Fleet Observability for Modern Fleets

Traditional, Autonomous, & Physical AI Fleets



Wherobots x ASPEN

by actionengine

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August 2026

Panelists



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Fleet Health Overview

Aspen Fleet's home page (Map View)

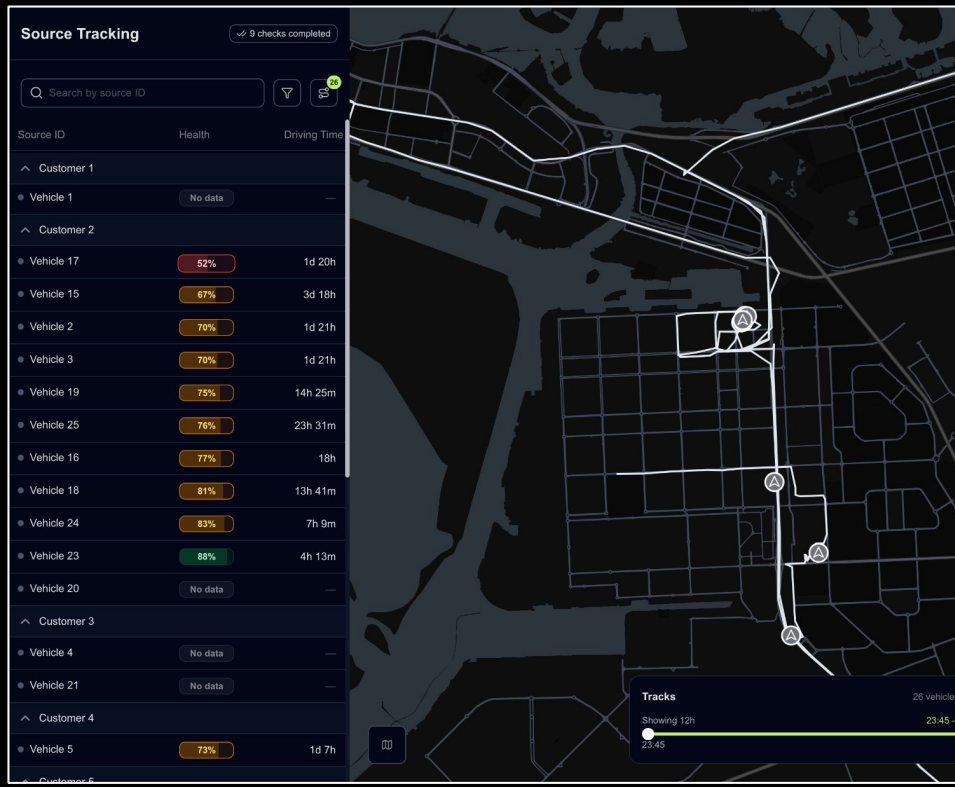
Vehicle Status

Track vehicle positions, online status, overall health of the fleet within a given time period.

52%

Fleet Health

Track daily changes in your fleet's health status.



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Agenda

- Intro
- Aspen Fleet Demo: Fleet Observability for Autonomous & Physical AI Fleets
- Aspen's Segment-Based Checks & Baselines
- Wherobots: The Engine Behind Aspen
- Aspen Fleet Demo: Predictive Maintenance for Traditional Fleets

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THE PROBLEM

Modern fleets are being observed with platforms built, at their core, for traditional fleets.

01 Not Built for Modern Fleets

Legacy fleet platforms were designed at their core around traditional vehicles and low-frequency ECU telemetry.

02 Alert Fatigue

Using traditional fleet platforms to work with modern fleets results in alerts not being actionable.

03 Reactive by Nature

Narrow threshold logic cannot predict maintenance, so managers are notified too late and repair costs climb.

04 Spatio-Temporal Blind Spot

Spatio-temporal intelligence is underutilized, which means missed insights and a limited ability to understand root causes or plan mitigations.

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THE SOLUTION

ASPEN is built at its core with what legacy systems never had:

01 AI-First by Design

High-frequency modern fleet data is a native input, not an add-on.

02 Evidence-backed Insights, no alert noise

Spatio-temporal context discards non-issues and surfaces problems fixed thresholds never see.

03 Predictive Nature

Deviation from historical norm flags failures long before a threshold would be crossed.

