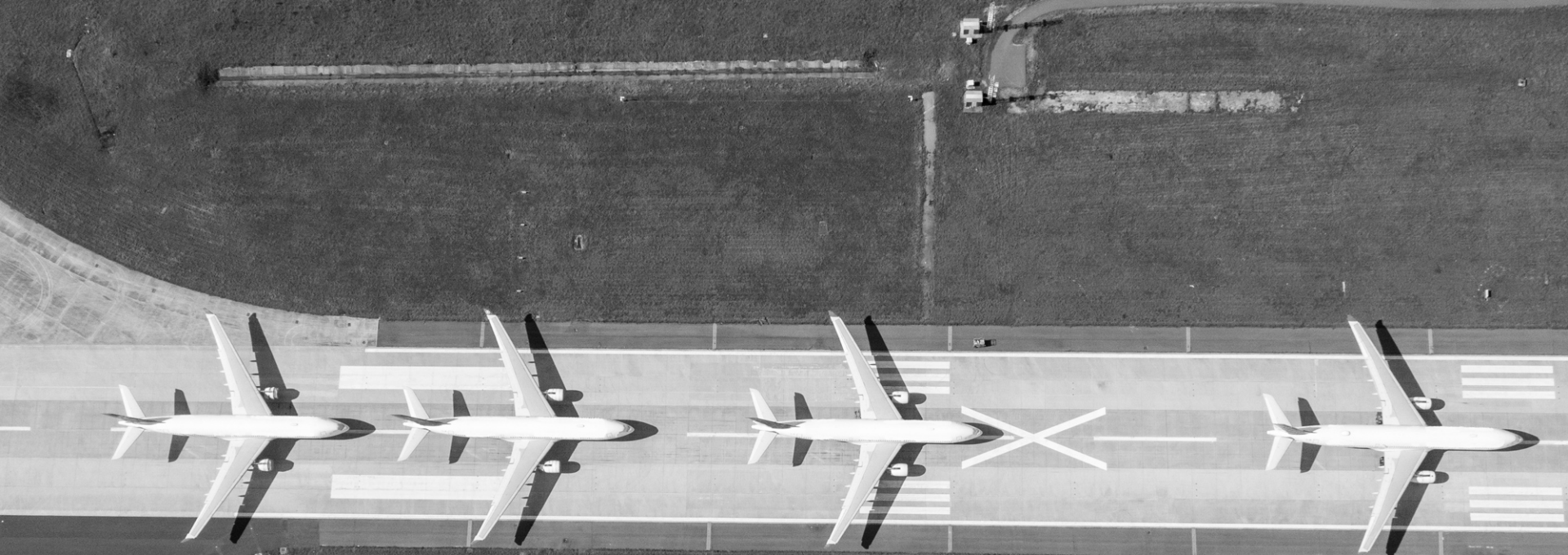SHIFT**5**

MODERN OBSERVABILITY FOR COMMERCIAL AIRCRAFT

<Presenter Name>

Why do we know more about the IT data on laptops than we do about the OT data on modern aircraft?
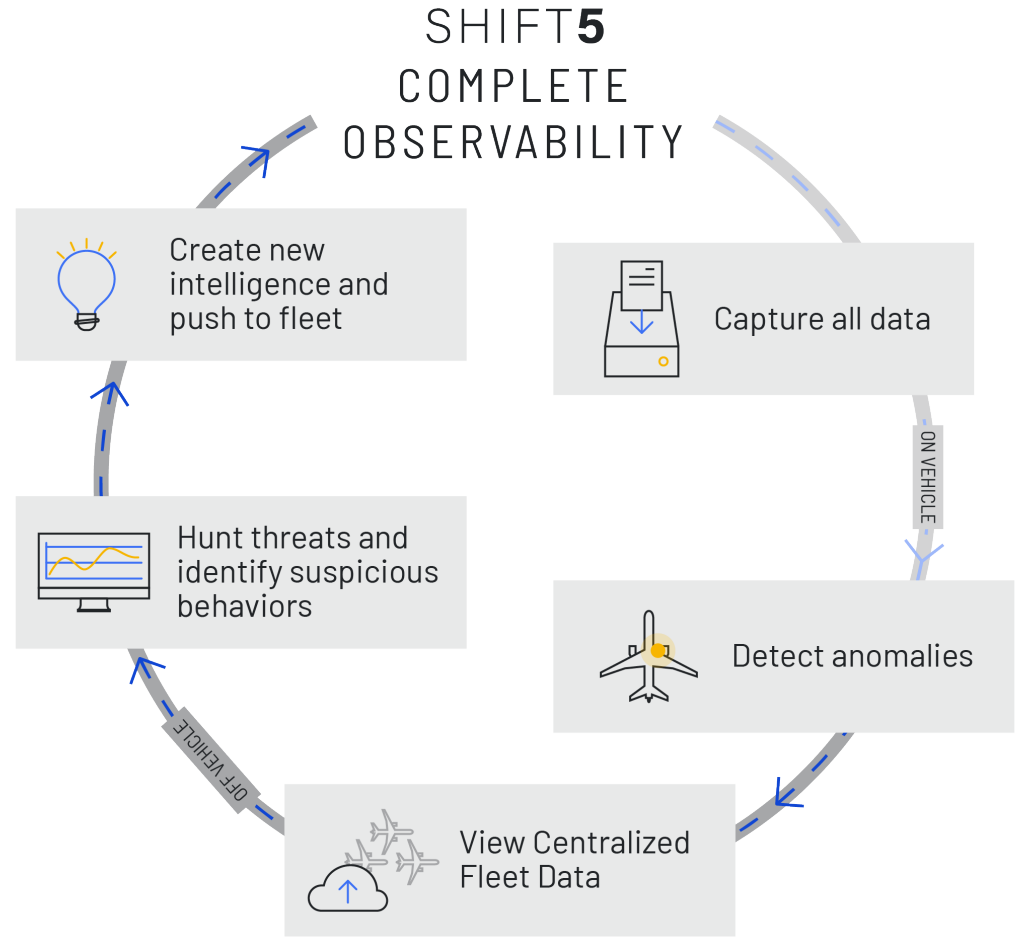
SHIFT**5**

Aircraft are flying data centers.

Gaining observability into onboard systems is hard.

- Serial systems aren't designed with visibility in mind
- Traffic traversing onboard OT networks is ephemeral
- Data is obscured by complexity
- Retrofitting is complicated and impractical
- Platform components are produced by multiple vendors

SHIFT5

Get Modern Observability with Shift5

SHIFT**5**
COMPLETE
OBSERVABILITY

Create new intelligence and push to fleet

Capture all data

ON VEHICLE

Detect anomalies

Hunt threats and identify suspicious behaviors

OFF-VEHICLE

