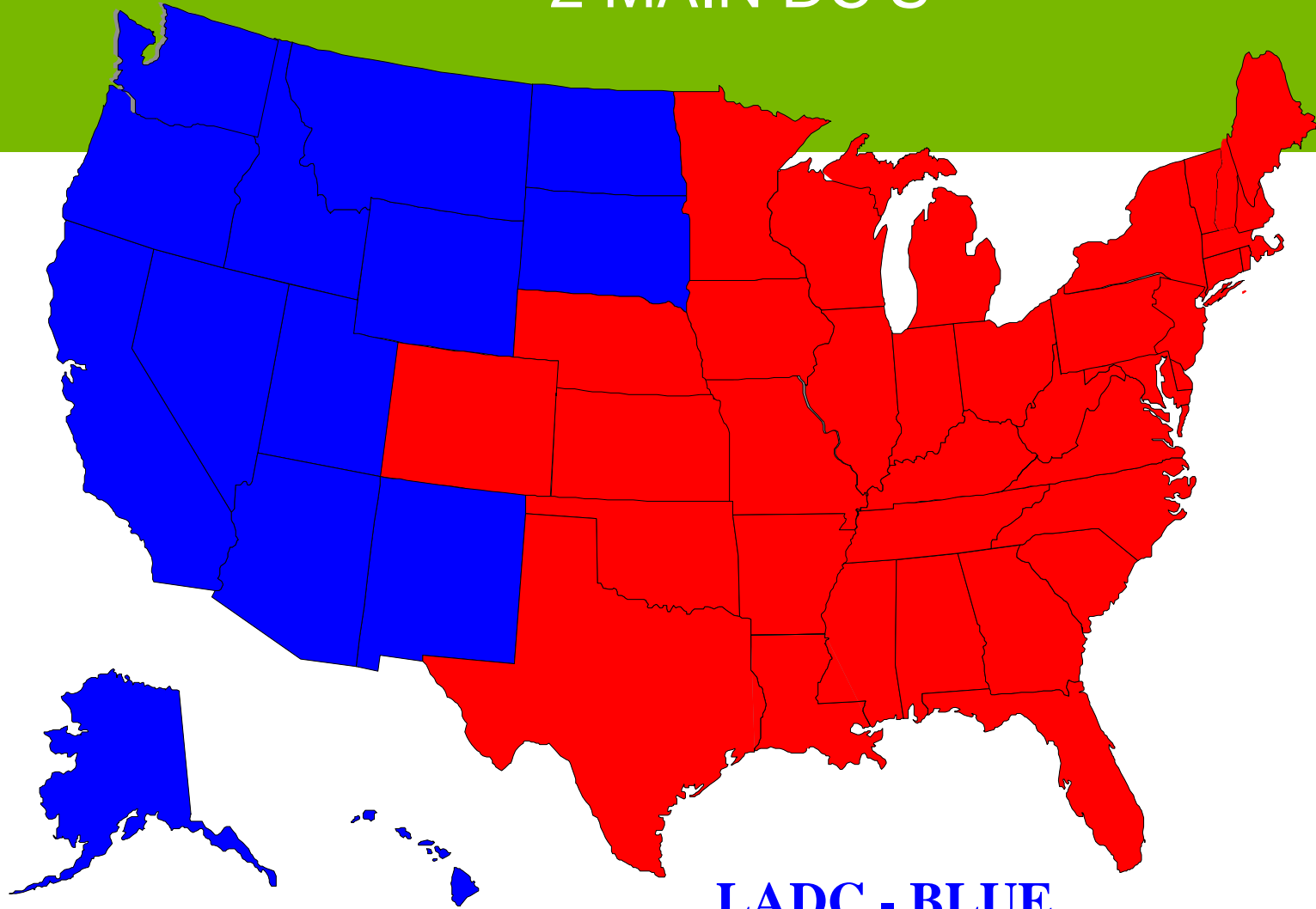
Herbalife International is a global network marketing company that sells weight-management, nutritional supplements, energy drinks, sports and fitness products, and personal care products.

Who We Are

- Founded in California in 1980 by Mark Hughes
- Publicly traded on NYSE since December 2005
- \$5.4B Sales in 2011
- Approximately 2.5M independent distributors
- 3,000 Employees
- 81 Countries



2 MAIN DC'S



LADC - BLUE

MEDC - RED



1998-2012

Evolution of Herbalife's 2 DC's

1998 (Original **1st Generation** LADC System Installed)

- Deployed Pick to Light (PTL) to replace Paper
- Replaced Pick and Pass Conveyor w/ Powered Take Away

1998-2005 (1999 - LADC **1st Generation** System Cloned in Memphis)

- Relentless growth of orders and, in particular, smaller orders

2005-6 (Memphis **2nd Generation** Redesign)

- Replacement of aging PTL and creation of zone-based delivery
- Automated box making, order start, box closing

2009-11 (Memphis **Quick Pick** / LADC **3rd Generation** Redesign)

- Implementation of Voice Carts for Smaller Orders (Memphis)
- Automatic Delivery / Scanning of Orders to PODs
- Mirroring of Faster Work Areas / Introduction of Small Order Tote
- Dynamic Staffing and Balancing of Orders in PODs



“The Customer” - Driver of the Evolution

Marketing Plan 1 – (1st Generation System)

- Big Distributors – Large Order Minimums
- Lots of Full Case Ordering
- 2,000+ SKUs

Marketing Plan 2 – (2nd Generation System)

- Smaller Distributors – Smaller Order Minimums
- Get rid of full case order minimums
- About 500 SKUs

Marketing Plan 3 (3rd Generation System)

- Very Small Distributors – Very small order minimums
- Start of Daily Nutrition Clubs
- 350 SKUs



