
Cold Chain Management

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Agenda

- Level Set
- Regulatory & Non-Regulatory
- Assessing Current State & Desired State
- Evaluating Technology
- Developing a Plan
- Keys to Success



Level Set

- What is “Cold Chain Management”?
 - ✓ A supply chain process that manages temperature exposure from supplier to end user
- Why is it important?
 - ✓ Public Safety
 - ✓ Compliance – Regulatory and Non-Regulatory
 - ✓ Cost – Foodborne Illness \$\$\$; Brand \$\$; Quality \$
 - ✓ Reputation



Regulatory & Non-Regulatory

Regulatory

- FSMA - Sanitary Transportation of Human & Animal Food
- Seafood HACCP
- Food Code
- State, City, Local Regulations

Non-Regulatory

- GFSI
- Process Controls
- Customer Requirements



Regulatory Example

FSMA – Sanitary Transportation of Human & Animal Food

- The goal is to prevent practices during transportation that create food safety risks, such as failure to properly refrigerate food, inadequate cleaning of vehicles between loads, and failure to properly protect food.
- The rule establishes requirements for shippers, loaders, carriers by motor or rail vehicle, and receivers involved in transporting human and animal food to use sanitary practices and proper refrigeration controls to ensure food safety.



Non-Regulatory Example

GFSI

- The Global Food Safety Initiative is a **business-driven initiative** for the continuous improvement of food safety management systems to **ensure confidence in the delivery of safe food to consumers worldwide.**
- GFSI provides a platform for collaboration between some of the world's leading food safety experts from retailer, manufacturer and food service companies, service providers associated with the food supply chain, international organizations, academia and government.



Assessing Current State & Desired State

- Company goals and customer expectations
- Balancing service & cost
- Define expectations
- Key stakeholders and accountability
- What is the impact operationally?
- Communication and Training
- Ongoing evaluation and continuous improvement