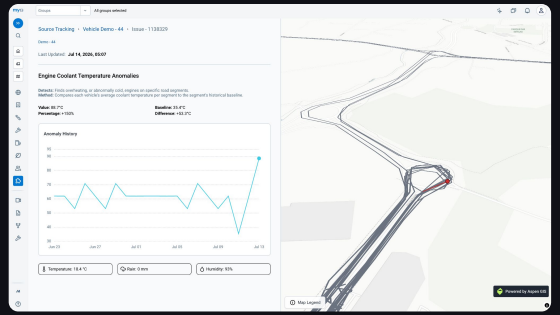
04 Issue > Insight > Remediation Strategy

Fleet baselines, pattern analysis and spatial context yield a defensible insight and remediation strategy for each Issue.

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Core Aspen Users

Powering Operations & Engineering



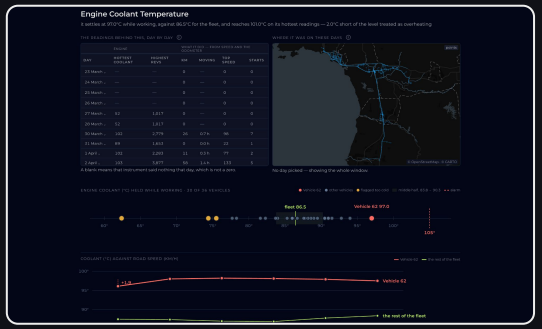
Fleet Managers

Optimize routing, manage dispatches, and trigger vehicle-specific alerts to streamline real-time operations.



ML Engineers (Computer Vision)

Leverage visual detection data to monitor model performance and identify which versions are improving or degrading.



Fleet Maintenance Ops

Identify critical vehicle issues, understand direct root causes, and proactively schedule predictive maintenance.

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Aspen Fleet Demo

Fleet Observability for Autonomous & Physical AI Fleets

ASPEN

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Fleet Anomaly Overview

See All Fleet Issues per Vehicle Both as a List and on a Map



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Vehicle Anomaly Overview

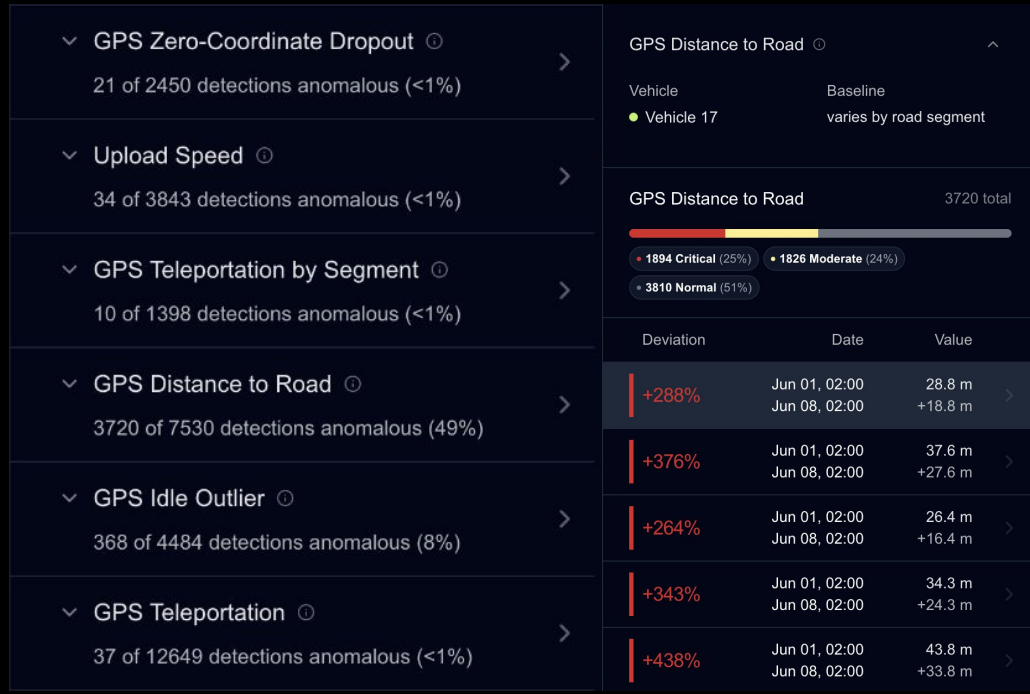
Find Specific Issues With Your Hardware and Vehicle to Create Work Orders

Hardware Issues

Find issues such as broken sensors, AI cameras, onboard computers, and more.

Vehicle Issues

Find issues like coolant leaks, broken fuel pumps, head gasket issues, and more.



