

Logitech: A Better Way to Assign Inventory to Backlog Orders

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 **ANNUAL GLOBAL**
CSCMP CONFERENCE 2010

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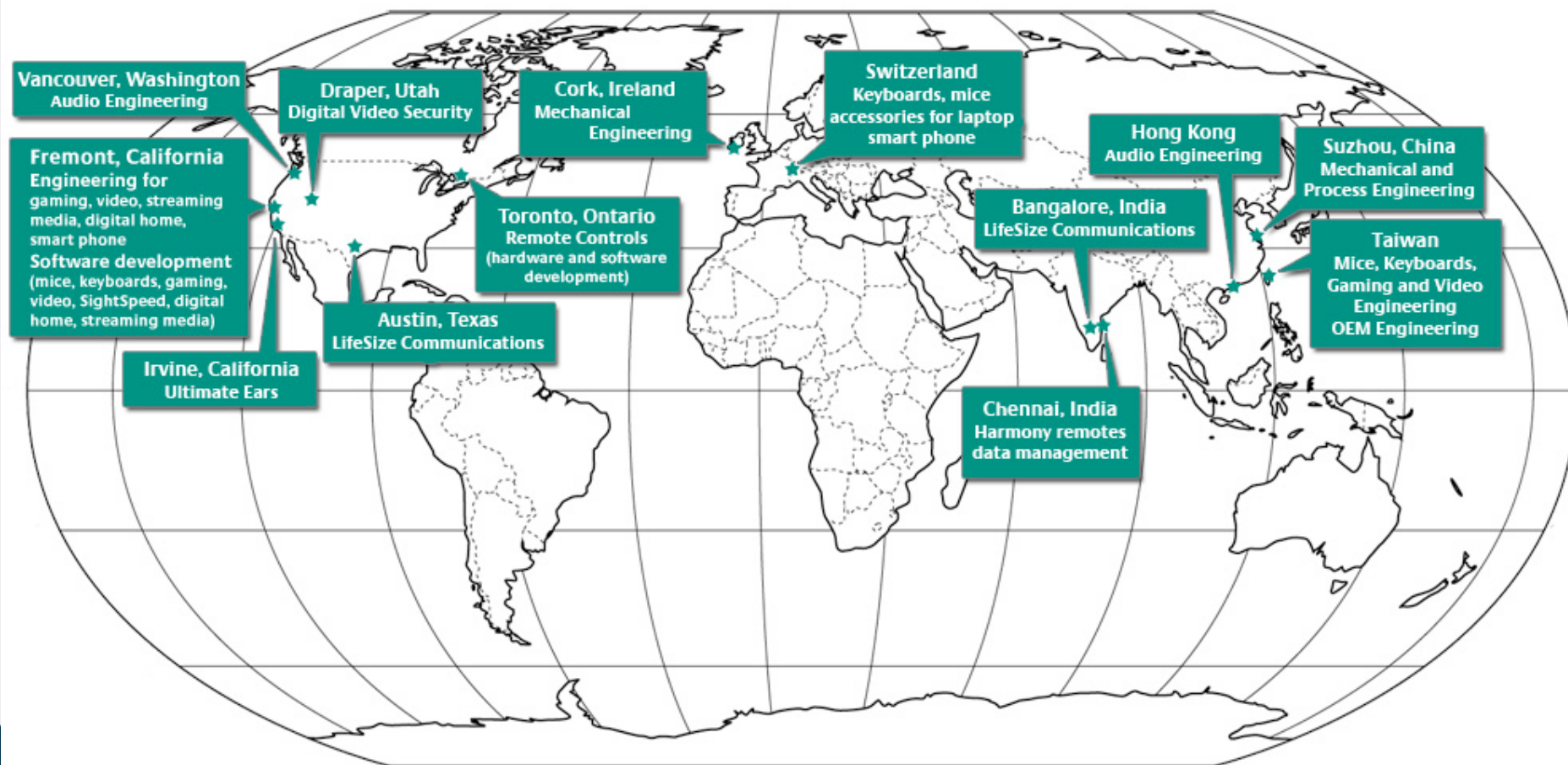
Logitech: Who We Are