View Centralized Fleet Data

SHIFT**5**

The Shift5 Platform

Collect

- Shift5 captures data from on-board networks, including IP and serial bus networks
- Compression rate of >10:1 Starting at 512GB storage
- Supports streaming and air-gapped modes for offline and online capability

Analyze

- Advanced algorithmic machine learning engine for continuous monitoring without false positives
- Behavioral heuristics with advanced statistical methods
- Detects anomalies and senses aircraft state
- Secures software upgrades to your legacy LRUs

View

- Visualizes complex aircraft network data and translates it into meaningful information
- Enables cyber analysts to conduct incident response, intrusion detection, and prevention
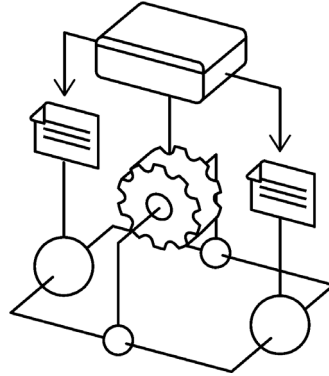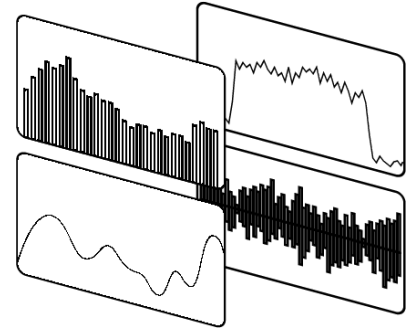- APIs for data scientists

