



THE VALUE OF KNOWING



CASE STUDY: LIVE STREAMING IN-TRANSIT VISIBILITY PROTECTS SEASONAL, TOP LINE REVENUE

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The Global Challenge – Growing More with Less

Pop. growth 7B- 9B, 2030 - 2050



200,000 more mouths
to feed every day

UN – by 2030 need 30% more water,
50% more energy, 70% more food



Emerging markets to add
more animal proteins

Earth is not likely to grow



Erosion reduces what
we already have

Syngenta - The Good Growth Plan

Many of today's farmers live in poverty and are challenged by resource availability



**Make crops
more efficient**

by increasing the average productivity of the world's major crops by 20% without using more land, water or inputs



**Rescue
more farmland**

by improving the fertility of 10 million hectares of farmland on the brink of degradation



**Help biodiversity
flourish**

by enhancing biodiversity on 5 million hectares of farmland



**Empower
smallholders**

by reaching 20 million smallholders and enabling them to increase productivity by 50%



**Help people
stay safe**

by training 20 million farm workers on labor safety, especially in developing countries



**Look after
every worker**

by striving for fair labor conditions throughout our entire supply chain.

One planet. Six commitments.

KPIs for Delivering Seeds and Crop Protection Solutions Globally

**Meeting the
Customer Promise**



Improving the Customer Experience

Product Safety/Quality



Table Stakes

**Long lead-times + very tight
seasonal windows determine our
financial success**



Global Supply Chains

Delivering Within an Unforgiving Seasonal Delivery Window

Risks Around



A farmer's growing season could be impacted by:

- Tampering
- Missed shipments of key ingredients
- Shipments delayed by weather
- Available capacity
- Shipping point disruption
- Catastrophic event related loss

Practical Ways to Mitigate Risk with Live Streaming Data

Challenges

- No as-it-happens remediation
- No 'single source of truth'
- Hand-off blind spots
- Big Data, small team

Solutions

- Real-time data
- Objective data sources
- One data source end-to-end
- Alerts and exception reporting

Real-Time Visibility Allows for Immediate Remediation

Analytics Enables Prevention

Good

Milestones from ERP/TMS or carrier data feeds – usually manually entered EDI messages with a latency of hours to days

Better

Real-time data on the location and condition of cargo via sensors – immediate and fact based decisions

Best

Real-time and historical data sources combined with applied machine learning to predict outcomes and provide insights

Sensor Solutions

We manufacture sensors.