- We get people immersed and delighted in the digital world
 - Innovative personal peripherals that people want to buy and love to use
 - Mass luxury products
- World-class in product design and technology integration
 - Working closely with key suppliers who develop leading technologies, we use the best ingredients to create great products for our customers – provides us with flexibility and responsiveness
- Balanced blend of retail and OEM

Logitech at A Glance

- Three strong identities (Swiss/U.S./Chinese)
- ~10,000 employees in 30 countries, large presence in China
- \$2 billion in revenue in FY 2010
- Products available worldwide
 - In FY 2010, shipped 146 million products into more than 100 countries

World-Class Design and Development



Diverse Platform Expertise



PC



Mac



Home Entertainment Systems



PSP



Wii



PlayStation 2 and PlayStation 3



Xbox and Xbox 360



iPod/MP3 Players

Key Company Segments



PC Navigation



Internet Communications



Digital Music



Laptop Essentials



Home Theater Control



Gaming

Unrivaled Global Distribution



Established Global Supply Chain

- Global network of Distribution Centers
 - Shipping into ~ 100+ companies
- Owned manufacturing in China
 - Low-cost, high-quality, high-volume
- Award-winning leader in supply chain innovation
 - Patented approach to Order Scheduling
- Extensive Continuous Process Improvement Programs



Complexities in existing Supply Chain

- Multiple finished good supplier relationships
- Many regional distribution points
- Significant supply lead times
- Extensive parts managed with constant PIPO
- Trend towards shorter “order to ship” cycle times
- Increasing pressure on cost, inventory & service

Setting: Americas Region

- Volume:
 - 198 active repeat customers
 - 1500 active skus
 - 1800 “ship to” addresses
 - 50k lines shipped monthly

Setting: Americas Region

- Order Cycle time:
 - Requested:
 - 45% of lines requested to ship same day
 - 96% of lines requested to ship < 1 week
 - 99% of lines requested to ship < 2 weeks
 - Actual:
 - 1% of lines requested to ship same day
 - 55% of lines requested to ship < 1 week
 - 79% of lines requested to ship < 2 weeks
 - 98% of lines requested to ship < 8 weeks!

Problem: System was not helping

- Inadequate tools:
 - Oracle ATP out of box not enough; FIFO based
- Customers began “gaming” system
 - Distributors vs. retailers
 - Re-scheduling orders (multi-touch orders)
- Manual “holding” of inventory to ensure availability
- Focus on orders, not in-stocks
 - Not looking at channel
 - Assumption that all customers equal

Problem: System was not helping

- Financials took a beating; Service not improving
 - Wrong inventory mix
 - Compliance penalties
 - Out-bound air freight
 - Angry customers

Opportunities

- Many systems promised solutions
- All required significant investment
 - Systems, people, process
- Most based on “business rules”
- Did we understand problem well enough to “hard code”?
 - Would we have discipline to follow rules?
 - Do we understand which rules to establish?
 - What if our business problems changed?
 - Could we capture all scenarios?
 - Who would manage? Who had influence?

Solution

- Design our own
 - “Home grown, but good”
- Build around business strategy
 - Flexibility
 - Control
 - Real-time adjustments
- Establish “rules”
 - Classify customers into ABC classification
 - Agreement with Sales & Marketing on classification
 - Weight classifications differently
 - Minimize weighted delinquency
 - Pool inventory at DC
 - Reserve inventory in “anticipation” of order
 - Allow “stealing”

Roll-out as Proto-Type Tool

- Low risk
 - Low cost
 - Low exposure
 - Rapid knowledge gain
- Use data to sell internally
 - Show real benefits
 - System in place, real data, not theory
- Adjust system real time
 - Don't like output – change logic

Challenges

- Transform into a Supply Chain Org
- Settle the ownership of:
 - Orders, delivery metrics, costs, etc...
 - Threatening to other orgs
- Develop a SC Strategy that compliments and supports the S&M strategy
- Difficulty in selling the idea that not every customer is equal
- IT group preferences

Results: It's a Success!!

- Improved “order to ship” cycle time:
 - Before: 45% of orders shipping on time (< 1 week)
 - After: 85% of orders shipping on time (< 1 week)
- Significant reduction in non-compliance
- Reduction in inventory at Regional DC
- Improved channel partner relationships
 - “Category Captain” - Wal-Mart
 - Best Supply Chain Partner Award – Circuit City
 - Top Peripheral Supplier – Best Buy

Proto-Type Tool works!! Now what?