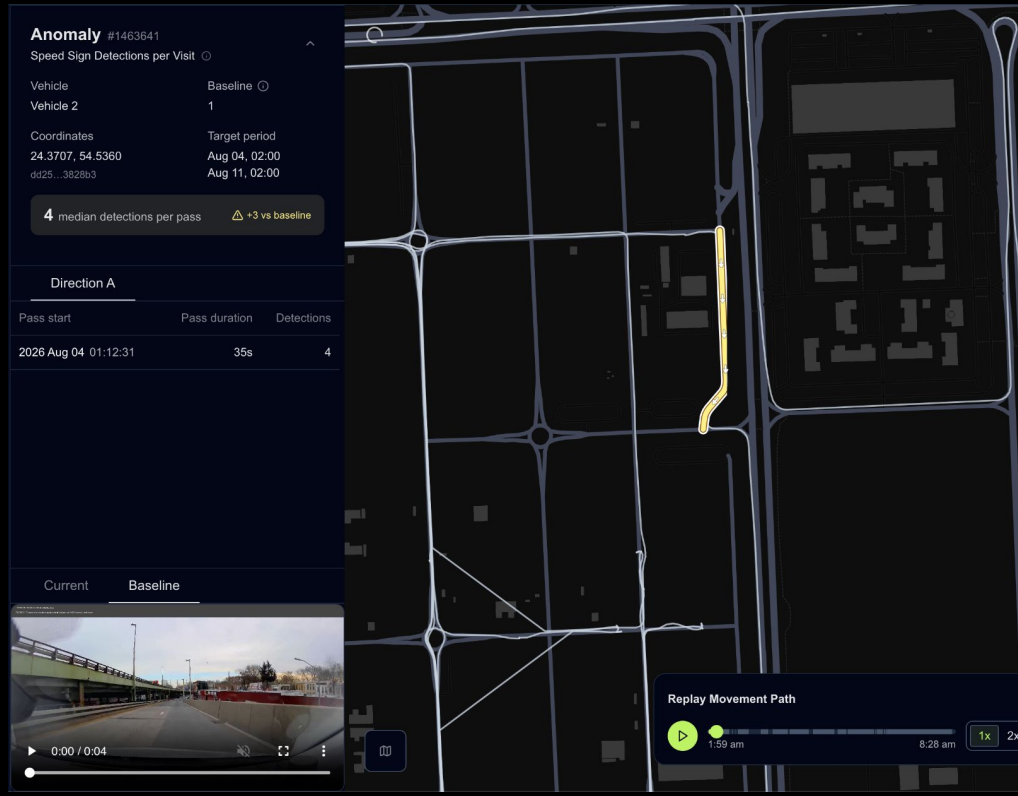
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Software Anomaly Overview

Find The Root Cause of AI Software Issues Using Onboard Footage

AI Model Issues

Find issues with models running on AI cameras, onboard computers, and more.



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Baseline

Speed Sign Detections per Visit

Vehicle	Baseline
Vehicle 2	1



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Anomaly



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Segment-Based Checks & Baselines

Spatial Referencing

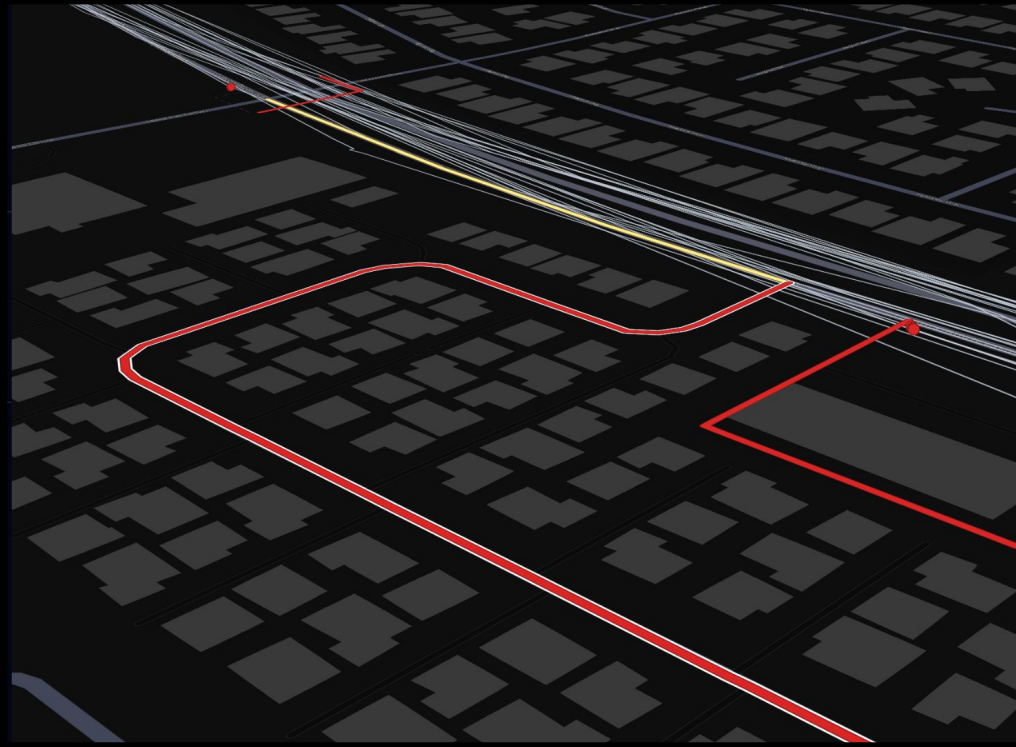
Each vehicle data point is dynamically mapped to specific road segments.

