AutoMap

AutoMap, LLC is an intelligent machines Pittsburgh with core competence in artificial intelligence and robotics.

With the introduction of our platform, Veritas, we aim to set the world standard for metrically accurate, real world assessments of component, feature and vehicle performance.

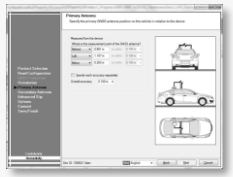
VERITAS

Enables engineers to assess vehicle performance and correct defects throughout its life cycle.

TRACTION

It’s a uniquely hard problem, but we have recruited a world-class team and already delivered to global leaders.

Result of years working with test engineers who needed better tools for diagnostics



‘GOLD STANDARD’ SENSORS

Bolt-on, pre-calibrated, with consistent set of measurements

CONNECTED CAR ELEMENTS

Quantification of sensor accuracy, AV feature performance, comparing world truth to world model

SCALABLE PROCESSING (CLOUD)

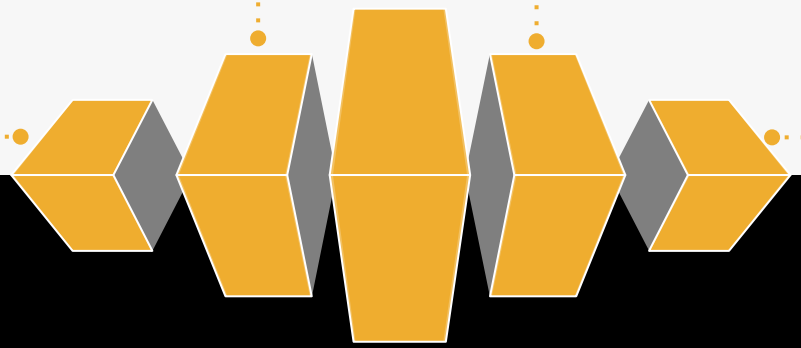
Centralized data management, convenient web-based access to tools, with highly automated post-processing

EMBEDDED DOMAIN EXPERTISE

Decades of experience developing full stack robotic solutions in multiple domains, applied to validation

TEST DEVELOPMENT SCRIPTS

Test development procedures, test planning, long term performance, monitoring & planning of multiple assets



GROUND-TRUTH & ACQUIRE DATA

- Installation in less than a day
- Scalable Analysis Tool Suite

PLAN, ANALYZE & STORE DATA

- Automated Full Assessments
- Data Visualizer and Evaluator

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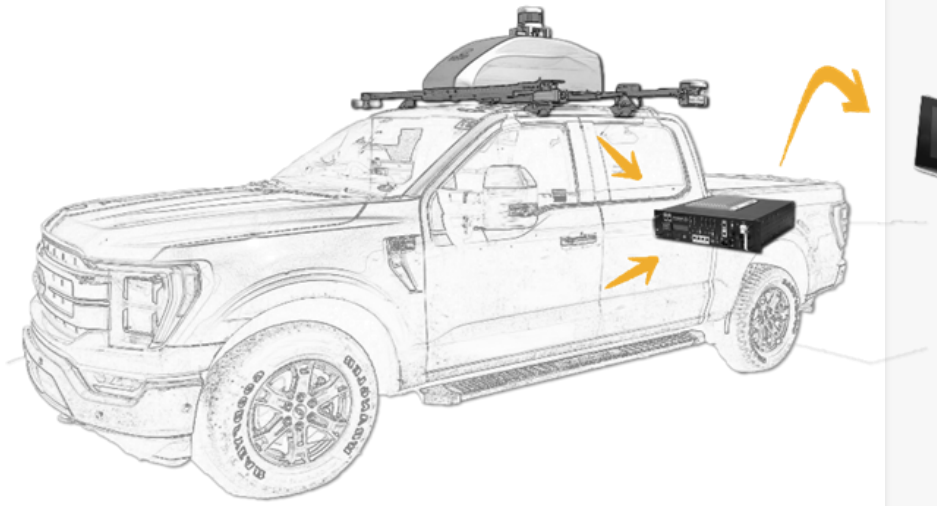
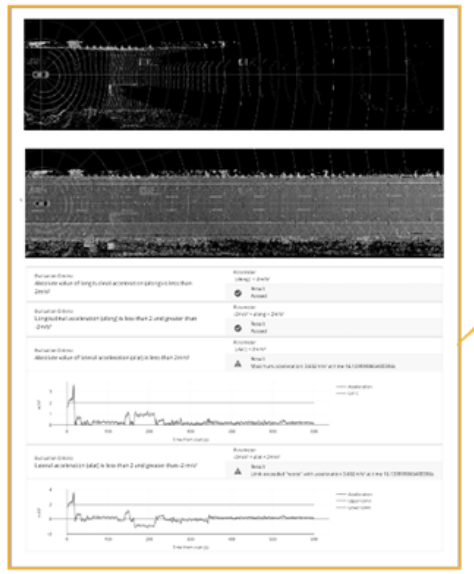
Using real world data, machine learning and cloud processing, we solve the problem with unprecedented accuracy– 10x faster than any alternative and cost-effectively.