- Concept understood and accepted
- Business now “depended” on solution
- Need to reinforce and bullet proof it
- Ready to support the extra scrutiny of IT applications

Success is never final

- Service, cost & inventory improved, but not satisfied
- Need broader engagement of customer & end consumer
 - Focus on replenishment planning, channel inventory, point of sale transactions
- Phase 3 of Tool:
 - POS Focus
 - Internal alignment on channel inventory & in-stocks levels
 - Change logic of tool to optimize based on consumer access to goods
 - Retail & Distribution partners carry optimal channel inventory
- Expected Benefits:
 - Balanced channel inventory
 - Improved in-stocks
 - Increased sales (never lose consumer sales due to empty shelf)
 - Lower costs (avoid having “wrong” inventory; avoid expedites)

Order Scheduling at Logitech

A Coming of Age Story

Why Profit Point?

Supply chain optimization firm with expertise in:

- Infrastructure planning
- Operations improvement
- Production and distribution scheduling
- Business Optimization

Profit Point Clients



LPST1 -> LPST2

- Linear Programming Scheduling Tool
- Linear Programming is a standard technique to find the best answer to questions with many answers.
- Scheduling Tool is scheduling the inventory that will be assigned to open orders

LP Objective Function

- Minimize Weighted Delinquency (MWD)
 - Delinquency – Days late for each unit
 - Weighted by
 - Importance of the Customer
 - Age of the Order
- Trades off
 - Delaying an important customer with
 - Satisfying a less important customer

LP Constraints

- No order may be shipped early
- No inventory may be negative
- Allocation Limits by SKU & Customer may not be exceeded

LPST1 Backdrop

- Excel based solver, Access DB. - Platform was not an issue.
- Not simple – many paths to complexity
- Sparse Documentation – Tribal Wisdom drifts from reality

LPST1 – Issues:

- Frequent support calls for even the smallest change.
- Many options were hard coded, developer owned
- Business rules were inflexible
- No in-house IT support

Roll of Profit Point:

- LPST2
 - Make stable and supportable tool
 - Provide support
 - Provide Supply Chain insight
 - Provide Operations Research Resources.
 - Convert “Hobby” into “Application”
- LPST2 -> LPST3.

What was achieved - Supportability

- LPST2 – in Production
 - All options are data driven, user owns all data and parameters
 - Business rules are more data driven
 - In-house IT Support for level 1 issues
 - External support team for level 2 issues

A word on training

- Business rules can get complicated quickly.
- Interacting rules can lead to un-intuitive results.
- Training for the users and support staff is a must.
- Test Data with expected results is a huge help.

A word on KISS

- Keep It Simple...
- Redesign the process.
- Keep in mind... Simple not Simplistic.

What was needed:

- to address the Pain Points:
 - Confusing, Fragile, Slow, Rigid
- to retain the Good Points:
 - MWD was great!
 - Widely accepted as performing well

New tool in familiar territory:

- *User experience*
- *Scheduling Process*
- *Tools to Support the Process*

User experience totally revised

- Simpler user interface
- Improved reporting
 - Excel Pivot Tables – not a bazillion reports
- Run times reduced from hours to minutes
- Internal server hosted solution