1st Generation - LADC and Memphis OLD LADC – Building Perspective



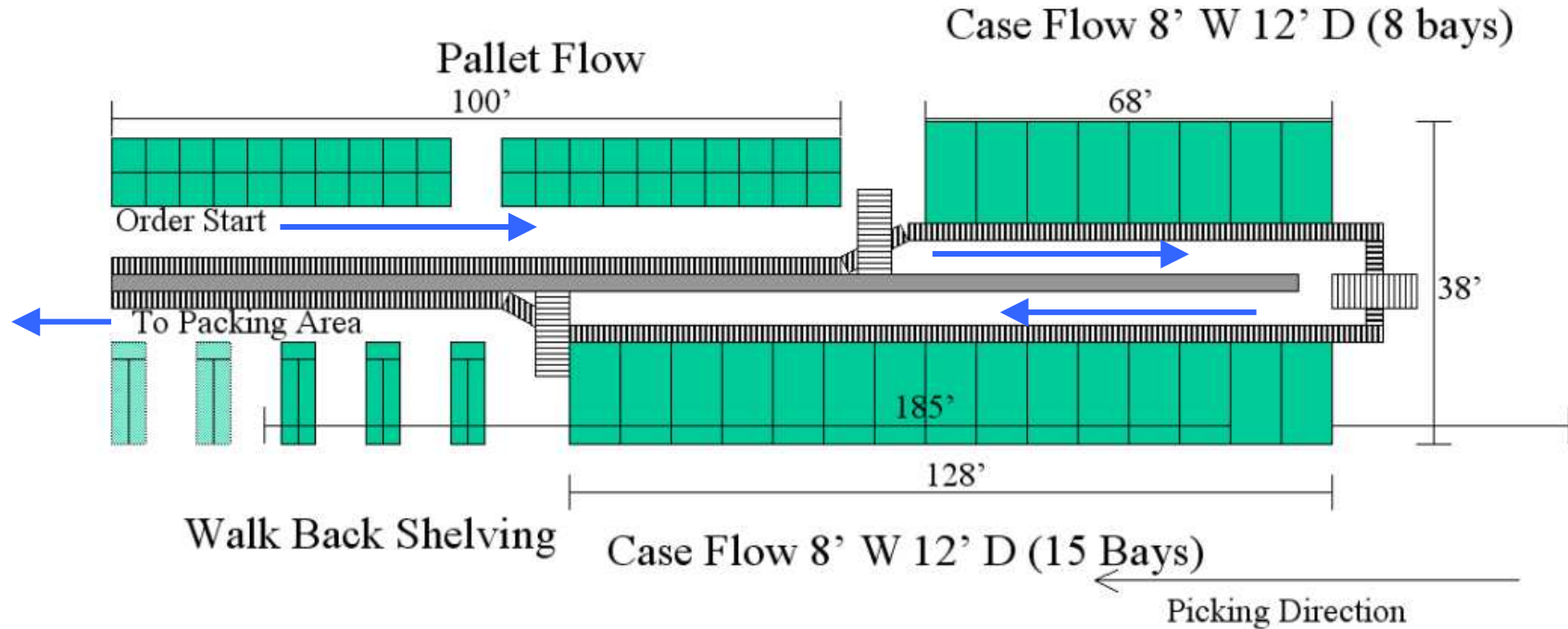
Statistics Driving Original System Design

1998 – 1st Generation Systems

- Original System Shipped 2,475 UPS Orders Daily in Memphis
- Orders Shipped almost Exclusively to Distributors
- All Case Picks- Either 12 pack or 6 pack
- Simple Conveyor Take Away
- Caps Pick to Light (PTL) first Introduced
- 1998 LADC Installed, 1999 Memphis Installed