Savi Locate™



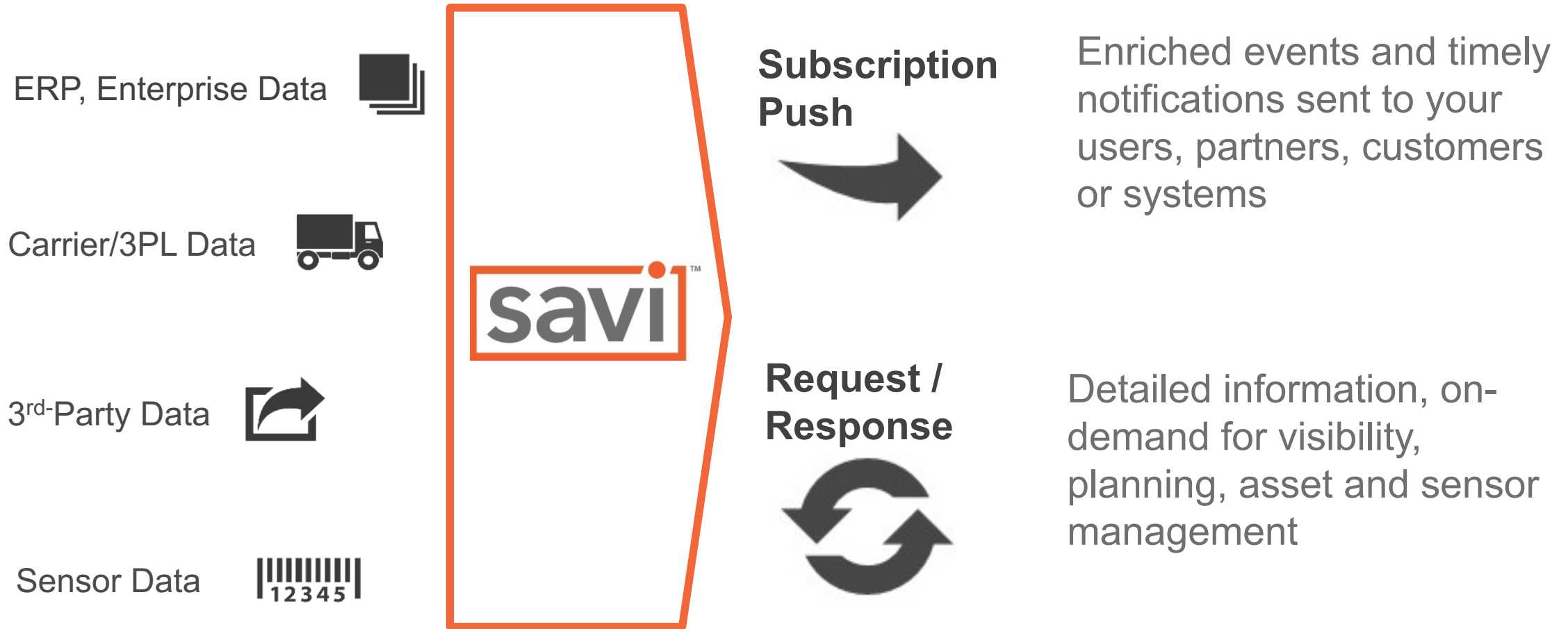
Savi Secure™

We're also sensor-agnostic.

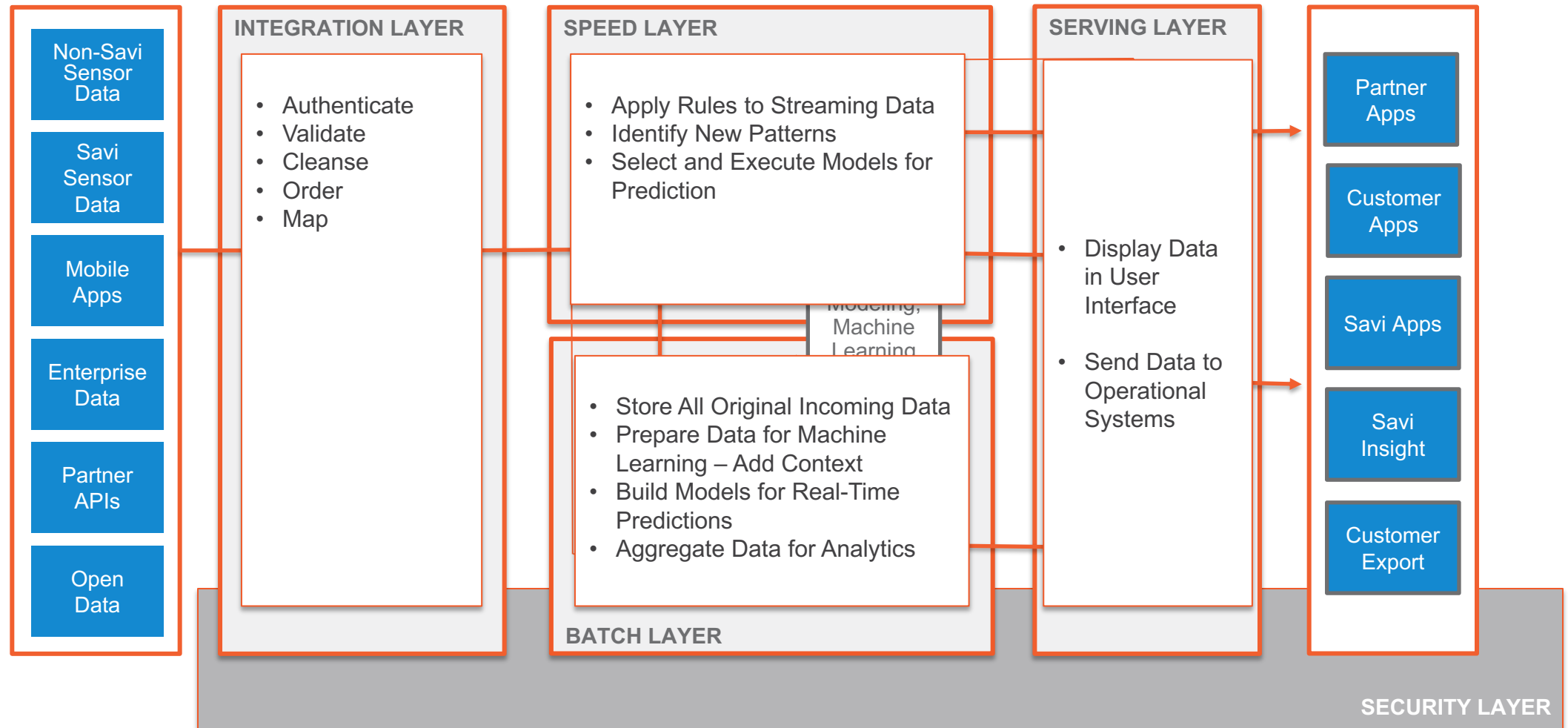
- Shipments to key customers
- Expedited cargo
- High-value goods
- Perishable goods