Turnkey platform plugs into the vehicle bus and simultaneously builds the ‘ground truth’



Cloud-based AI extracts all salient data, visualizing the entirety.

Automated reporting objectively quantifies issues.

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State of the Art ‘Edge Computing’ with wide assortment of interfaces.

Ethernet based switching with precise time synchronization – GrandMaster or slave

100 Gb/s recording and writing

ELEMENT	METRIC
INTERFACES (FRONT) 50+ I/O DEVICE(S)	14 X 1000BASE-T ETHERNET (GPTP) 10 X 1000BASE-T ETHERNET 5 X 100BASE-T1 ETHERNET 1 X 1000BASE-T1 ETHERNET 8 X 10G ETHERNET FIBER 4 X 10G ETHERNET CU 6 X CAN FD 4 X USB 3.0 HOST ADD’L AVAILABLE UPON REQUEST
DATA STORAGE	HOT-SWAP, EASY TO CHANGE, HIGH PERFORMANCE CARTRIDGE (64 TB)
OPERATIONS	NOMINAL: DC 12 V, CRANK SAFE TEMPERATURE RANGE: 0ºC TO 50ºC
DIMENSIONS	ENVELOPE: 19” X 22” X 8.75” WEIGHT: 35 LBS
DATA RECORDING	100 Gb/s, CAN REACH 200 Gb/s
TIMESTAMP	SYNCHRONOUS TIMESTAMP (IEEE802.1AS) FOR ALL BUSES & GRAND MASTER
PROTOCOLS	IEEE 802.1AS PTP, PLP, AUTOSAR-DLT, SOME/IP, XCP OVER TCP, IP CAMERA (RTSP/RTP), PCAP, MDF4, ADD’L AVAILABLE UPON REQUEST
ADDITIONAL FEATURES	SEAMLESS INTEGRATION FOR CAPTURE (CAN FD, FLEXRAY, LVDS, ETHERNET) CASCADES ADDITIONAL DATA LOGGERS (OPTION) PARALLEL STREAMING OF DATA VIA ETHERNET CONFIGURATION VIA WEB INTERFACE IN-VEHICLE GRAPHICAL USER INTERFACE (GUI) 60-64 TB SINGLE SSD ARRAY – CAN SUPPORT 128 TB OR ABOVE

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Sensors (lidars, cameras, GNS) strategically placed, capturing ground truth data concurrently with vehicle data to facilitate root cause analysis

Installs in a day

Weighs 70 kg

30A peak, 15A average

Works with data logger

Precise segmentation across advanced heterogeneous sensors & test vehicle data

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On board and off-board software suite– designed to be easy to operate, cross-platform and scalable.