OLD LADC – 1st Generation layout



1st Generation – Picker's View of Zone



1st Generation – Close up of Pick to Light



OLD LADC – Walk In Order Delivery



1st Generation Video of Original PTL System 1998-9



2nd Generation - Memphis

New Memphis DC – Building Perspective



Statistics Driving 2nd Generation System

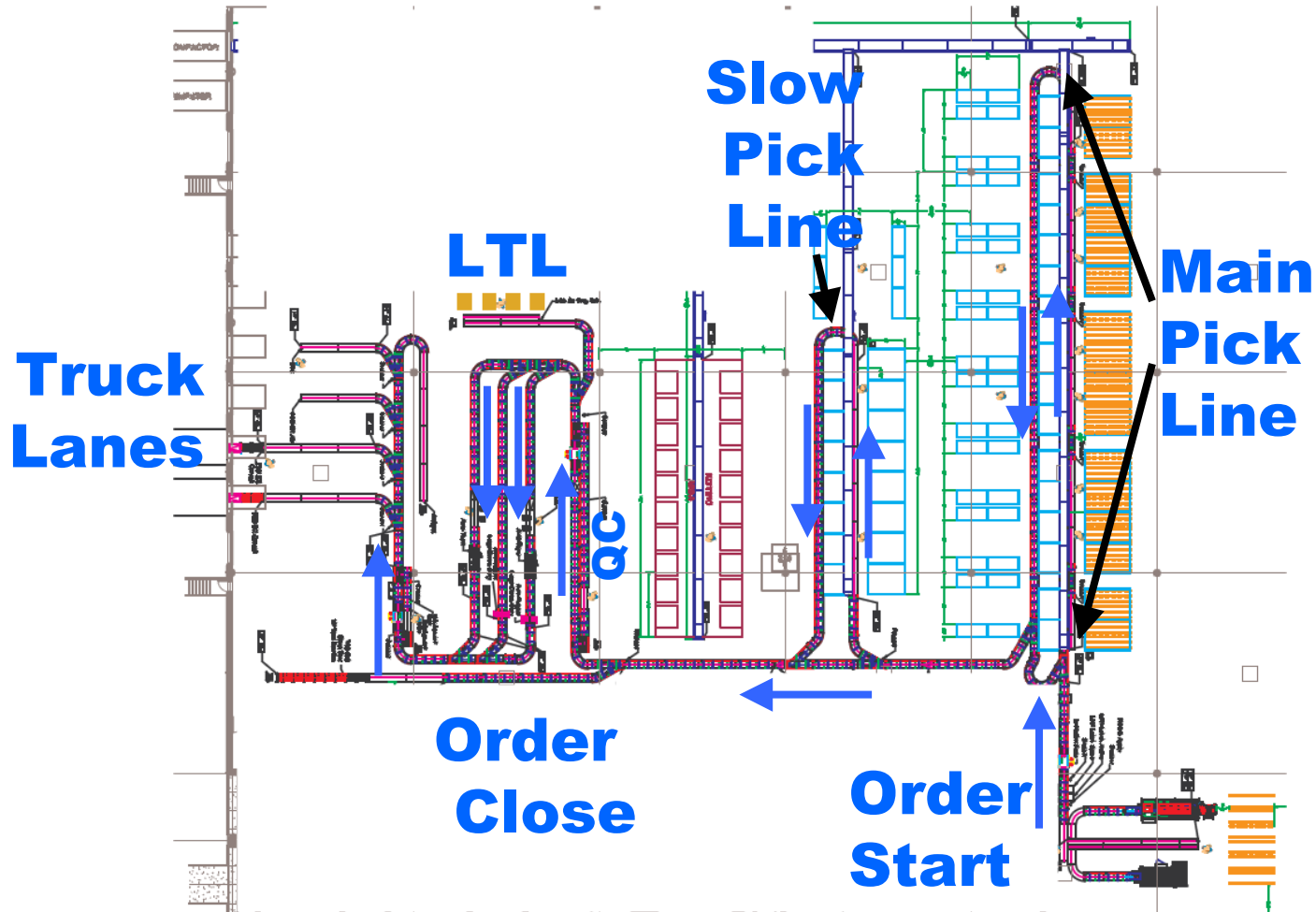
2005

- 6,513 FED-EX (+163%) Orders in Memphis
- Shrinking of SKU set and Item Minimums
- Less lines and units per order
- Ongoing Shift to Smaller and Smaller Orders
- Small carton growth starts overwhelming original conveyor system.
- **Other Issues:** Manual Order Preparation, System is choked at back end functions.