Historical Baselines

Every vehicle establishes a unique behavioral baseline for each segment traveled on.

Segment Metadata

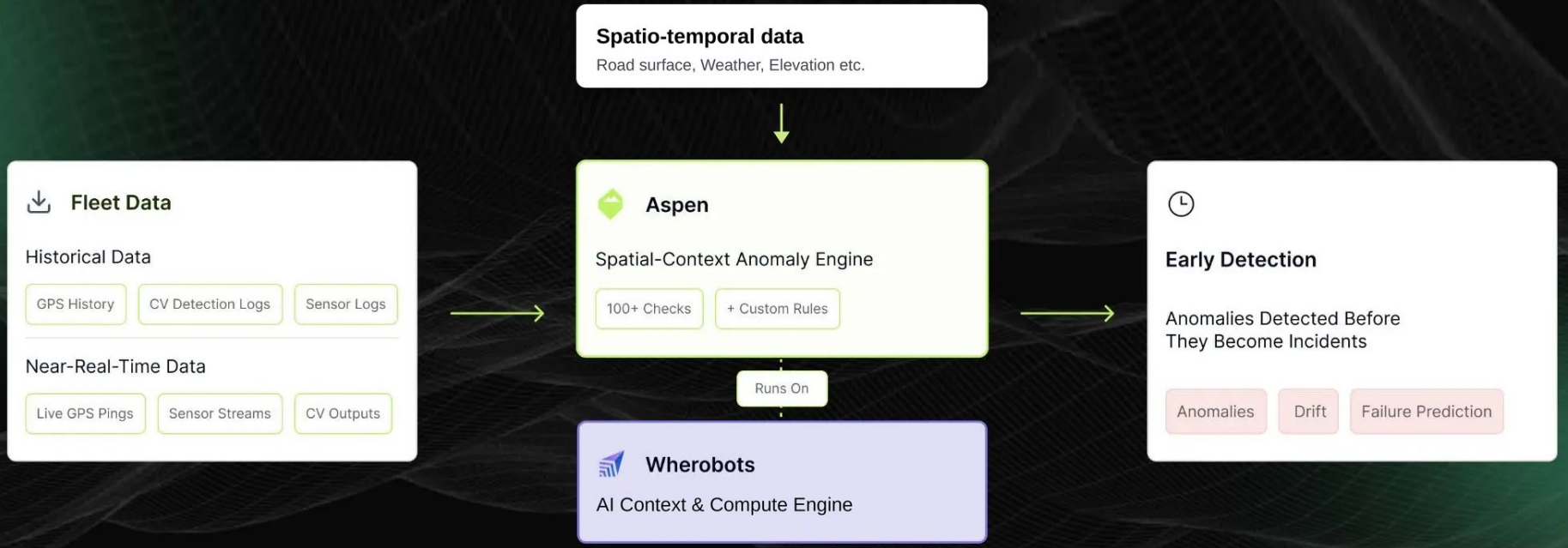
Real-time data on every segment, such as road type, elevation, and ambient temperature.



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ASPEN FLEET

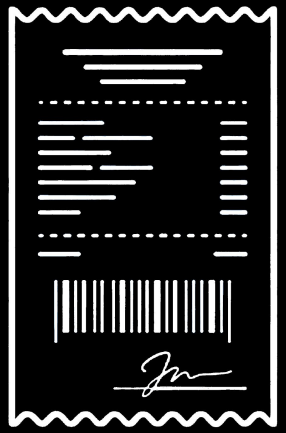
Spatial anomaly detection across the fleet data lifecycle



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Data+AI Value Shifting to the Physical World