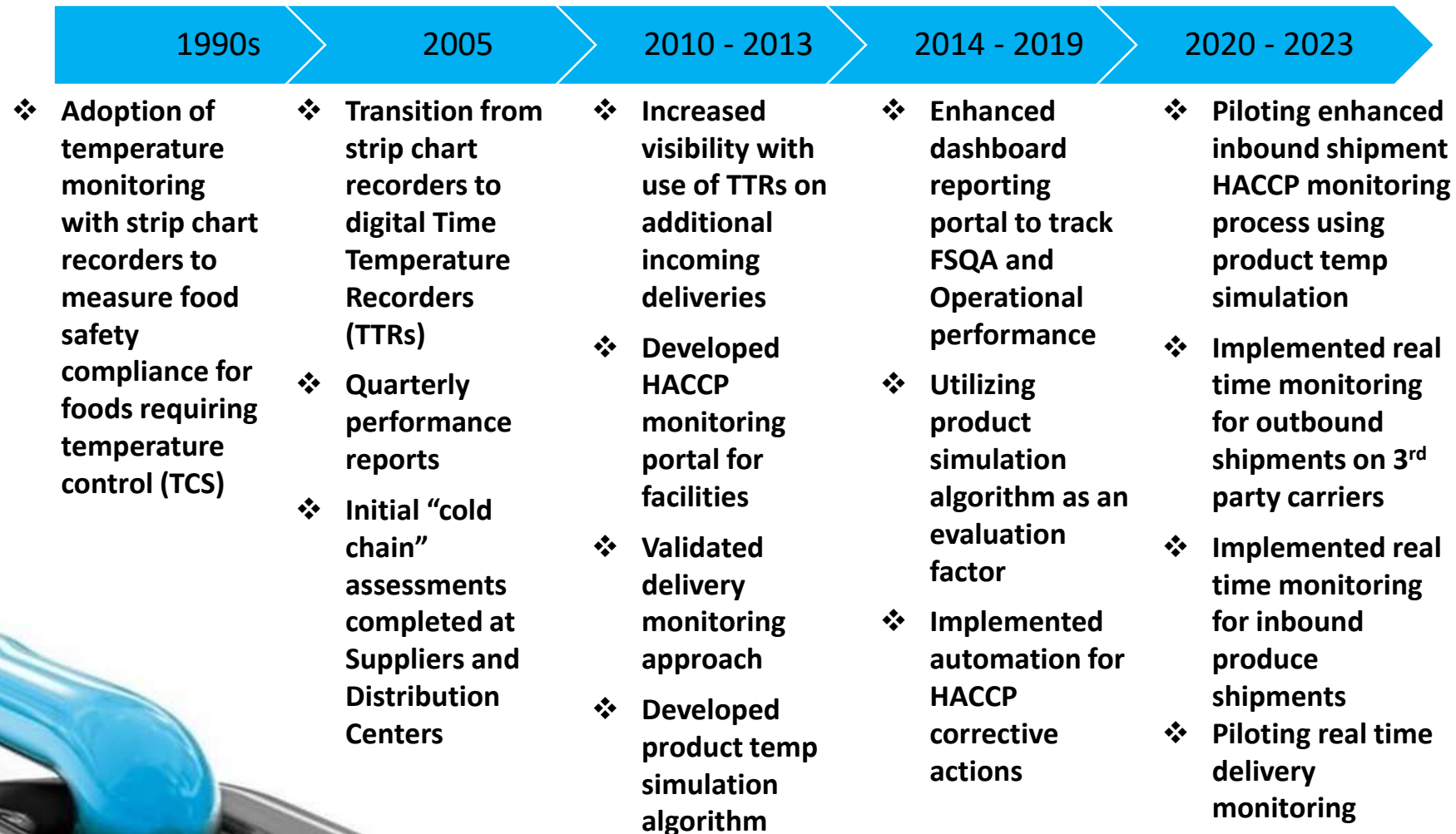


Evaluating Technology

- 1) Define requirements
- 2) Formalize business case and ROI
- 3) Supplier expectations
- 4) Launch RFP and evaluate suppliers
- 5) Pilot under controlled, but real-world conditions
- 6) Start now & start small
- 7) Gather feedback
- 8) Be agile and change quickly



Sysco Integrated Cold Chain Management



Sysco Integrated Cold Chain Management

Inbound



- RF enabled TTRs for wireless downloads
- Download email notifications
- Product temperature simulation
- KPI reporting

Storage



- 24/7: Real-Time temperature monitoring
- Audit ready
- Text/Email alarm notifications
- KPI reporting