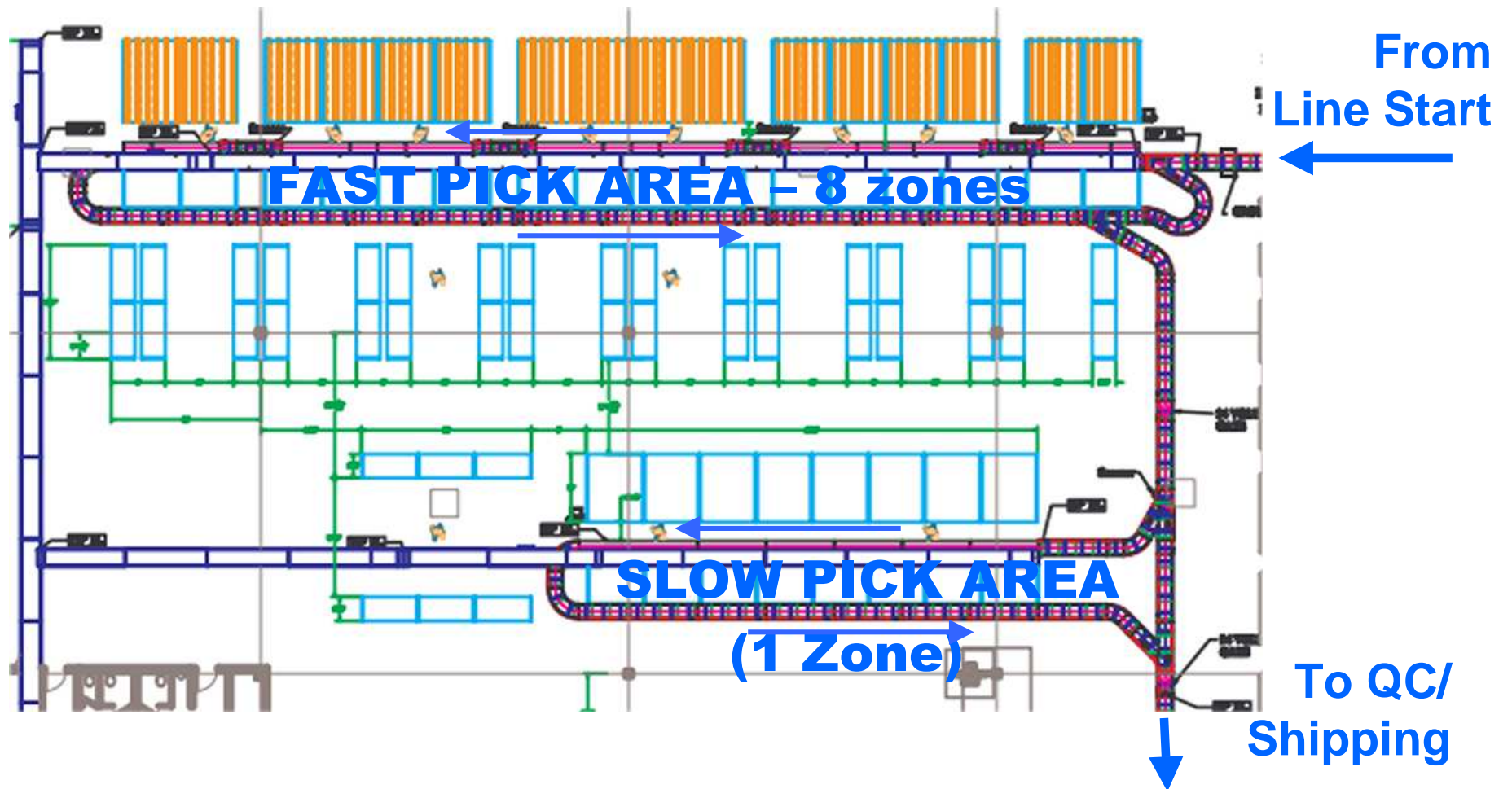


MEDC

2nd Generation – Birds Eye View



2nd Generation System The Main Pick Line



2nd Generation System

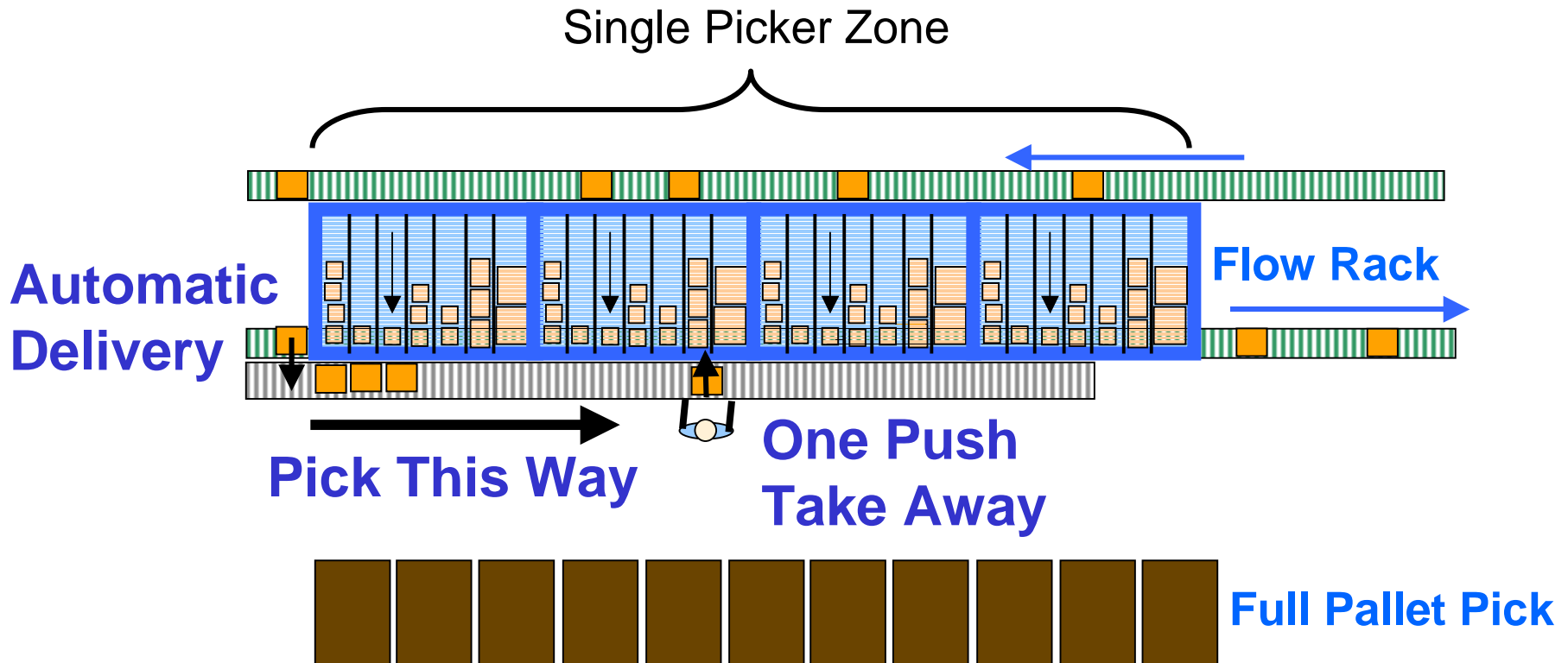
The Main Pick Line

What Changed from Original System:

- **Order Start: Box Making / Auto Label Apply**
- **Updated Pick to Light System**
- **Switched from Manual Pick and Pass to Fixed Zones**
- **Automated Order Delivery / Exit to / from each Picker's Zone**
- **One Picker Can No Longer Slow Down Downstream Pickers**
- **Orders Re-circulate Until They Find an Open Zone**
- **Beacon's Light Up when Picker's Zone Can't Accept New Orders (allows supervisor to spot bottlenecks)**
- **Slower Moving SKUs were Moved into a completely separate picking area**
- **Packing: Auto Box Tape/Close, Auto Strap, Auto Manifest, Auto Divert**



2nd Generation System – Zone Based Automated Delivery



- Automatic Order Delivery Into the Zone – ***Only If it Has Picks***
- “One Push” Order Exit from Zone (from any position in zone)

Technology Discussion

Pick to Light
(PTL)



Pick to Light (PTL)

Theory of Operation:

Start Order in Zone:

- Orders flow zone to zone
- Or are inducted into zone

Locate Item & Qty:

- Light illuminates under product
- Quantity shown under product or on central bay display

Grab Item:

- Picker grabs item(s) and presses button to confirm

Exceptions:

- Picker can also communicate shorts and exceptions via buttons



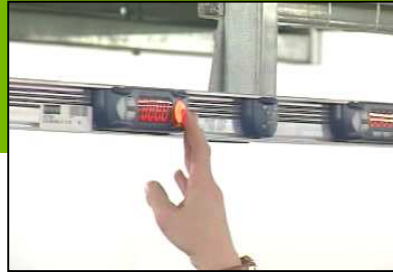
Photos: Courtesy Siemens Dematic



Photo Below: Courtesy Diamon Phoenix



Pick to Light (PTL)



Photos:
Courtesy
PCC, ASAP
Automation

Where to Use:

- Dense Picking
- Larger Orders (10+ lines)
- Physically big or heavy orders
- Great paired with conveyor

Advantages:

- Very Accurate
- ***Extremely*** Fast Transactions
- Hands Free



\$75-100 / light module
\$25-50k base software



Pick to Light (PTL)

Disadvantages:

- Batching requires tote
- Expensive to Expand or Relocate (peak planning)
- High cost \$75-\$200/SKU



Photos: Courtesy Working Machines, Lightning Pick



2nd Generation System Herbalife Memphis DC Video



Planning a Major Capital Project?

Some Words of Wisdom...



**“Automation is
GREAT!”**

**“Except when it
Doesn't Work”**



2nd Generation System Automation Snafus



Hey, What Can Go Wrong?