Elastic cloud computing (infinite scale)

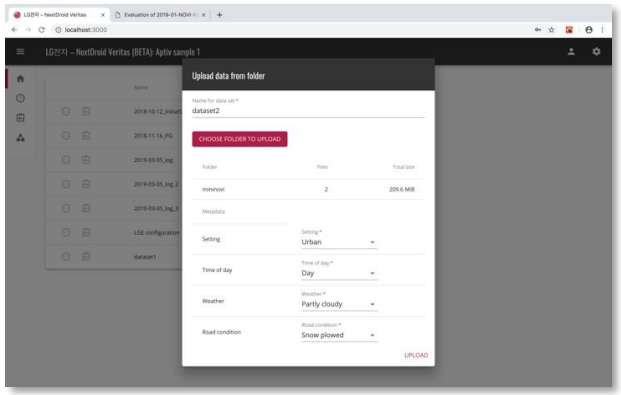
Automatic failure detection

Sensitivity analysis

No on-site software maintenance

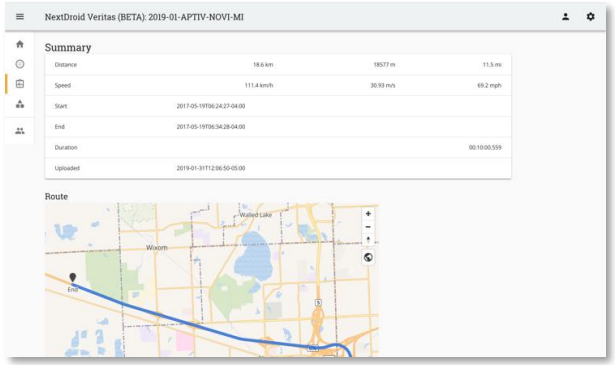
video link to demonstration

1 AUTOMATED PIPELINE INITIATES AT UPLOAD

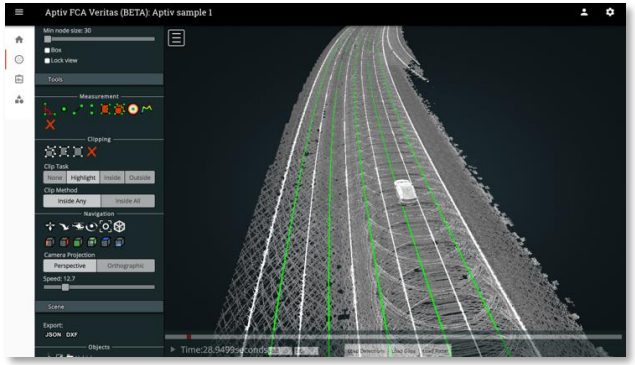


2 PRODUCES AN EASY-TO-READ ANALYSIS

3 COMPLETE OVERVIEW, WITH ISSUE 'FLAGS'



4 RICH GRAPHICAL TOOL FOR FURTHER ANALYSIS



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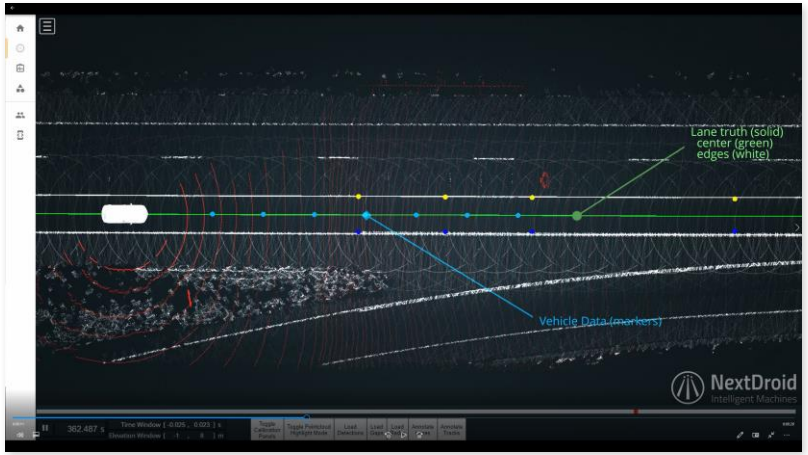
A few use cases, for example Object Positioning, Lane Sensing and Road Model

