Get Ready for the Next Gen E-commerce Automation Revolution:  
How to Plan for 1 Million+ SKUs and Units per Day Throughput – Even with Labor Shortages

Presented by:

Andy Williams, Vice President of Automation
Welcome

Get Ready for the Next Gen E-commerce Automation Revolution:
How to Plan for 1 Million+ SKUs and Units per Day Throughput – Even with Labor Shortages

Andy Williams, Vice President of Automation
Schaefer Systems International, Inc.
Consumer Demands → Product Mix → Channel Strategy
Give us This!
1 million SKU’s

Off peak efficiency

1 million units/day

Labor requirements

1 million sq. ft.

1 hour order lead time

15-20 million units active inventory
Agenda

• Why are we having this conversation?
• Limitations of conventional solutions
• Alternative solutions – meeting the challenge
• Big software implications
Demand broader selection from single source*

Speed of delivery top priority*

Sales lost due to lack of inventory available**

*UPS White Paper

**Oliver Hyman White Paper
Key Questions

• How to offer the selection needed quickly to all areas?

• What orders are filled from/shipped to store vs. central location? SKU availability? Cost implications?
Few location options

⭐ Parcel service dictates DC location
⭐ Large DC’s are needed
Ideal DC Location
Indianapolis, IN – 400% increased peak labor demand causes localized lack of availability
Discrete picking – limited scalability, concept challenges
1 million SKU's

1 million units/day

1 million sq. ft.

1 hour order lead time

15-20 million units active inventory

Very high capital costs to scale

Off peak efficiency

Labor requirements
Manual pick mod and sort – footprint and capacity

Zone 1

Zone 2

Zone 3

...

Zone n

Unit Sorter

Shipping Sorter

Put Wall
1 million SKU's

1 million units/day

1 million sq. ft.

1 hour order lead time

15-20 million units active inventory

Off peak efficiency

Labor requirements
“Our traditional e-com batch concept would have required over 2 million sq. ft. and thousands of people to scale to 1 million units/day, but irrespective to this, we don’t believe it scales above 250k units/day.”

SVP Logistics, Large Retailer
Waveless gtp pick – solves storage density and great pick performance

1 million sq. ft.

Sortation

GTP Area
Waveless gtp pick – footprint, complexity, order lead time at scale

1 million sq. ft.

Sortation

GTP Area

Travel Distances become too great = speed problem

Staffing by module and multiple touches = operational challenges
1 million SKU’s

1 million units/day

1 million sq. ft.

1 hour order lead time

15-20 million units active inventory

Off peak efficiency

Labor requirements
Alternative Solutions – Shuttle Pocket
1 million SKU's

Off peak efficiency

1 million units/day

Labor requirements

1 million sq. ft.

1 hour order lead time

15-20 million units active inventory
Software is the Key to Next Gen Automation

• Huge advantages for WMS/WES combination
• Simple receipt of product and logging inventory no longer acceptable – this is fulfillment!
• Decision points must be dynamic
• 15 to 20 decision points are typical for an item progressing through system
• And it begins before products are even received
Decisions, Decisions – 200 per Second

Sort and Pack
Batch Buffer
Dynamic Buffer
Storage and Throughput Engine (Shuttle)

Requires a new approach
### Order Pool at 9:30

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### Priority Order Drops at 10:00

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### Order Pool at 10:00

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Order Pool Management

Each order pool has its own optimization logic depending on picking methodology. The completion of orders is based on order release parameters in pool.
Historic Order Pool → Order Planning Algorithm → Future Order Pool

- Fast Movers
- Goods to Person
- Non-Sort
- Non-Con

ORDER CONSOLIDATION

ORDER PACKOUT

SHIPPING

PICKING
Summary

- World is changing and producing radically large systems. Conventional solutions can’t keep up.

- New alternative pocket based solutions can meet these challenges.

- Completely integrated software is needed to maximize performance.
For More Information:

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Or visit MODEX Booth #B2747