SHIFT5

How Shift5 Works
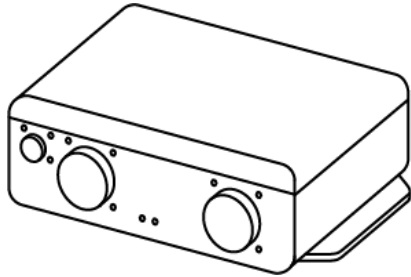
Intake

Full-Take Embedded Data Capture

Engine

Anomaly detection, logging, and alerting

Gauge Cluster

Visualization and Analysis

SHIFT**5**

How Shift5 Works

Intake

- Deploys as Hardware or Software
- Minimal SWaP: This model is <100 in3, <5 lbs, 18-32 VDC power
- Full-take data capture: MIL-STD 1553, J1939, CAN 2.0, RS-232, RS-485, ARINC 429, and more
- Single device covers multiple buses and protocols (see chart)
- Compression rate of >10:1 Starting at 512GB of storage [6+ months of data]
- Supports streaming and air-gapped modes for offline and online capability
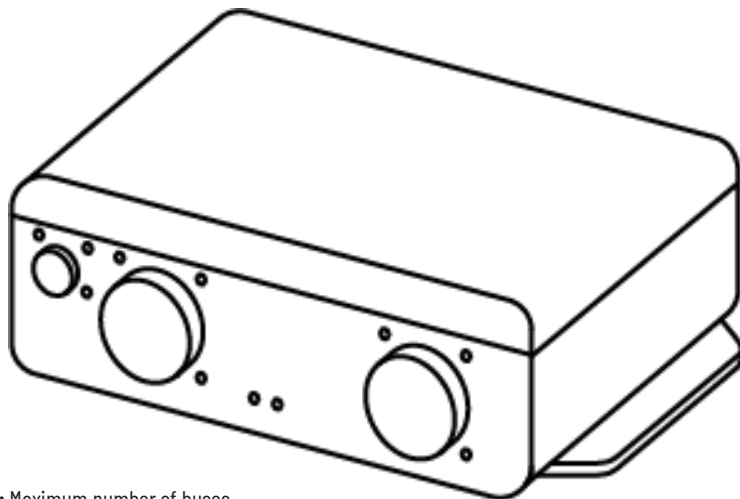
EXAMPLE: Maximum number of buses
(in the single protocol configuration)

Version	Mini PCIe slots	1553	429	CAN	RS422
100	3	6	18	12	6
200	4	8	24	16	8

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How Shift5 Works

Engine

- Machine learning engine for continuous monitoring without false positives
- Combines behavioral heuristics with advanced statistical methods and machine learning algorithms
- Detects anomalies and senses vehicle state
- Logs and enforces vehicle software configurations
- Secures software upgrades
- Sends alerts and logs activity
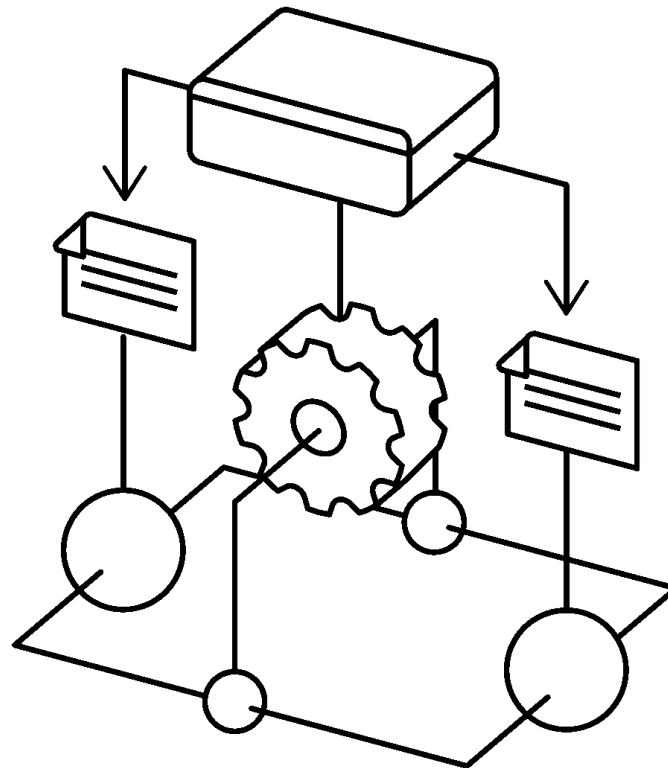
SHIFT**5**

# How Shift5 Works

Gauge Cluster

- Visualizes intake data to answer questions in near real-time across entire fleets
- Transforms complex OT network data into meaningful information
- Enables cyber analysts to conduct incident response, intrusion detection, and prevention
- APIs for data scientists
- Make sense of the big picture or drill-down into unit level details