LPST2 User Interface example

LPST2 1.1.41 Main Menu

Logitech LPST2

 Load Data  Control Data  Optimize  Reports  Run Mode  System Administration

Table Name	Current	Date Last Read	Write
tbl_LP_IN_SHIPPING_OUT	91	6/16/2010 12:29:00 PM	
tbl_AllocationTable	800	7/2/2010 2:54:00 PM	
tbl_CustomerChannelOther	10	6/16/2010 12:29:00 PM	
tbl_AllocationList	55	7/2/2010 2:52:00 PM	
tbl_LP_CUSTOMER_OUT	46	6/16/2010 12:29:00 PM	
tbl_LP_IPRPO_OUT	138	6/16/2010 12:29:00 PM	
tbl_LP_OHQTY_OUT	850	6/16/2010 12:29:00 PM	
tbl_LP_PLORDS_OUT	867	6/16/2010 12:29:00 PM	
tbl_LP_SHIPPED_OUT	1303	6/16/2010 12:29:00 PM	
tbl_LP_SO_OUT	36	6/16/2010 12:29:00 PM	
tbl_LP_WO_OUT	1	6/16/2010 12:29:00 PM	
tbl_LP_CASEQTY_OUT	7714	6/16/2010 12:29:00 PM	
tbl_Stat_Fcast_Output	885	6/16/2010 12:29:00 PM	
tbl_Intransit_Air_Retail_HKG	2	6/16/2010 12:29:00 PM	
tbl_Intransit_Air_Retail_SHA	2	6/16/2010 12:29:00 PM	
tbl_Intransit_Ocean_Retail_HKG	2	6/16/2010 12:29:00 PM	
tbl_Intransit_Ocean_Retail_SHA	2	6/16/2010 12:29:00 PM	

FTP Import

Load Data and Validate

Validate ...

Load Selected Data



LPST2 User Interface example

LPST2 1.1.41 Main Menu

Logitech LPST2

Load Data Control Data Optimize Reports Run Mode System Administration

Table Desc	Current Elem
Logi Locations	2
LP Ratios	1
Hold Days	22
SubInventory Types	1
Allocation Quantities	11
SKUs on Allocation	4
Work Calendar	366
Quarter Dates	1
Start Date	1
Fiscal Monthly Calendar	53
Work Dates	66
CPFR SKUs	59
Priority Exceptions SO	0
Priority Exceptions	0
Customer Priority	113
Customers that combine	0
Customer Master	68
Customer Data	68
Phase In Phase Out SKUs	8
Phase In Phase Out Dates	22
Test SKUs	43
Do not import these tables list	0






LPST2 User Interface example

LPST2 1.1.41 Main Menu

Logitech LPST2

Load Data Control Data **Optimize** Reports Run Mode System Administration

Table_Desc	Current_Eler	
To Opt: Opt Time	66	
To Opt: Items	17	
To Opt: Backlog Prod	31	
To Opt: Allocations Prod	0	
To Opt: Receipts Prod	153	
To Opt: Items Test	0	
To Opt: Allocations Test	0	
To Opt: Backlog Test	0	
To Opt: Receipts Test	0	
Pre Opt: Open Orders Table	36	
Pre Opt: Backlog Table	31	
Pre Opt: Receipts Raw Table	267	
Pre Opt: Receipts Table	153	
Pre Opt: Allocations	0	
Pre Opt: SKU for Test table	1	

Optimize

ShowReportAfterOpt
















Build ATP report

LPST2 User Interface example

LPST2 1.1.41 Main Menu

Logitech LPST2

 Load Data  Control Data  Optimize  Reports  Run Mode  System Administration

Table_Desc	Current E	
For Oracle: Upload Text	106	
tbl_Upload	106	
tbl_Assignments	106	
From Opt: Assignments	15	
To Opt: Backlog Knife Fight	27	
Report: Existing and Incoming Supply	192	
Report: QTD_Shipped_Released1All	243	
Report: All Combined Cross Tab	-1	
Report: All Combined Pivot	-1	
Report: Reservation Report	0	
Report: QTD_Shipped_6	0	
Report: QTD_Shipped_Released_6	0	
Report: CPFR Summary	0	
Report: Commit Report	0	
Report: Net Forecast	0	

Publish Optimized Schedule to Oracle

Export Standard Reports to Excel







Preview Publish Optimized Schedule

Full Upload

LPST2 User Interface example

LPST2 1.1.41 Main Menu

Logitech LPST2





 Load Data  Control Data  Optimize  Reports  Run Mode  System Administration

Auto Mode Selection

Start

Stop

Current Status:

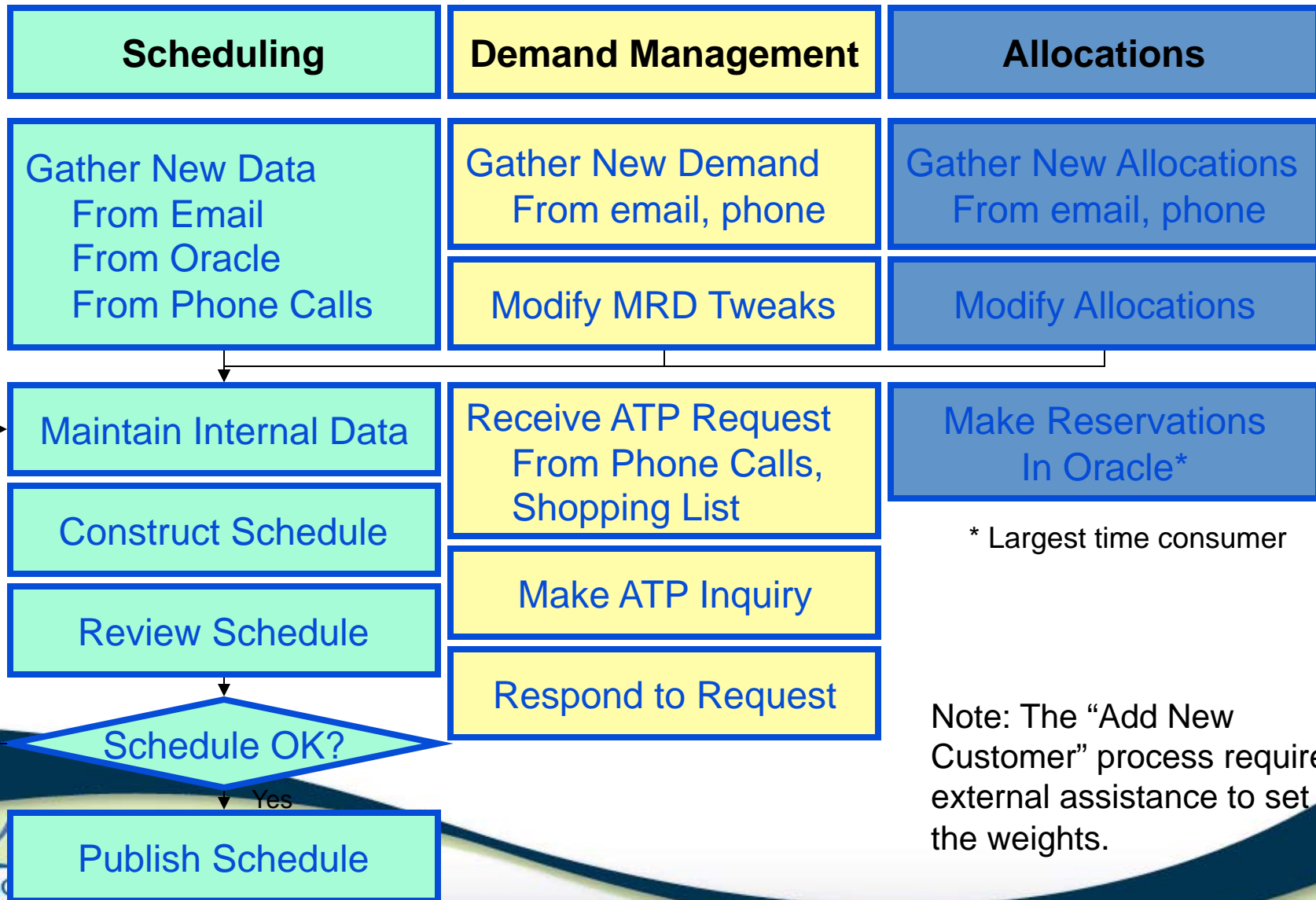
Messages:   4748   of 4748

6/16/2010 12:30:01 PM
Optimize Orders is Complete
Run Complete,
New Cost is: \$562,529,701.77
This run took 0.562 seconds.