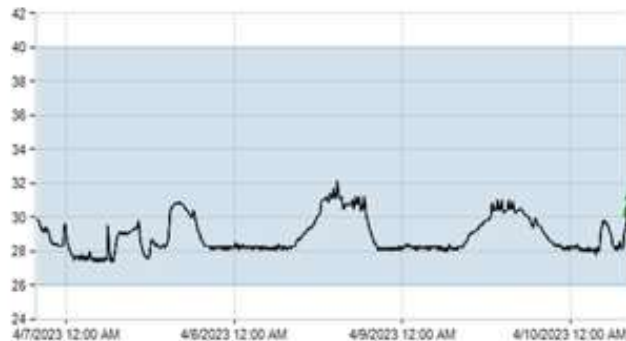
Delivery



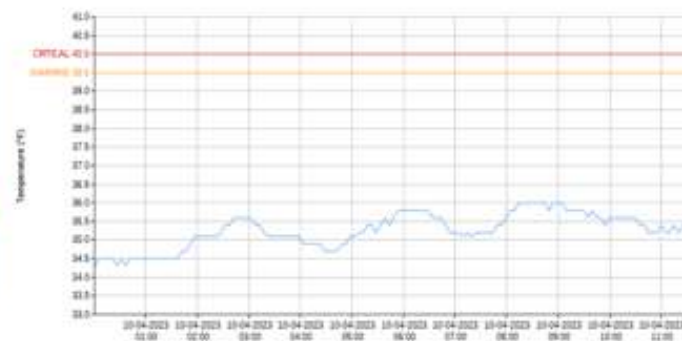
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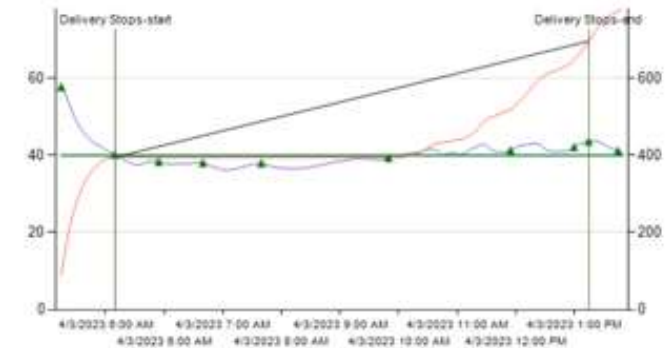
Inbound Temperature Graph