2000 - 2020: Digitizing Intent



2025+: Digitizing Reality

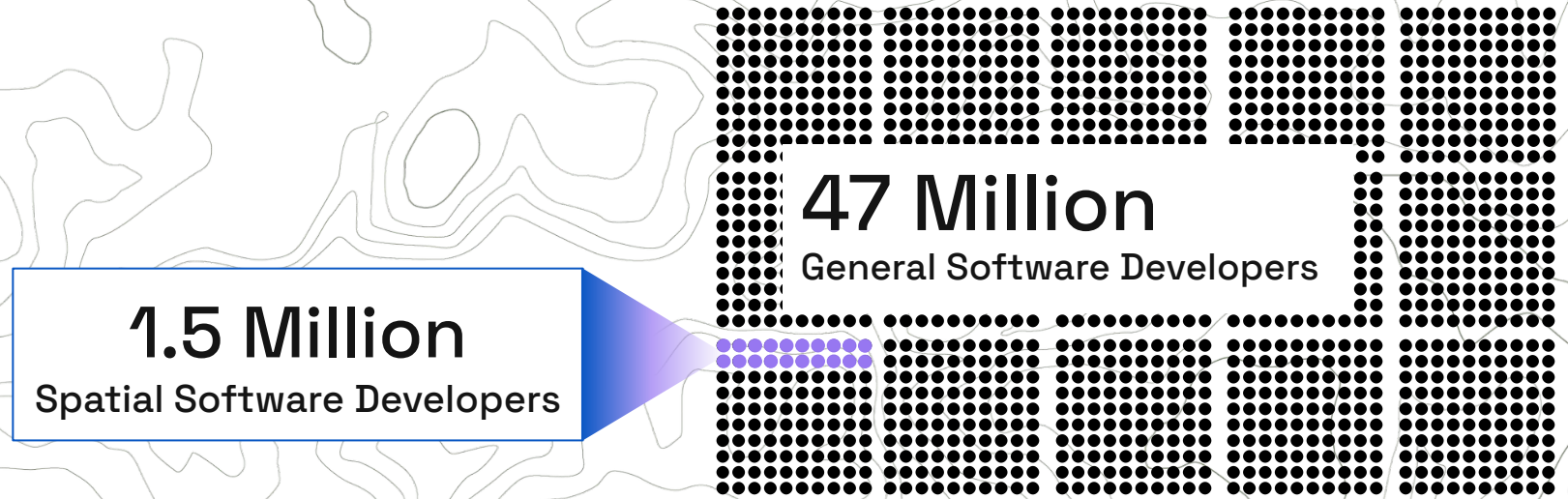
Mobility as a service **$4Tn**

Robotics
$250Bn

World Models
$100Bn

Wherobots

But Spatial Data Talent is SCARCE



Wherobots

...and General Infra Makes Spatial Data Engineering COST PROHIBITIVE



LEGACY SOLUTIONS DON'T PERFORM AT SCALE.

Constrained to a single machine or traditional databases that only scale vertically.



"MODERN" CLOUD ENGINES ARE GEO-INCOMPLETE.

Geospatial support in the cloud is second-rate, delivering underwhelming performance and suboptimal DevEx.