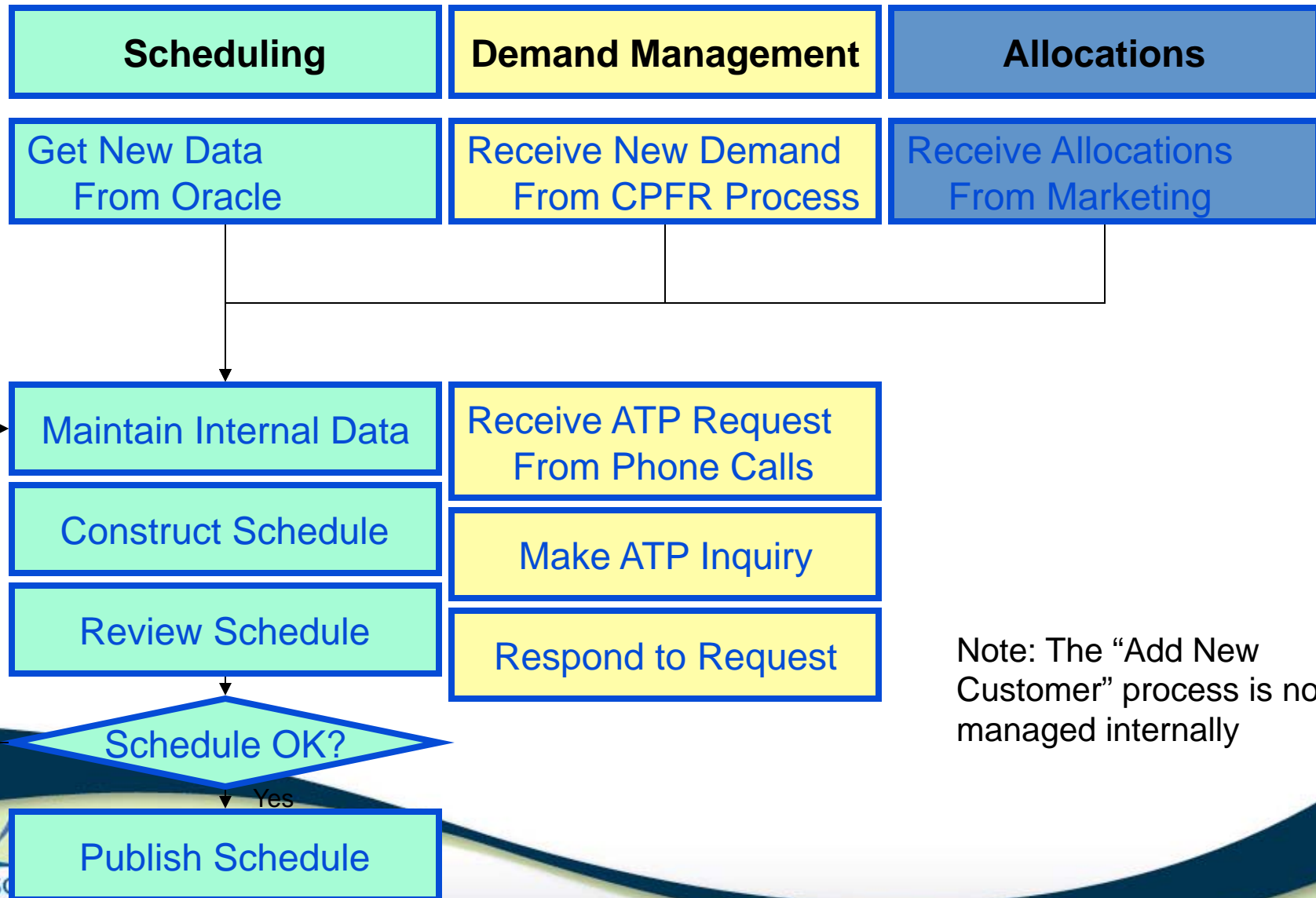
Revised Scheduling Process

- Placed responsibilities where they should be
- Simplified the process flow
- No need for external support in the daily processing
- Greatly reduced the need for external support overall.
- Auto-run feature as evidence.