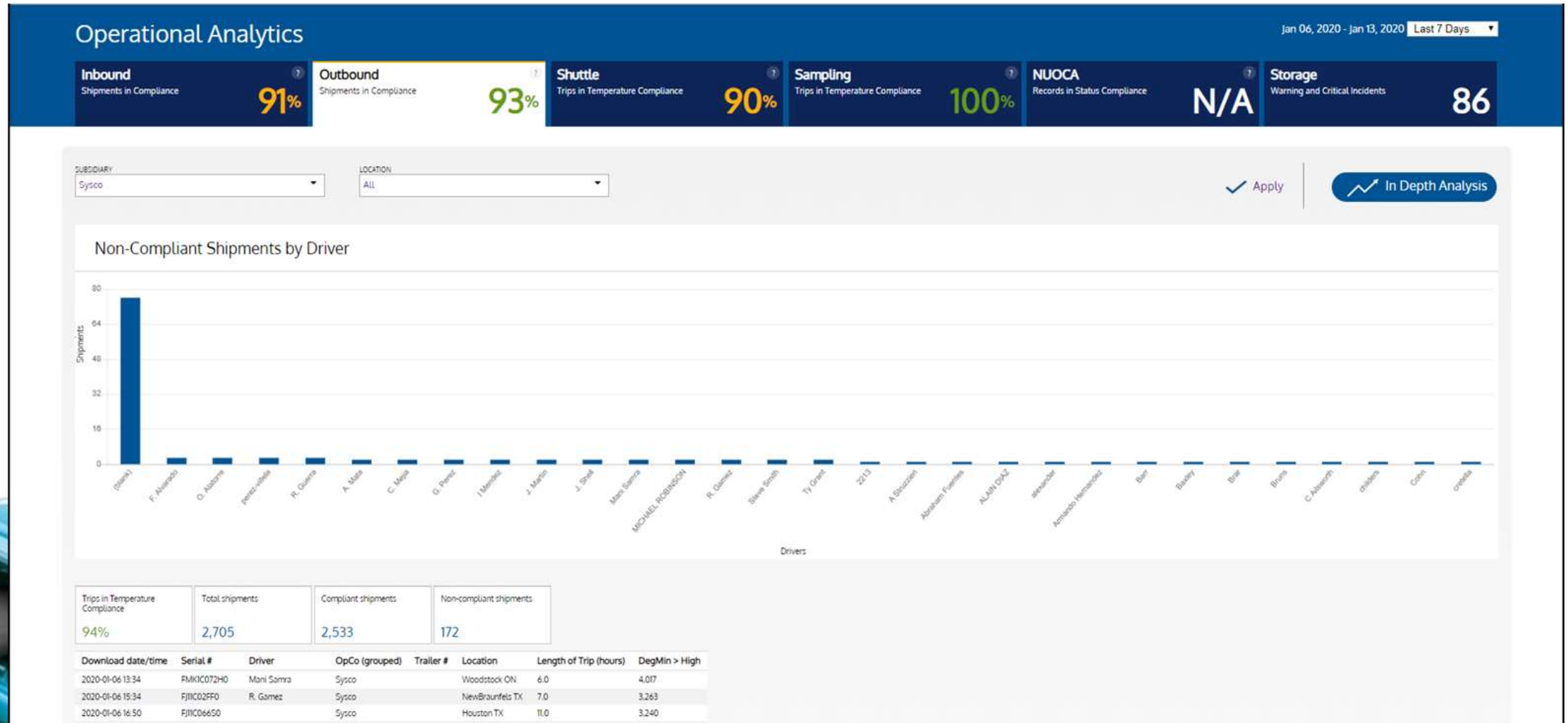
Storage Temperature Graph



Delivery Monitoring Graph



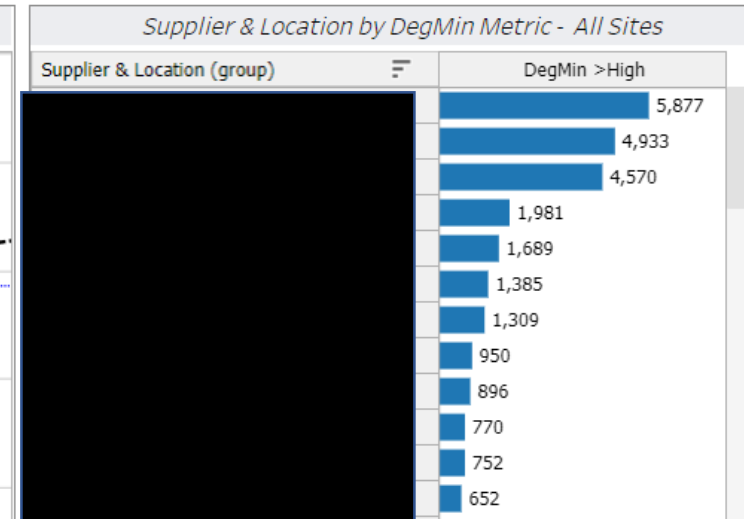
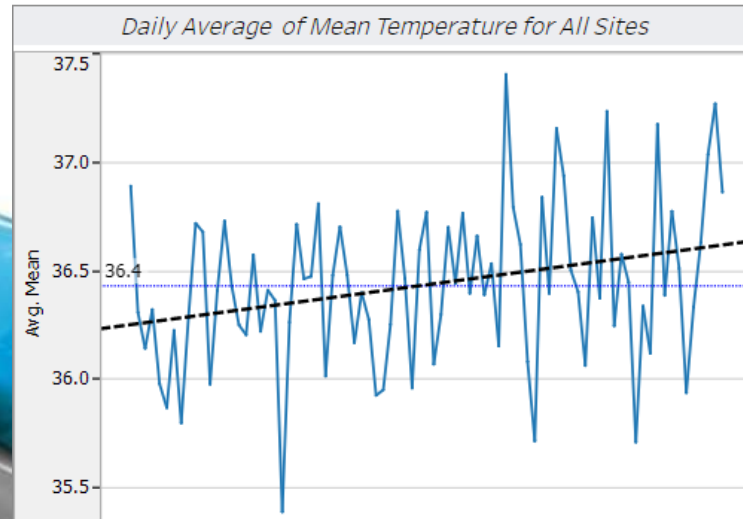
Sysco Integrated Cold Chain Management



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Average KPI's for Suppliers to Sites
Click on supplier/location name below to adjust visuals