- Prevent and/or track stolen goods
- Diagnostic use on problem lanes

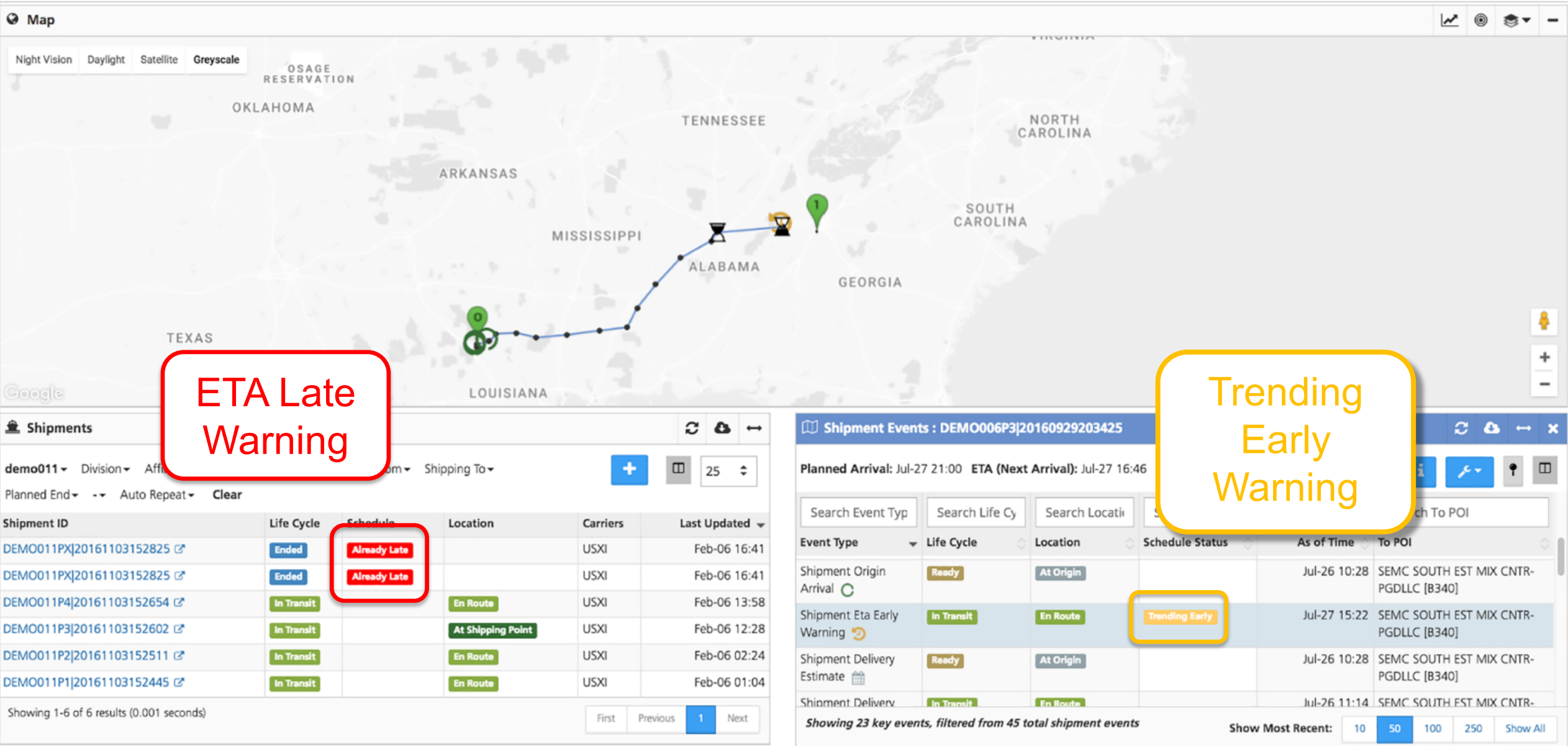