LPST1 Scheduling Process



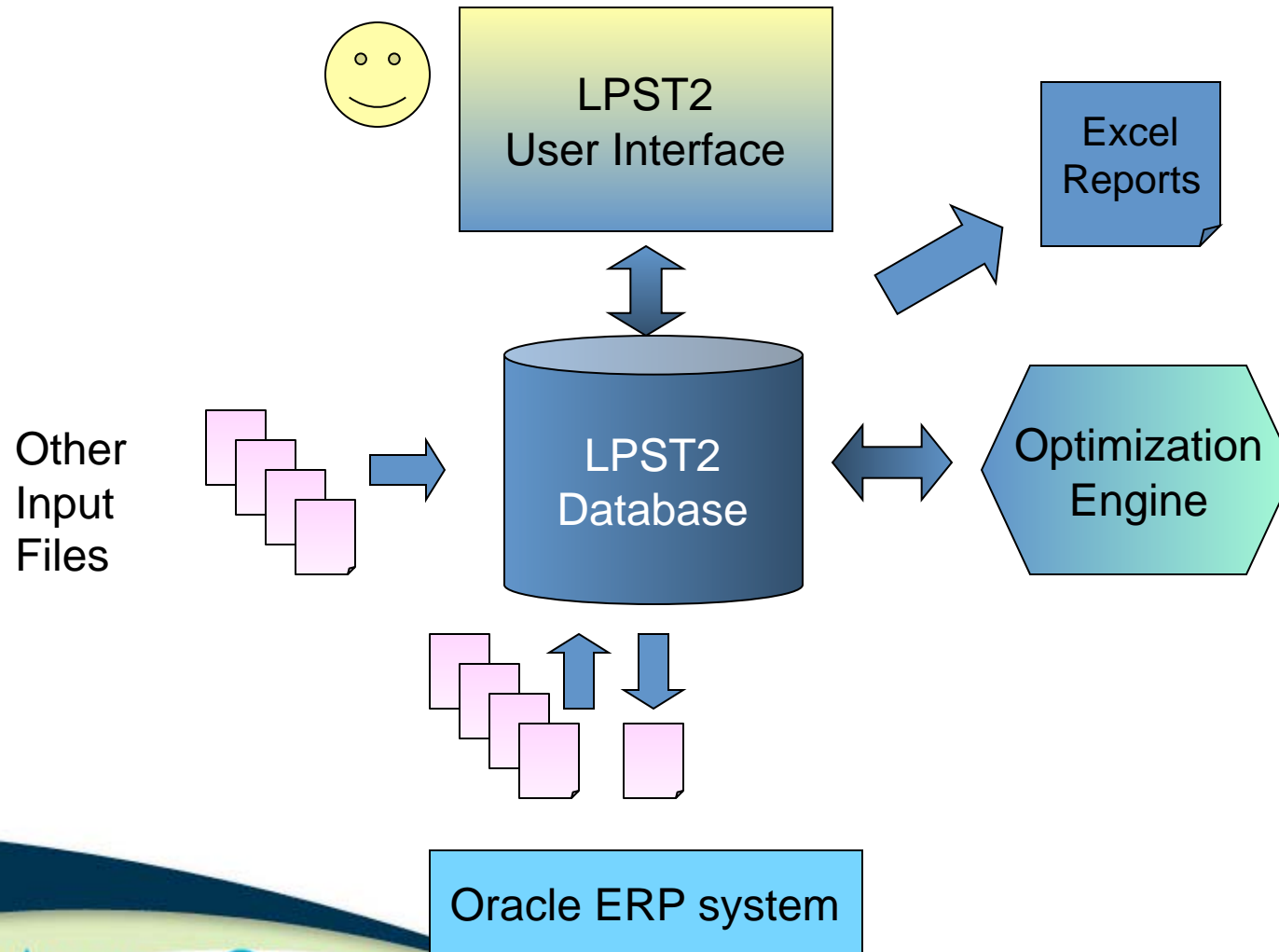
LPST2 Scheduling Process



Access, Excel, now with Dash solver.

- Organized like an application
 - Test and Production environments
 - Server based for wider access
- More robust tools
 - Excel Reports and Pivot tables
 - There is more to Excel than “Auto filter”
 - Even with more than 64k rows.
 - Auto Run feature

LPST2 Technology Map



Rolled out like an application:

- *Testing regime,*
- *Version releases,*
- *Test and production servers,*
- *Release notes,*
- *Archiving*

Supported like an application:

- *Service Level Agreement*
- *Internet based support tools*
 - *Goto Meeting™*
 - *Box.net*
- *Training and documentation*

Overall results:

- *Stable, Supportable, Flexible, Speedy,*
- *Of critical importance to customer service*
- *Used every day & more than once a day*
- *Even Marketing likes it*

Summary.

- *Better processes are possible.*
- *ERP does not always provide best in class.*
- *A better fit to your business strategy is possible.*

Questions

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