- **Fast Box Makers are Fast** – When they start screwing things up they screw up a lot of boxes quickly!
- **Automatic Label Applicators Are Nice** – When the labels don't apply properly, the Pick Line shuts down
- **Weight Checking Equipment Catches Errors** – When item weights entered wrong, every order heads to error check
- **Automatic Delivery of Boxes to Zones is Great!!** – Transition to Smaller Orders Challenges the Automated Conveyor
- **Manifest System was TOO SLOW!** – Couldn't keep up with the flow of order boxes. Bottleneck getting to the truck.



2nd Generation System

Biggest Snafu: Small Orders

Problem:

- [Herbalife Distributors](#) want to order less, more often
- After Installation, Small Order Volume Continued to Grow
- Problems with small light boxes on conveyor grew from an annoyance to a serious problem
- Think of a Conveyor as a Freeway:
 - Each Tractor Trailer (**Large Box**) was replaced with two dozen sub-compact vehicles (**Small Box**)
 - A 70' long truck becomes Twenty Four 12' long Cars (288')
 - We quickly developed Traffic Jams
 - **Too Many Vehicles – Not Enough Road**



2rd Generation System – How to Attack the Small Order Growth?

Using Scientific Analysis to Dissect the Problem:

- My Analysis Showed – **90%** of Small orders Completed with **100** (out of over **400** SKUs)
- Small Orders Could be Easily Set up and Transported on a Cart
- Cart picking could utilize voice and facilitate one SKU to many Order picking
- Easy merging of completed small orders to back end close out



2rd Generation System – A Different Approach for Small Orders

Final Solution:

- Create a separate “Quick Pick” Area for Small Orders – ***Pull the Small Orders off of the Conveyor***
- Put 100 Fastest Small Cube SKUs - 4 bays Flow Rack
- Set Up Small Orders on a Cart – 20 Orders to a Cart
- Batch Pick all 20 Orders Using Voice Technology
- Small orders are fed to conveyor only for the back end close out operations



2rd Generation System – A Different Approach for Small Orders

Result:

- Small Order Conveyor Problems Solved!
- The Voice/Cart System Now Processes up to 3,000 Orders per Day
- Small Order Cart Pick Rates Rival or Surpass Automation Rates
- Solution may be expanded as needed at low cost (just carts and storage)





Technology Discussion:

Voice Directed Picking



Voice Directed Picking



Theory of Operation:

- Pick instructions sent to a hip mounted receiver

Computer:

“Bay 28, F-2 – Pick 3”

- Picker confirms picks via a microphone

- Picker reads a “check digit” to verify pick

Picker:

“94 Pick 3 confirm”



**Photos:
Courtesy
Voxware /
Motorola**



Voice Directed Picking

Voice Directed Picking
Video Courtesy of:
Vocollect



**Photos:
Courtesy Vocollect**

**\$1-3k /
terminal
\$25-200k
software**



Voice Directed Picking

Photos: Courtesy Voxware

Where To Use:

- Cart or conveyor picking
- Heavy or Bulky items
- Freezers / Refrigerators
- Pallets, Flow Rack, Shelving
- Case and Each Picking
- Fork Truck, Pallet Jack, Man-Up, Pick Module, Cart Pick
- Large SKU populations (up to 100,000's of SKUs)
- All but fastest movers



Voice Directed Picking

Advantages:

- **Very accurate** (every pick confirmed)
- **Very Fast** (dialogue is quick)
- **Excels at Batching** (one to many) **Especially good for smaller orders**
- **Cost is per picker – not per SKU**
- **Multi-Lingual** (accents OK)
- **Hands / eyes free** (low fatigue / speed / safety)
- **Focus / Pacing** (hard wired to respond)
- **User Friendly** (what do I say?)
- **Rapid Training** (faster than RF / PTL)
- **Very Flexible** (no wiring / bolted down items)
- **Easily Movable / Expandable for Temporary Demand Peaks**



Voice Directed Picking

Disadvantages:

- **Not cost effective in operations with less than 5 concurrent users**
 - **Speed Limitation – about 6 seconds/transaction (multiple put transactions are about 3 seconds)**
 - **Scanning Reduces Speed Improvement**
 - **Problems Listening and Remembering**
 - **Memorizing Check Digits**
 - **Deaf / Can't Speak**
- Does anyone have any experience with voice?**