Data Lifecycle



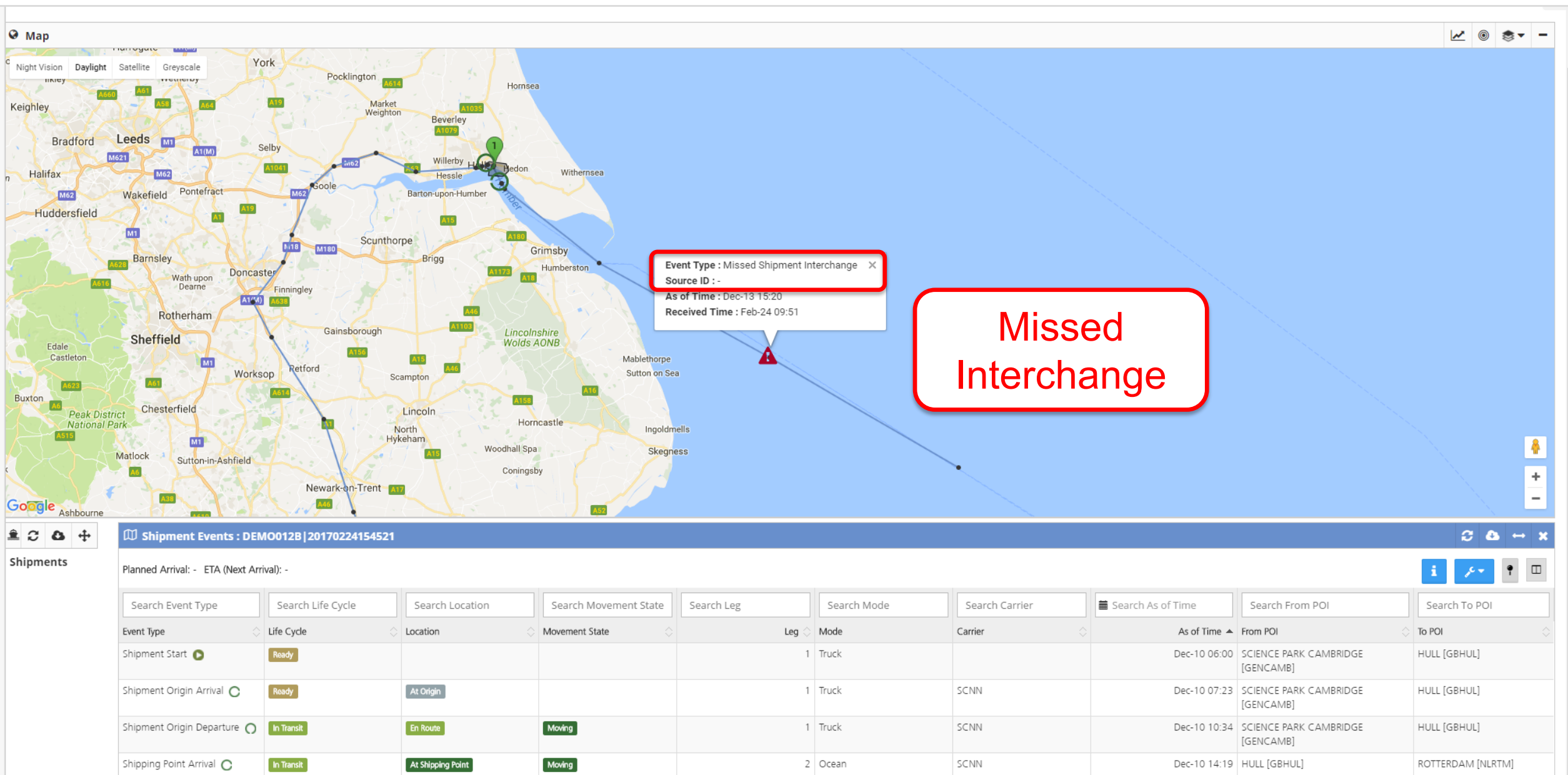
Savi IoT Platform: Real-Time and Batch