Supplier & Location	Product	Total Trip Count	Avg. Mean	Avg. DegMin >Ideal	Avg. DegMin >High	Avg. DegMin <Ideal	Avg. DegMin <Low	Product High Alarms	% High Alarms	Product Low Alarms	Avg. Length (days)
Grand Total		8,065	36.8	4,661	679	3,609	190	403	5.0%	396	2.1
[Redacted]	Produce	83	37.9	1,609	22	511	0	1	1.2%	0	0.7
[Redacted]	Produce	321	35.7	1,602	4	2,723	95	1	0.3%	18	1.6
[Redacted]	Produce	31	37.5	11,132	305	4,240	16	4	12.9%	1	4.4
[Redacted]	Produce	135	38.3	5,356	622	1,347	1	20	14.8%	1	1.6
[Redacted]	Produce	16	35.0	1,055	3	5,157	1	0	0.0%	0	3.0
[Redacted]	Produce	118	35.5	779	0	809	1	0	0.0%	0	0.8
[Redacted]	Produce	173	35.7	3,336	76	4,881	6	2	1.2%		3.1
[Redacted]	Produce	27	37.1	5,875	135	4,734	66	52	5.4%	22	3.2
[Redacted]	Produce	133	37.2	5,479	70	3,948	13	4	3.0%	5	3.3
[Redacted]	Produce	13	37.1	2,314	5	1,251	109	1	7.7%	0	0.7
[Redacted]	Produce	12	37.2	10,057	57	732	13	2	16.7%	1	1.0
[Redacted]	Produce	414	35.8	4,042	1,511	2,062	4	12	2.0%	27	2.2



Sysco Integrated Cold Chain Management

Welcome Erik Anderson. Sign Out

- Dashboard
- Site Map
- Sensor Graphs
- Alert Events
- Report Wizard
- Documents and Manuals
- Configuration
- Audit Trail
- User Profile

Customer Notice
Please note: Flashing icons representing outstanding Corrective Actions will appear in the device boxes below for a period of 7 days, after which the icon will no longer appear. All outstanding Corrective Actions are listed as normal in the Alert Events tab. We've introduced this change to greatly enhance the speed at which your Site Map loads.

WARNING: Sensor has been above the Warning threshold for longer than the delay period.
CRITICAL: Sensor has been above the Critical threshold for longer than the delay period.
MAINTAIN: Sensor is in Maintain Mode. No alerts will be generated while the sensor is in this mode.
SERVICE: Sensor is in Service Mode. After the Service Timeout this sensor will return to Normal. No alerts will be generated while in Service.
MISREAD: Sensor has recorded a value which the system detects as a bad reading.
COMMFAIL: Communication with this sensor has failed.
COMMISS: Temporary Communication failure with this sensor.

SyscoGrandRapidsMI - Grand Rapids

AcrossD46 37.4 °F	AcrossD84 37.8 °F	CC-29-C1 32.2 °F	CC-67-A1 32.2 °F	CF-28-A1 36.1 °F
CF-64-A1 36.0 °F	CH-64-A1 39.6 °F	CJ-29-C1 37.2 °F	CJ-65-C1 37.0 °F	zCC-29-C1 32.2 °F
zCC-67-A1 32.4 °F	zCF-28-A1 36.0 °F	zCF-64-A1 36.1 °F	zCH-64-A1 39.6 °F	zCJ-29-C1 37.0 °F
zCJ-65-C1 37.0 °F				

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Thermometer Monitoring

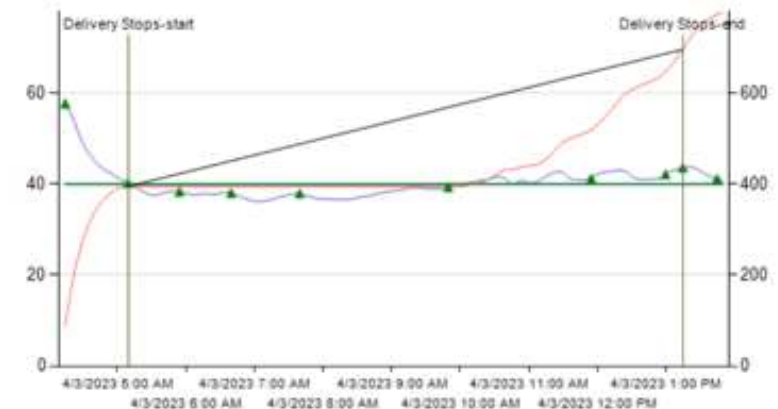
- Designate Delivery Partners
- Complete Weekly Accuracy Check
- Distribute Thermometers Weekly
- Delivery Partners Take Temps & Enter in handheld
- Management Reviews Temps in Excel