Continually evolving analysis capability

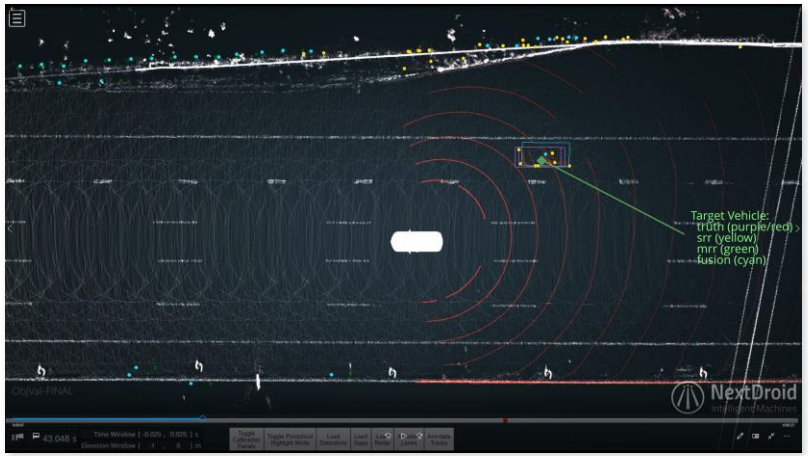
New capabilities usable on prior data sets

Examples of current capability

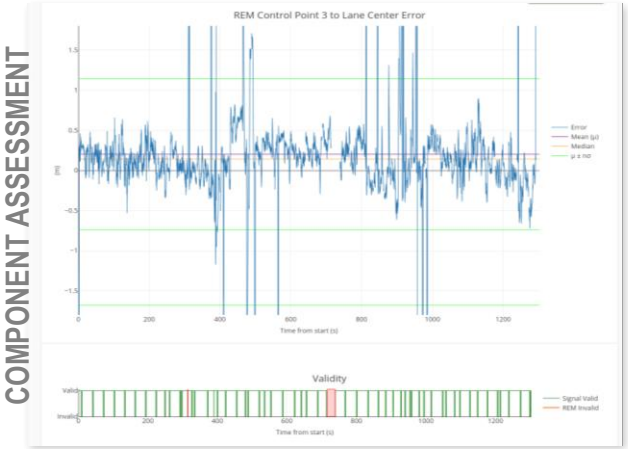
LANE VALIDATION



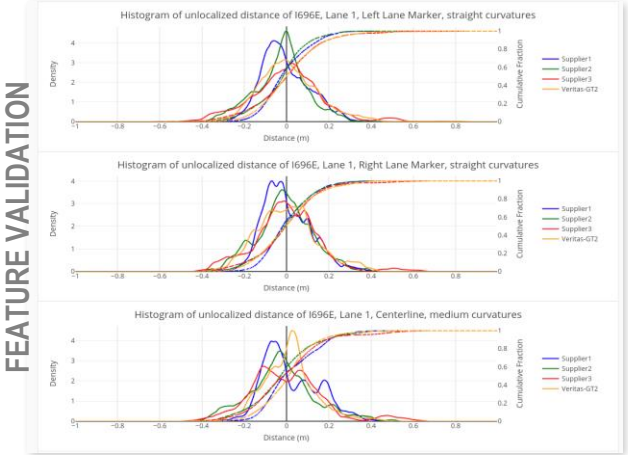
OBJECT VALIDATION



COMPONENT ASSESSMENT



FEATURE VALIDATION



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Back up (follows)

➤ ADAS SOLUTIONS • AND FIVE ERAS OF SAFETY FEATURES (NHSTA)

CONNECTED CAR
FULL SUITE COVERS HIGHER LEVELS OF ADAS/AV
CAN FUNCTION AS STAND-ALONE PRODUCT

PROVING GROUND USE
SLED, DATA LOGGER, ADD'L HW (IF NEEDED)
AS ABOVE, FAST TURN PROCESSING

MAPPING FUNCTIONALITY
LEADS INTO LOCATION SERVICES

PART OF DEMO/SERVICE OPERATION
IN CONJUNCTION WITH TESTING SERVICES PARTNER

FEATURE DEVELOPMENT
STANDARD SLED, DATA LOGGER, PROCESSING TOOLS
ADDED CLOSE-IN PUCKS
ROBUST IN GPS COMPROMISED LOCATIONS

1950 - 2000
SAFETY/CONVENIENCE
CRUISE CONTROL
SEAT BELTS
ANTILOCK BRAKES

2000 – 2010
ADVANCED SAFETY
ELECTRONIC STABILITY CONTROL
BLIND SPOT DETECTION
FORWARD COLLISION WARNING
LANE DEPARTURE WARNING