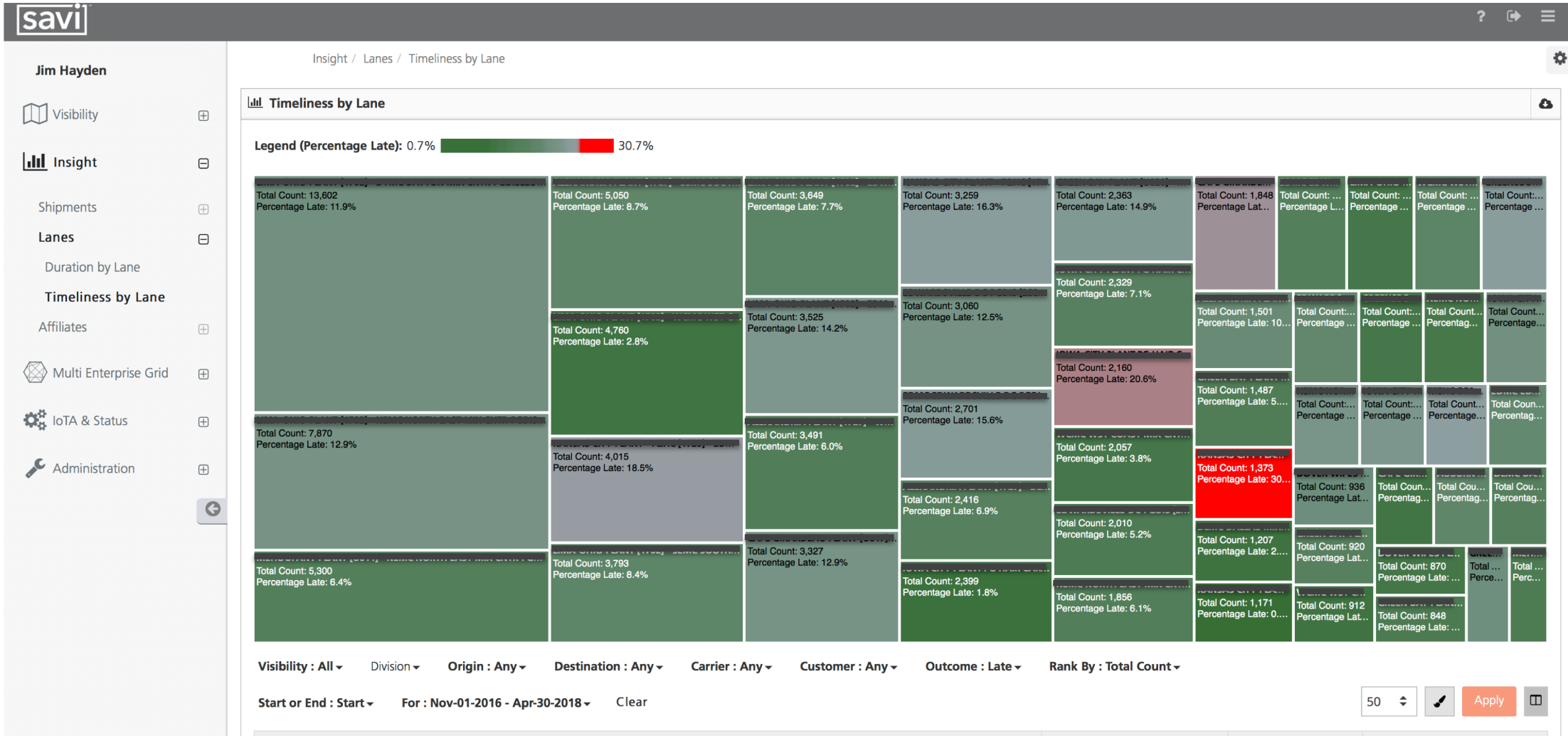
Savi Visibility™: Real-Time Status and Notifications