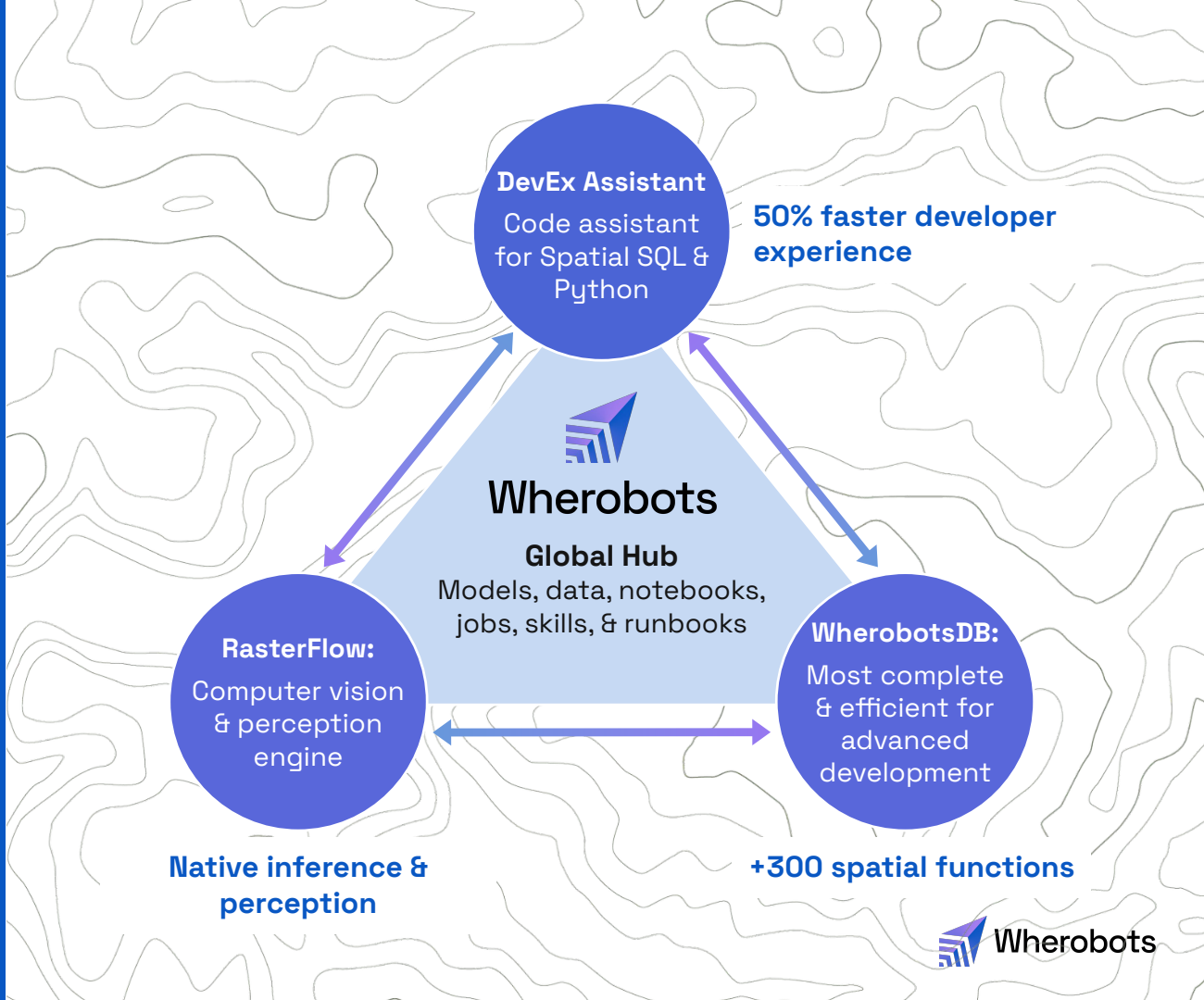


LLM AND CODE GEN SYSTEMS AREN'T SKILLED IN SPATIAL

Knowledge of spatial data functions requires fine tuned expertise.

AI Context Engine for the Physical World

Eliminating the Talent and Capability Gap of Today's Data and Infra Experiences



AI Context Engine for the Physical World

By the original creators of Apache Sedona

Aerospace | Agriculture | Energy | Mobility | Finance | Retail | Real-Estate | Data Products

ASPEN FLEET | esri | Felt | Industry Applications

Wherobots | Discover | Build | Automate | Produce | Lakehouse Processing & DevEx

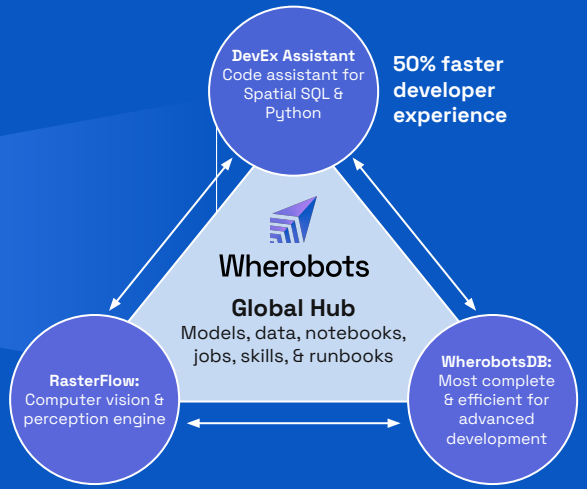
Managed Compute & Perception for for Physical World Data

GPS | Images | Streets & buildings | Climate | Legacy GIS | Tabular data | Type support

AWS & Data Infrastructure Layer

✓ Legacy and modern formats ✓ Bring spatial compute to your data ✓ Build in SQL, Python

Eliminating the Talent and Capability Gap of Today's Data and Infra Experiences



aws PARTNER | aws Qualified Software

Customers Include REGRID | Leaf | SATSURE | Nearmap | aarden.ai

How Does Aspen Work for Traditional Fleets?