2010 – 2016
ADVANCED DRIVER ASSIST
REARVIEW VIDEO SYSTEMS
AUTOMATIC EMERGENCY BRAKING
REAR CROSS TRAFFIC ALERT
LANE CENTERING ASSIST

2016 - 2025
PARTIALLY AUTOMATED
LANE KEEPING ASSIST
ADAPTIVE CRUISE CONTROL
TRAFFIC JAM ASSIST

2025+
FULLY AUTOMATED

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AutoMap has built, sold and delivered proprietary technology for driver safety

- Multimillion-dollar contracts with leading automakers

- Addressing urgent needs across the entire ecosystem

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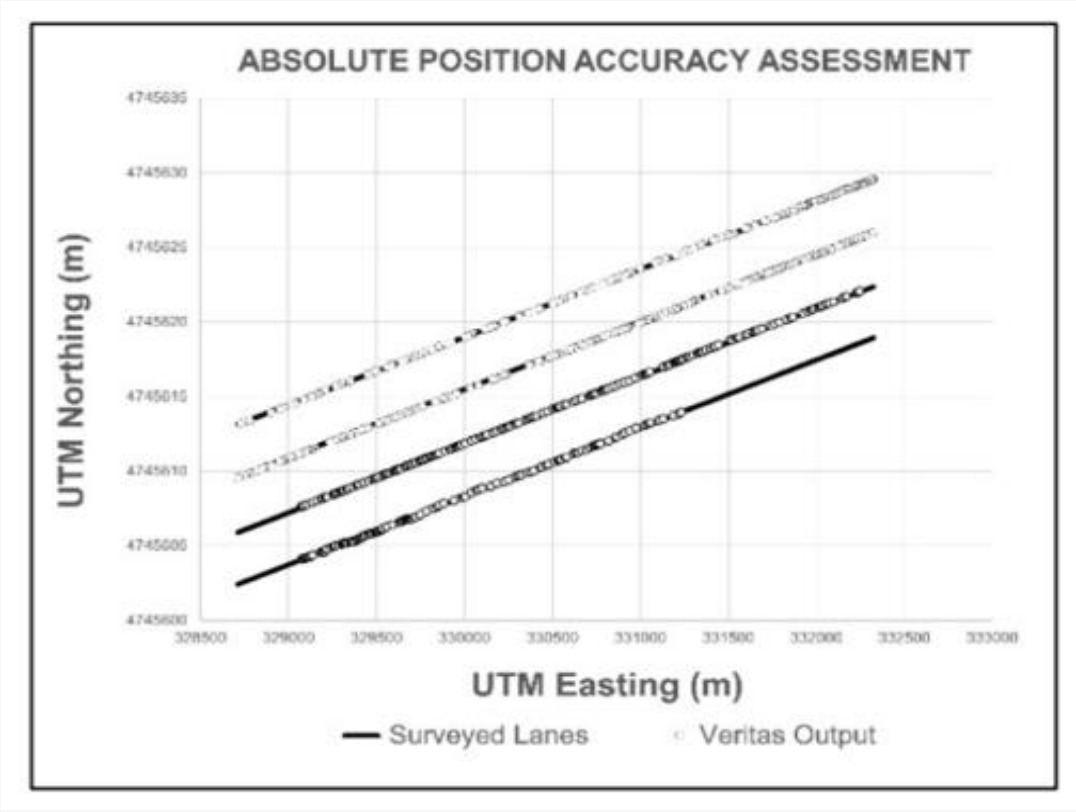
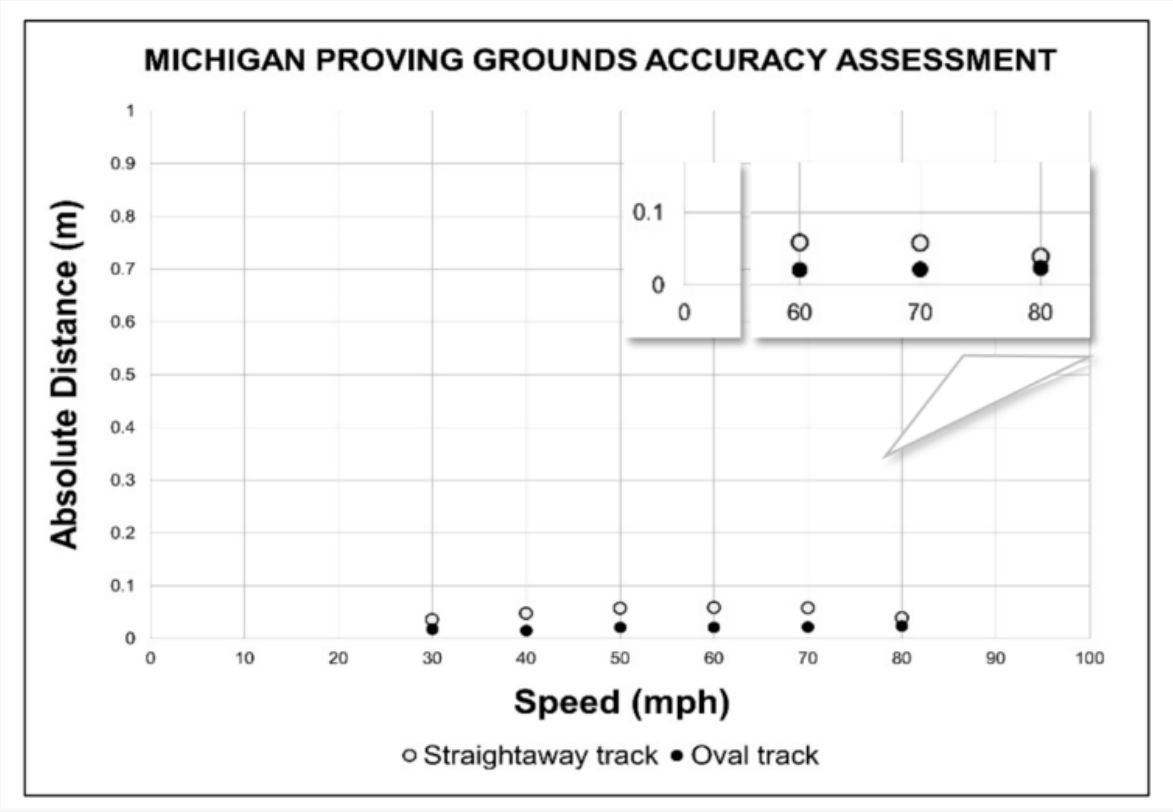
METROLOGY ACCURACY IS CRITICAL TO ANY PRECISE MEASUREMENT