Real-Time Alert That a Shipment Missed a Critical Interchange



Savi Insight™: Identify Where to Focus on Ops Improvement



The Path from Visibility to Insights and Analytics

Digitizing the supply chain

Structured and unstructured data sources are only valuable if cleansed and curated for analysis.

The more data the better

Keep adding data for identifying trends, adding context, and generating more accurate predictions.

Machine intelligence augments human capability

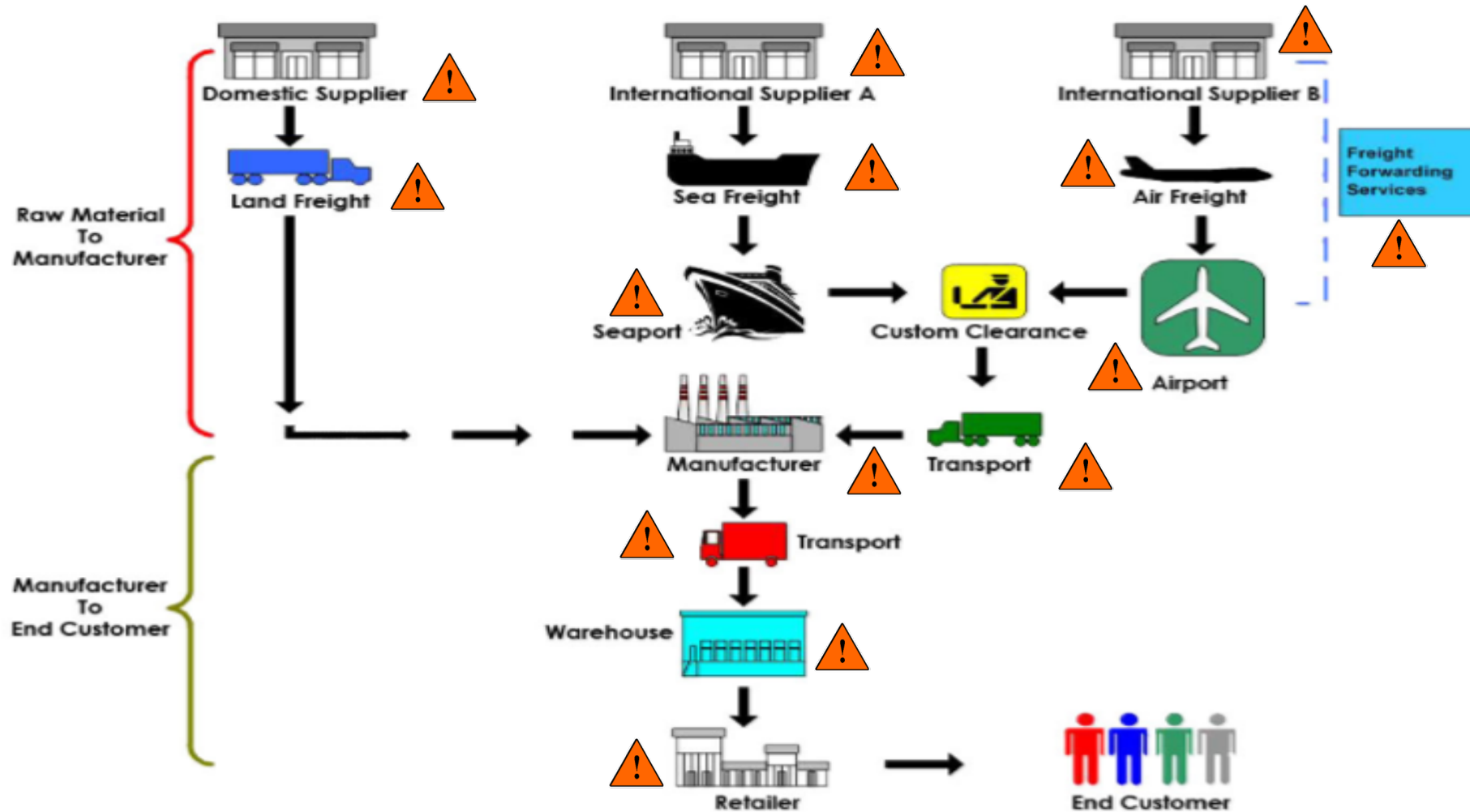
Machines are great at pattern recognition and real-time alerting.
Humans are great at focused action for a better outcome.