ASPEN

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Aspen for Traditional Telematics Fleets

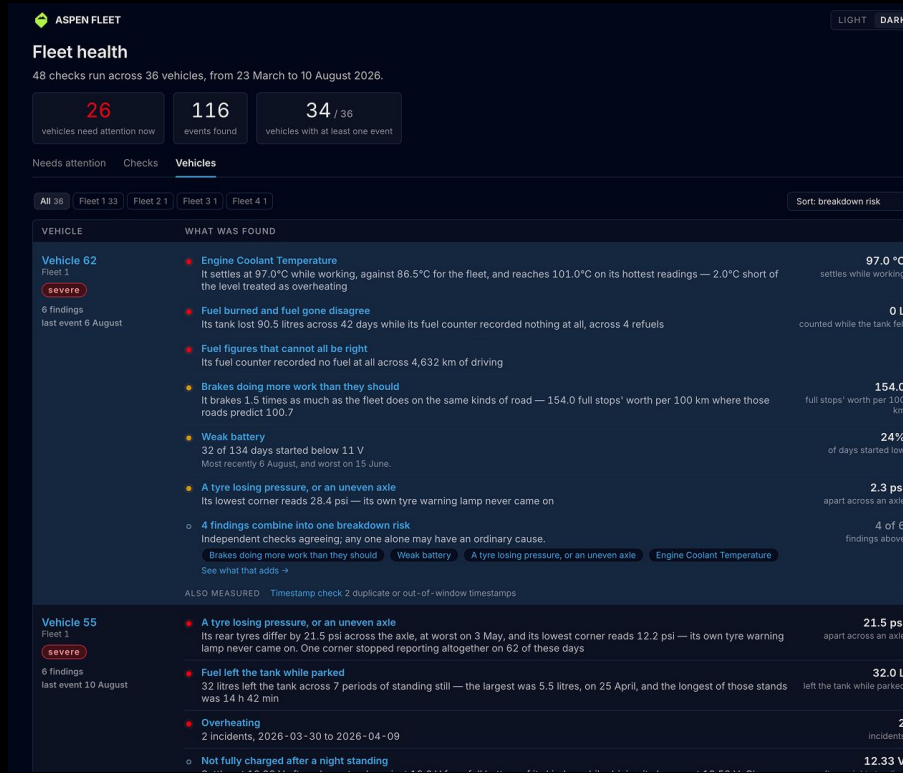
Stay On Top of All Your Fleet's Issues With Predictive Maintenance

Vehicle Status

See new status updates for each vehicle in your fleet day-by-day.

Predictive Maintenance

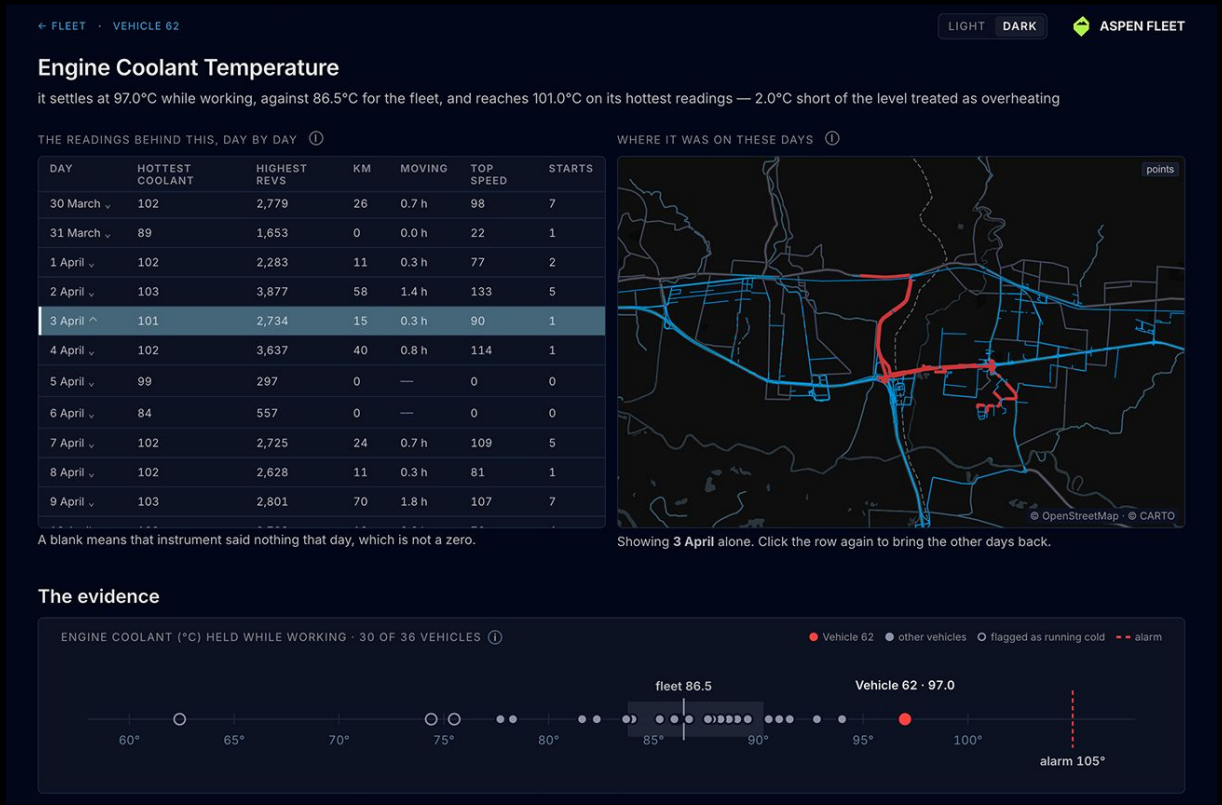
Find emerging issues as they happen using the data already collected from your telematics device.



