Pulsar Mission Accelerator

MetroStar

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A Unified Solution for Predictive Operations

Pulsar is a unified predictive maintenance and Condition-Based Maintenance (CBM) capability designed to enable predictive operations across complex fleets. As a mature commercial off-the-shelf solution, Pulsar delivers a comprehensive framework for multi-source data fusion, early fault detection, advanced analytics, and enterprise-level logistics optimization to improve readiness and sustainment outcomes.

Pulsar operationalizes the end-to-end technical process by integrating flightline, back shop, and logistics data into a single, seamless workflow. Through continuous condition monitoring, anomaly detection, and predictive modeling, the capability translates raw operational data into actionable maintenance and supply insights. This unified decision environment empowers maintainers and commanders to proactively triage issues, troubleshoot root causes, prioritize resources, and restore platforms to Fully Mission Capable status with greater speed, accuracy, and efficiency.

Challenge: Reactive Maintenance is Degrading Readiness

Today's weapon systems are complex. Reactive maintenance practices and fragmented diagnostics reduce fleet availability, increase lifecycle costs, and leave operators without the data they need to make proactive decisions. Onboard data capture systems weren't designed with visibility in mind — traffic is ephemeral, systems obscure relevant information, and retrofitting is time-consuming and costly.

Driving Real Decision Impact to Warfighters

Program Manager
"I need real-time fleet readiness visibility to make proactive resource & fleet decisions."

Systems Engineer
"I need sensor trend analysis & root cause tools to identify degradation before failure."

Maintainer / Supply
"I need prioritized alerts & work order guidance with the right parts at the right time."

Analyst
"I need data-driven insights across operations to support sustainment decision-making."

Predictive Maintenance

Tactical

Operational

Strategic

ACTION	LEADS TO...	OUTCOME
Collect: Onboard sensor telemetry data ingestion via secured data logger	→	**Surface Unknown Anomalies** Models detect deviations before traditional warning systems
Process: Automated medallion architecture with validation, enrichment, & feature computation	→	**Decrease Unplanned Downtime** Continuous sensor-based algorithm inference and statistical analysis
Analyze: Per-asset sensor trend analysis with and residual deviation tracking	→	**Improve Workforce Productivity** Explainable alerts showing which system is deviating and by how much
Integrate: Fleet readiness metrics, MTTF/MTTR computation, & mission impact scoring across all assets	→	**Reduce Maintenance Cost** Prioritized work orders catching issues months before traditional warning systems
Decide: Fleet-level dashboards with predicted failure timelines, confidence scoring, & recommended maintenance actions	→	**Increase Asset Life** Prevent cascade failures with data-driven maintenance scheduling

Get Started Today

Transform your mission with MetroStar and our mission partners.
Contact us today to learn more about Pulsar.

MetroStar

(703) 481-9581
metrostar.com/contact-us

Contact Us to Learn More

Advancing Warfighter Mission Readiness

Robust Data Collection | Increase visibility into onboard systems & anomalies through organic real-time data collection

Edge Insights & Analytics for Distributed Operations | Bringing analytics and processing power closer to the point of action to support timely, tactical decisions in distributed and contested environments

Maintenance Management Integration & Fleet Awareness Real-time data fusion across multiple platforms and DoW-wide ecosystems to enhance situational awareness in complex environments

Integrated CBM+ Analysis Access & Partnerships | Rapidly elevate research, operations, and sustainment with academic, small business, and industry

Automated Decision Support for Command & Control (C2) | Provide commanders with AI-driven insights to improve readiness across multi-domain operations

PARTNERS:

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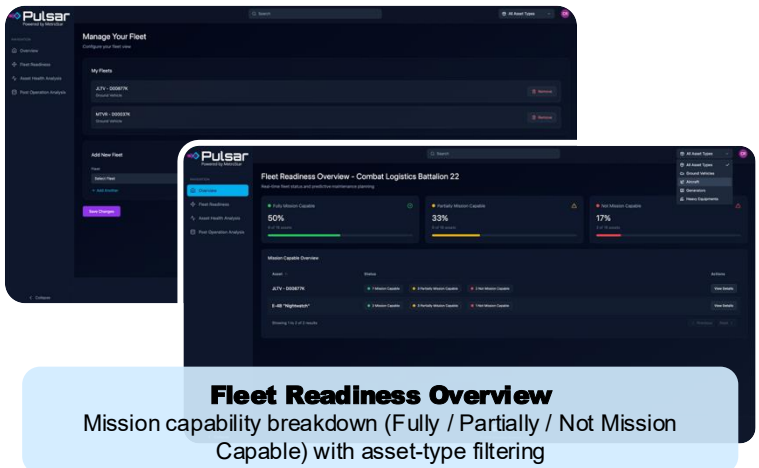
Analytics-Informed, AI-Enabled Mission Readiness
Response for AI/ML & CBM+