A Catalyzing Event....

Serendipity



Where Is the Logistics/Transportation Risk?



Clarifying Requirements and Defining a PoC

Requirements

- Vet the technology
- Gain visibility to domestic rail and dedicated truck fleet
- Usefulness beyond PoC

Proof of Concept Plan

- Visibility to domestic rail and dedicated truck shipments
- Faster response to customer service questions
- Exception alerts to reduce load on a small ops team
- Enable better utilization of dedicated trailers in the short delivery window

Key Joint Learnings from the PoC

✓ Labor Required

- ✓ Not plug and play – requires some dedicated time and resources
- ✓ Requires a Test Plan – should be defined before the PoC starts to exercise all scenarios
- ✓ Plant personnel are critical to success– putting sensors on the trailers, ensuring sensors are powered, recharging batteries, correctly identifying which sensor is with which shipment, repairs, recharging batteries

✓ Operational Considerations

- ✓ Manual creation of large numbers of shipments is not sustainable – automated feeds are required for operational scale
- ✓ You will see things you never expected – stops at colleges, casinos, the driver's house
- ✓ The sensors are not 100% perfect – lots of factors influence – placement, buildings, poor cell coverage – changes by cell network providers
- ✓ The software is not perfect – collaboration is expected and welcome
- ✓ Users provide the best insight for user interface (UI) enhancements – need to constantly evolve

Result: the POC clearly demonstrated the art of the possible

Summary of Results – See, Act, Predict

- **See** - “Real-Time” risks as they happen
 - Shipment missed a delivery location
 - Excessive dwell time at a delivery location
- **Act** – Take action before customers are impacted
 - Expedite the last mile/leg of shipment
 - Send a partial fill right now
- **Predict** - Use intelligence for future continuous improvements
 - Understand the best carriers by transit lane or route
 - Understand true transit times for multi-stop customer shipments

Key Learnings from Customers

Safety is part of your product

Risk is ever present. Build product and brand protection into the manufacturing and distribution plans.

Visibility is a requirement

On time, not damaged and just what I ordered, is becoming the expectation. You can't manage product in-transit without transparency.

Prevention is better than fast reaction

Analytics give insights to what disruptions are likely – by time and location. Process change is likely needed.

Safety, Quality and Customer Experience is never done

Stay ahead of risks with predictability from machine learning and analytics insights.

Learn How Savi Can Help You

**Interested to learn how your company could
benefit from live streaming in-transit visibility?**

Let's talk.