Stop Address	Item Description	Cooler Temperature
16655 Quaker St	AVOCADO FRM#2 FRSH	36.8
115013 Denver West Pkwy	MUSTARD DJON W/ WHT WINE TIN	36.8
116005 M Vernon Rd	BEEF PATTY GRD 80/20 RND TF	36.8
1100 Jefferson County Pkwy	PORK BBQ SMKD PULLED PREMIUM	36.8
1800 11th St	DISPENSER HAND SOAP BULK	35.9
11500 Illinois St	TOWEL ROLL NOPERF 7.9 EARTH+	36.8
11600 Maple St	POTATO RED B SZ#1 FRSH	36.8
11795 Elm St	TORTLLA FLOUR PRESS 10"	36.8
114265 W Colfax Ave	JUICE ORANGE PET	36.8

RF TTR Monitoring

- Delivery Partner Interacts W/TTR
- Delivery Partner Returns TTR For Download
- Management Reviews Temps Once TTR Auto-Downloads



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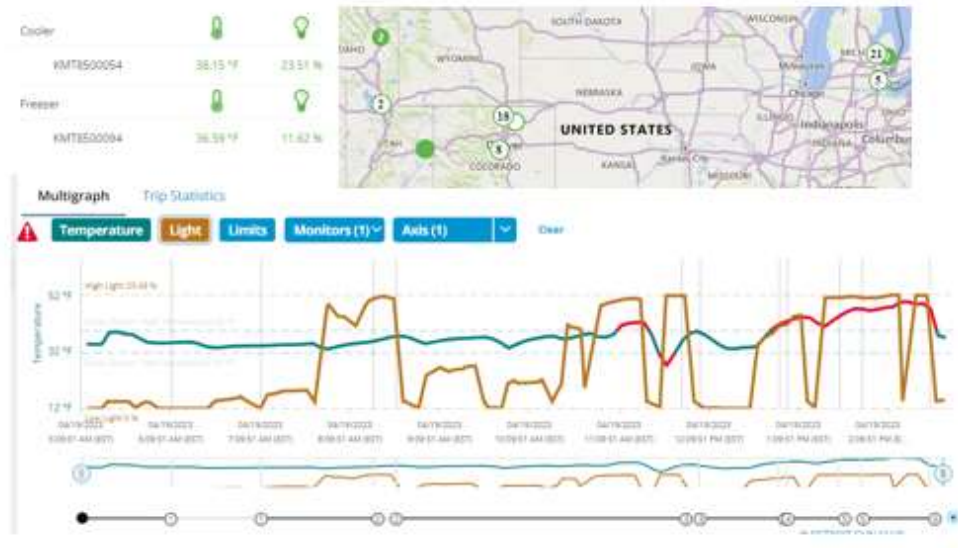
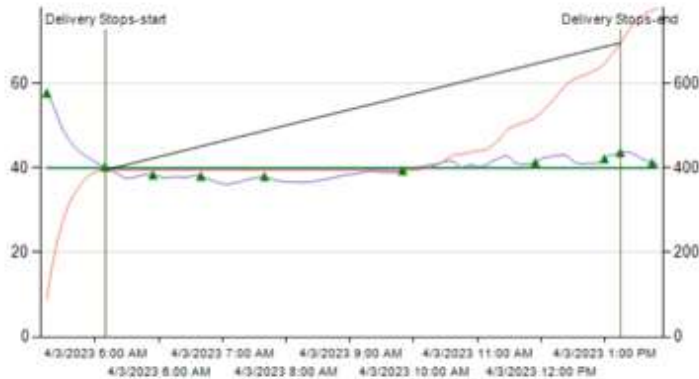
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Real-Time Monitoring

- Web & App Platform
- Captures & Reports Temps, Humidity, & Light in Real-Time
- Asset Tracking Functionality
- Route Automation
- Management Review Temps in Real-Time



Keys to Success

- Clear vision
- Buy-in from all levels of the organization
- Provide value
- Strong partnerships with suppliers and customers
- Ongoing collaboration with service provider