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Vehicle Issue Overview

See Where and Why Your Vehicle Is Facing an Issue Right on the Map



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Root-Cause Analysis and Work Orders

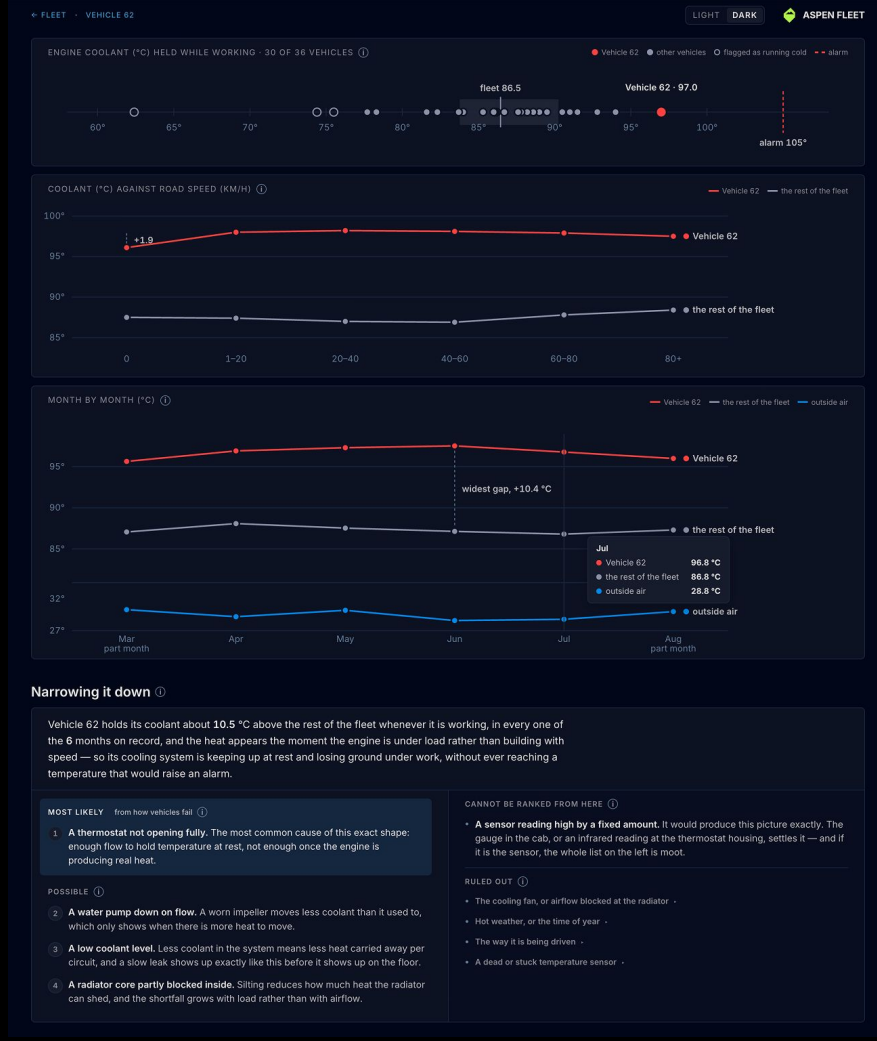
Learn the True Root-Cause of Issues From Your Fleet and Create Work Orders

Root-Cause Analysis

Understand why your vehicle's have issues.

Work Orders

Prevent downtime with predictive maintenance work orders.



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Q&A



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Thank You



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