2nd Generation System Quick Pick Video – Low Cost Solution for Smaller Orders



3rd Generation – 2012 - Los Angeles Distribution Center



LADC 2012 - Sales Counters



LADC 2012 - Kiosks- Grab a ticket and release Orders



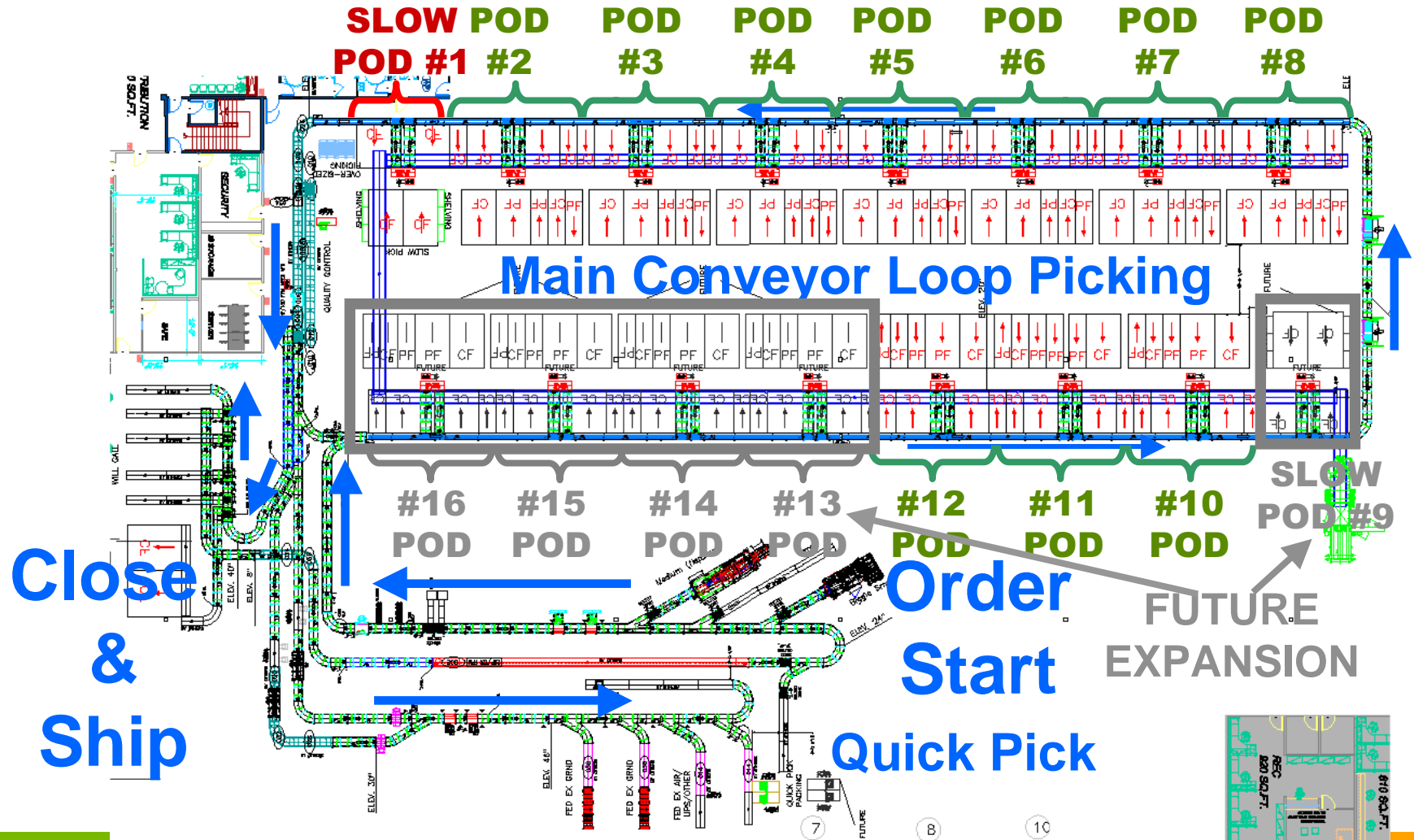
Statistics Driving 3rd Generation System

2011

- 3,055 UPS (+280%) Orders / 840 (+470%) Walk In Orders
- Ongoing Shift to Smaller and Smaller Order
- Only 350 SKUs
- Picking by Case is Rare / Picking many more individual units
- Excessive Wait for Walk In Distributors (+25 min)
- Aging 1998 PTL System (hanging on by a thread)
- **Other Issues:** Manual Order Preparation, Not enough Room for Bulk Materials, Not enough Parking for Distributors, Dangerous Parking Lot / Trucks-Pedestrians



3rd Generation System LADC Bird's Eye View



LADC 2012 - Quick Pick Processing Area



LADC 2012 - Automated Carton Erectors

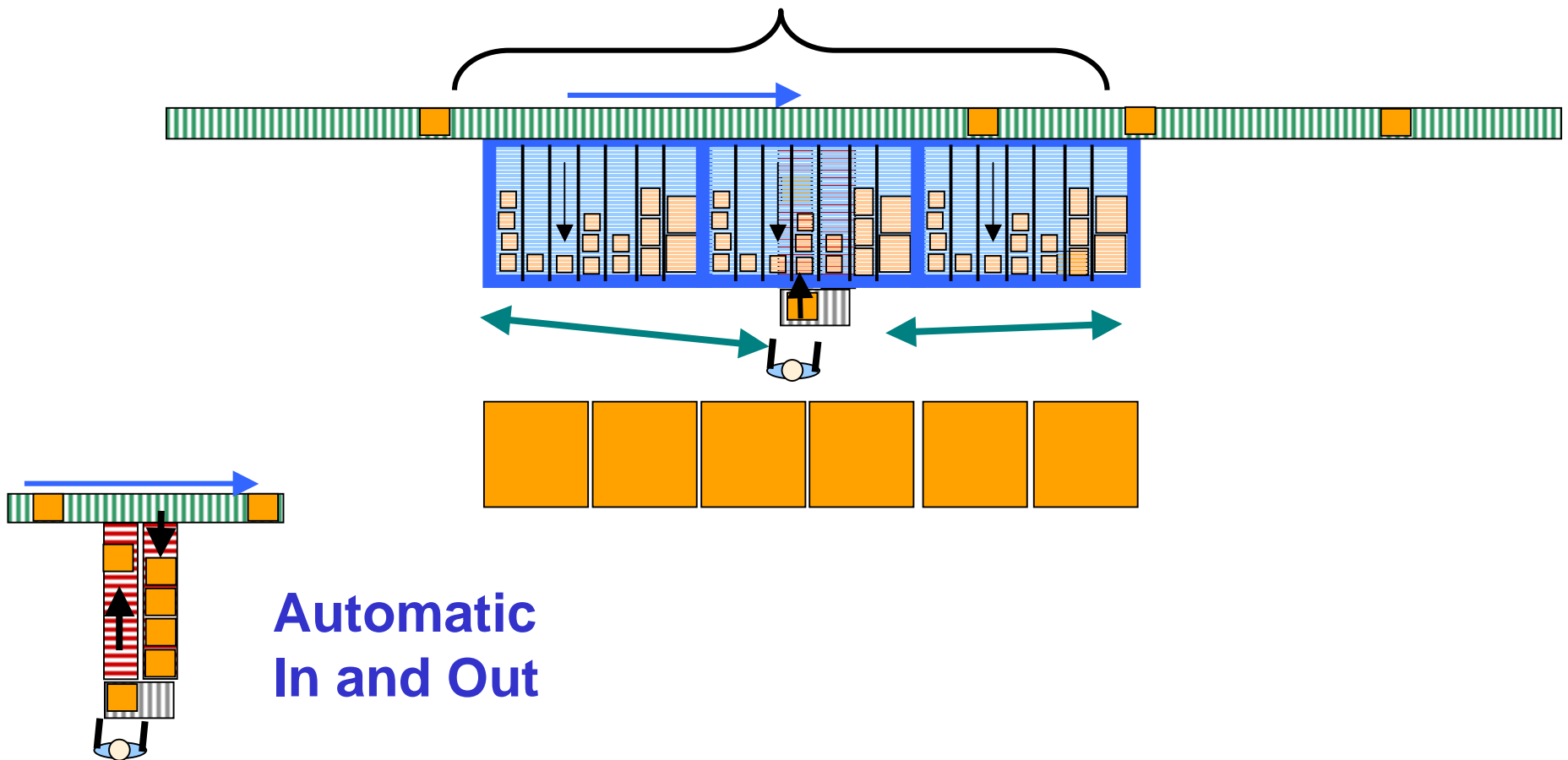


LADC 2012 - Conveyor Entering/Exiting POD (rear view)