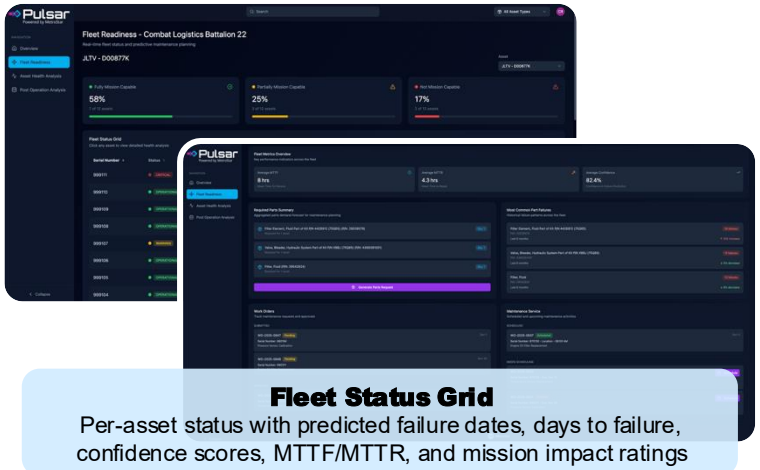
- Systems Integration Process: Data Analytics, Digital Twin, AI/ML
- Predictive Analytics: Drive higher MC rates through early fault detection
- Platform and Subsystem Performance Analytics
- Faster troubleshooting with MTTR reduction

Unlocking Future-Proof Innovation: PEO Mobility Data & AI Enablement

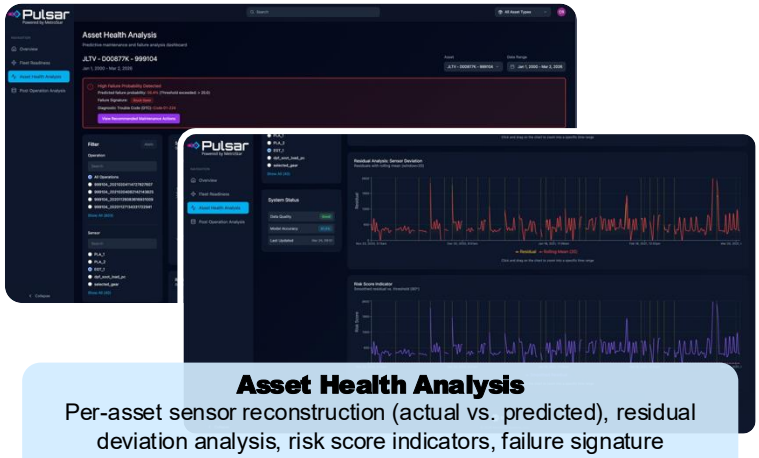
From combatant craft and ground vehicles to aircraft and heavy equipment, Pulsar scales to any platform with sensor data. The modular architecture enables rapid onboarding of new asset types and integration with existing government data ecosystem.



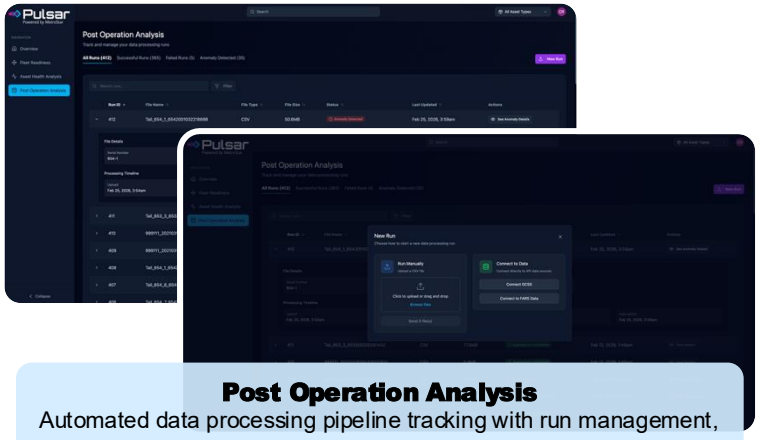
Fleet Readiness Overview
Mission capability breakdown (Fully / Partially / Not Mission Capable) with asset-type filtering



Fleet Status Grid
Per-asset status with predicted failure dates, days to failure, confidence scores, MTTF/MTTR, and mission impact ratings



Asset Health Analysis
Per-asset sensor reconstruction (actual vs. predicted), residual deviation analysis, risk score indicators, failure signature identification, diagnostic trouble codes, and recommended maintenance actions



Post Operation Analysis
Automated data processing pipeline tracking with run management, aggregation status, and anomaly detection flags