



Silent Shield™

On-orbit, trusted, predictive cyber analytics and anomaly detection

Silent Shield™ is an out-of-band defensive cyber operations (DCO) payload that provides near real-time, predictive cyber-analytics and anomaly detection for in-orbit assets.

Cyber situational awareness for the space enterprise

Mass or massless employment

The Silent Shield™ solution helps address varying Size, Weight, and Power (SWaP) requirements, satellite architectures, and mission goals by offering two integration options: 1) A software-only payload or 2) A software and hardware payload with options for dedicated compute, memory, storage and comms, and a one-way diode. Both payloads are equipped to utilize predictive analytics, anomaly detection, and machine learning to defend the satellite vehicle and mission payloads.

Out of band protection

Utilizing a one-way diode, Silent Shield™ gains visibility across the vehicle bus and payloads without introducing risk to the spacecraft. This out-of-band design provides near real-time cyber situational awareness across various protocols and standards – 1553, CAN, ethernet, SpaceWire, etc. – while not being visible to cyber adversaries and not introducing additional cyber risk into space mission operations.

Independent data and sensor validation

Designed to provide trusted, independent insights, Silent Shield™ delivers near real-time data validation at the collection point. This validates that the collected data is accurate, reliable, and trustworthy from sensor to analyst. The solution is built to validate sensor integrity at the edge vs. risking data manipulation somewhere down the collection chain. Third-party validation and prevention of data manipulation at collection is critical for various applications and space missions.

Link segment integrity

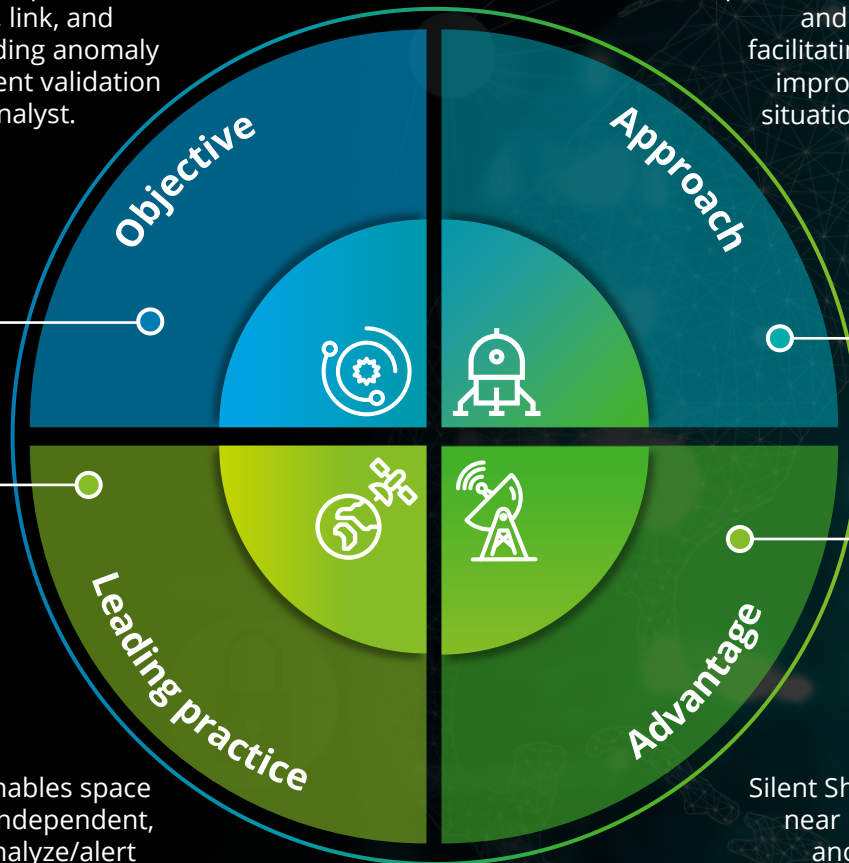
Visibility into the ground and space segment assist the operator in gaining a better understanding of link segment integrity. The Silent Shield™ solution works with ground-based cyber sensors to provide near real-time link segment validation. This is executed via an out-of-band comparison of transmitted and received data to identify link segment manipulation and/or attempts at rogue contacts.

Deloitte's Silent Shield™

Silent Shield™ is a mass or massless payload designed to operate at the edge to ingest and analyze data traversing the bus and payloads of an in-orbit asset, alerting mission operators on the ground to anomalous activity and/or sensor, data, and signal trust issues.

Provide space operators with trusted, enhanced visibility into the inherent cyber aspects of space operations across space, link, and ground segments, providing anomaly detection and independent validation of data from sensor to analyst.

Build a low risk to vehicle solution that gives satellite builders and operators agility in SWaP, protocols, and other mission trade-offs facilitating easy integration while improving cyber resiliency and situational awareness to enable space operations.



Detection at the edge enables space operations through an independent, near real-time, ingest/analyze/alert solution that identifies sensor, data, and signal trust issues, and anomalous activity to inform operational decisions that help assure the mission and strengthen the cyber resiliency of the space enterprise.

Silent Shield™ provides a trusted, near real-time identification of anomalous activity (cyber or otherwise), independent validation of space data from sensor to analyst, ability to validate the integrity of the link segment, all in an out-of-band employment that does not introduce risk to the space vehicle, payloads, or mission operations.

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