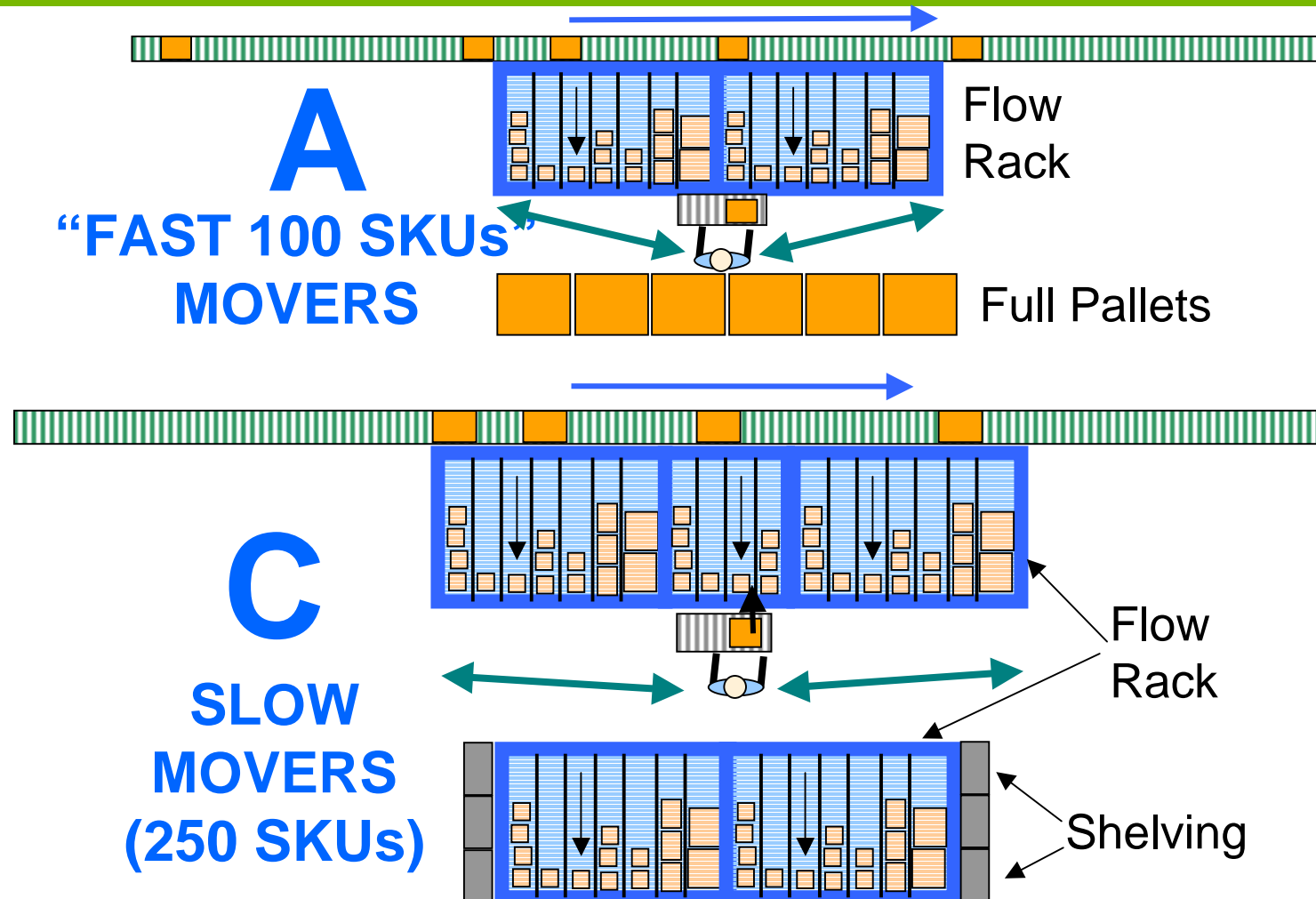


POD Layout – Totally Automated Order Delivery / Return

Single Picker Zone



Pod Layout – Pod Sized by Product Velocity



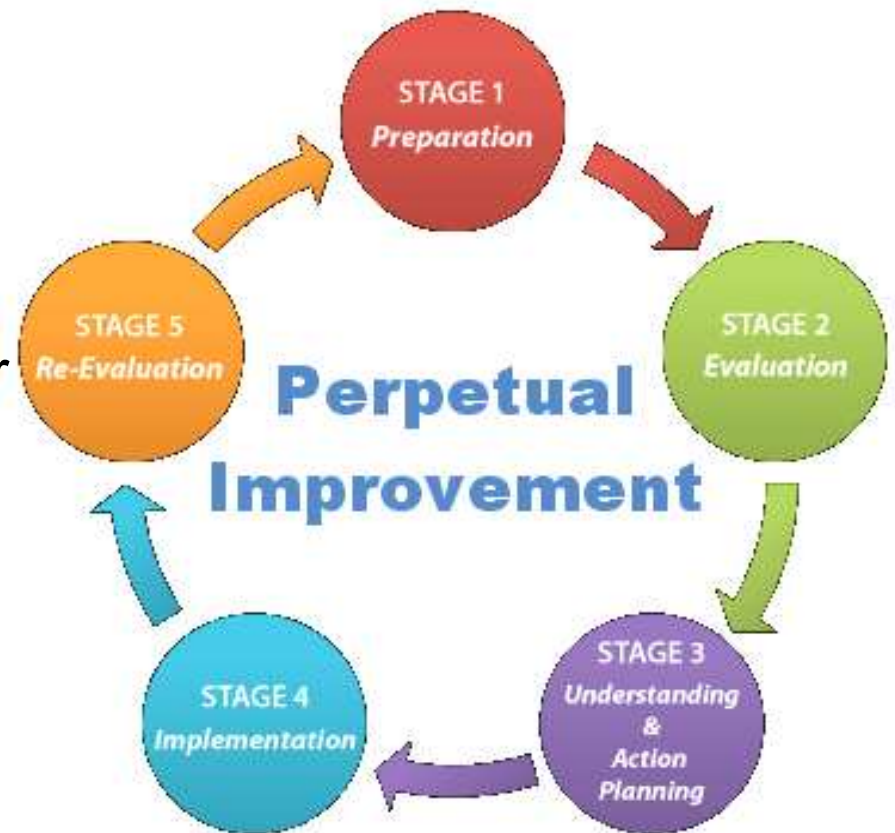
3rd Generation Los Angeles Distribution Center Video



3 Generations of Technology (1998-2012)

What we Learned

- If at first you don't succeed...
- Pay Attention to your Customers!
- Use Historical Data to Help Figure Out What will Work Best
- Less Touches Means Faster Order Processing and Delivery
- More Automation isn't necessarily better (it definitely isn't cheaper!)