Average accuracy of 2 cm (here demonstrated in large-scale survey-based OEM study)

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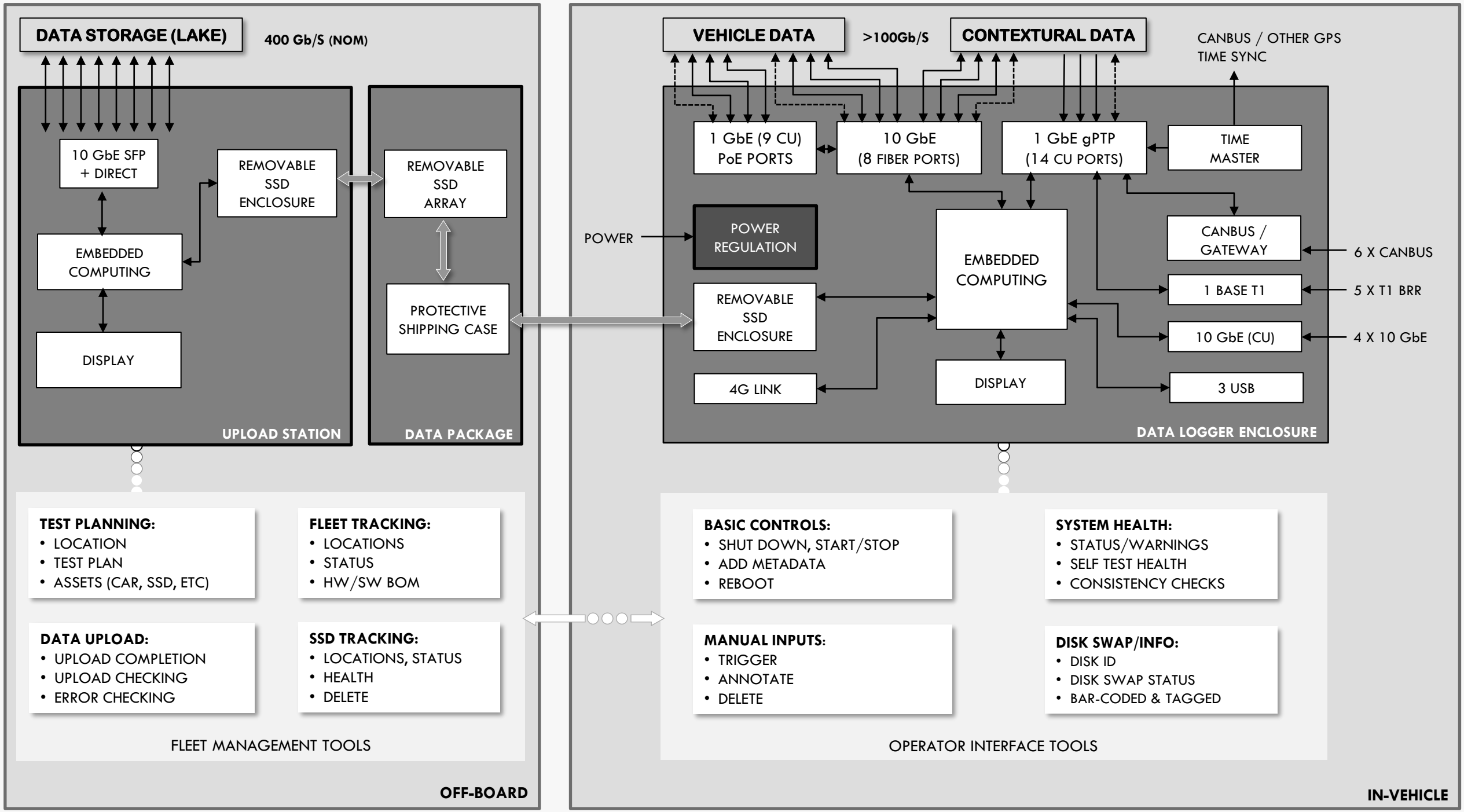
DATA STORAGE (LAKE)
400 Gb/S (NOM)
10 GbE SFP + DIRECT
REMOVABLE SSD ENCLOSURE
EMBEDDED COMPUTING
DISPLAY
UPLOAD STATION
REMOVABLE SSD ARRAY
PROTECTIVE SHIPPING CASE
DATA PACKAGE
VEHICLE DATA
>100Gb/S
CONTEXTURAL DATA
CANBUS / OTHER GPS TIME SYNC
1 GbE (9 CU) PoE PORTS
10 GbE (8 FIBER PORTS)
1 GbE gPTP (14 CU PORTS)
TIME MASTER
POWER
POWER REGULATION
EMBEDDED COMPUTING
CANBUS / GATEWAY
6 X CANBUS
REMOVABLE SSD ENCLOSURE
1 BASE T1
5 X T1 BRR
10 GbE (CU)
4 X 10 GbE
4G LINK
DISPLAY
3 USB
DATA LOGGER ENCLOSURE
TEST PLANNING:
• LOCATION
• TEST PLAN
• ASSETS (CAR, SSD, ETC)
FLEET TRACKING:
• LOCATIONS
• STATUS
• HW/SW BOM
DATA UPLOAD:
• UPLOAD COMPLETION
• UPLOAD CHECKING
• ERROR CHECKING
SSD TRACKING:
• LOCATIONS, STATUS
• HEALTH
• DELETE
FLEET MANAGEMENT TOOLS
BASIC CONTROLS:
• SHUT DOWN, START/STOP
• ADD METADATA
• REBOOT
SYSTEM HEALTH:
• STATUS/WARNINGS
• SELF TEST HEALTH
• CONSISTENCY CHECKS
MANUAL INPUTS:
• TRIGGER
• ANNOTATE
• DELETE
DISK SWAP/INFO:
• DISK ID
• DISK SWAP STATUS
• BAR-CODED & TAGGED
OPERATOR INTERFACE TOOLS
OFF-BOARD
IN-VEHICLE