- Never Stop Refining Your Solution
- Simple is GOOD!



That's all Folks!



THANK YOU FOR COMING!

OPERATIONS SUMMIT

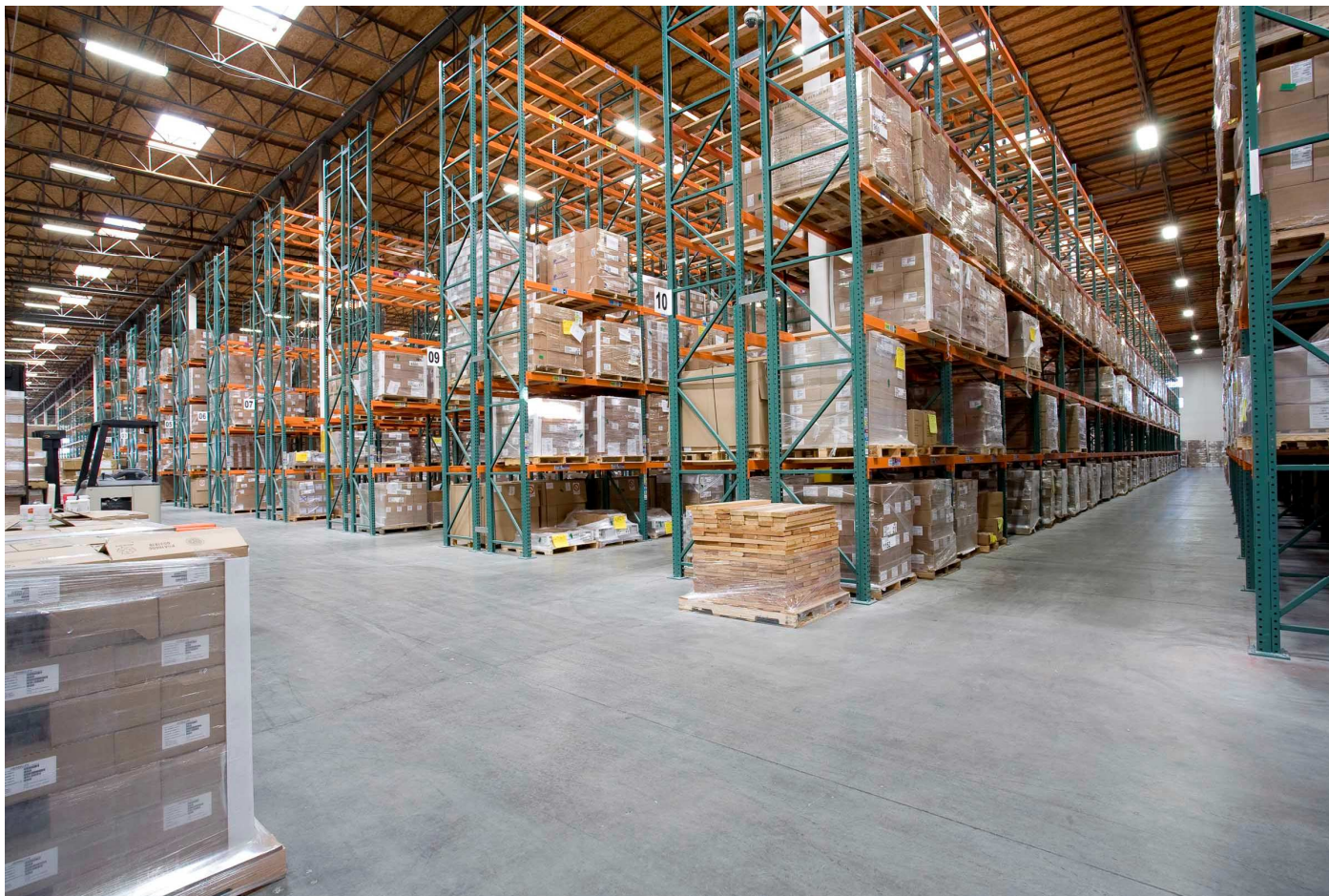
EXCLUSIVELY ABOUT DIRECT-TO-CUSTOMER OPERATIONS & FULFILLMENT



2wmc



LADC 2012 - Storage Racking



LADC 2012 - QC Area



LADC 2012 - Packaging Department



LADC 2012 - Print & Apply Manifest Area



ALADC 2012 - Automated Document Inserter



LADC 2012 - Loading into Trailer



LADC 2012 - Product Release Area



LADC 2012 - Product Release Area



LADC 2012 - Product Release Area