SHIFT5
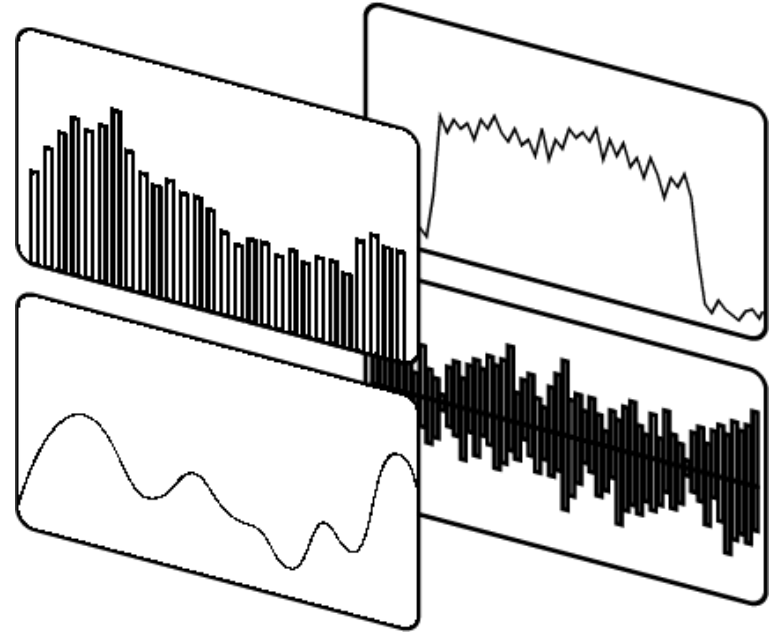
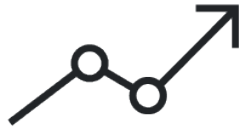# Reveal Critical Insights Into Modern Aircraft

Modern Observability Starts Here
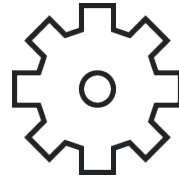
CYBERSECURITY & THREAT HUNTING
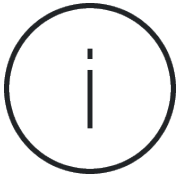
Protect the cyber attack surface and respond quickly to threats.

MAINTENANCE & OPERATIONS

Gain critical insights that improve operational efficiency.

REGULATORY COMPLIANCE

Automate and ease the burden of regulatory requirements.

DATA AGGREGATION

Combine IT, IoT, and onboard OT data into a single view.

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Aviation Use Case

Use case: Data collection, analysis, and intrusion detection on transport aircraft.

- Provides real-time visibility, control, and proactive threat hunting.
- Enablers predictive conditions-based maintenance insights.

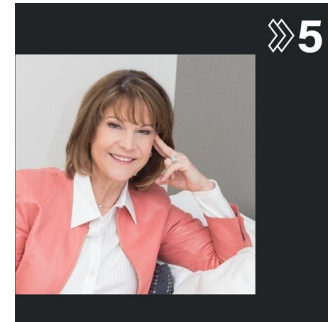SHIFT**5**

Major US-based Airline

Use case: Meeting AC 119-1 ANSP compliance requirements for connected air fleets.

- Meets AC-119-1's ANSP requirement for security log file analysis.
- Automates processes for a resource-constrained team.

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Next steps

Get a demo today.

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VP Commercial
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301.529.39.5

SHIFT**5**

THANK YOU

SHIFT**5**

Backup Slides

Regulatory Compliance

Today's aircraft are flying datacenters.

As technology advances and the need for faster connectivity grows, so will the compliance mandates. Shift5 is the only OEM-agnostic platform that captures, analyzes, and reports anomalies in core network security log files automatically. This automation makes it easier for you to meet and exceed regulatory requirements like FAA Advisory Circular 119-1, and frees up your analysts so they can focus on priority issues, not noise.

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The threats to aircraft are real... and growing

The FAA says credible risks include the potential for:

- Malware to infect an aircraft system
- An attacker to use onboard wireless to access aircraft system interfaces
- Denial of service of wireless interfaces
- Denial of service of safety critical systems
- Misuse of personal devices that access aircraft systems
- Misuse of off-board network connections to access aircraft system interfaces
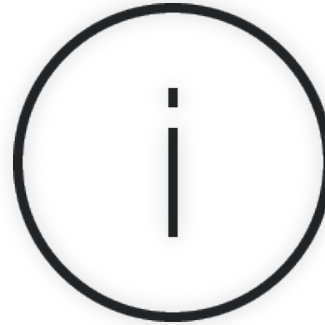
Source OpSpec D301

SHIFT5

AC 119-1: How does Shift5 help?

Retains security logs extracted from the aircraft's core network.
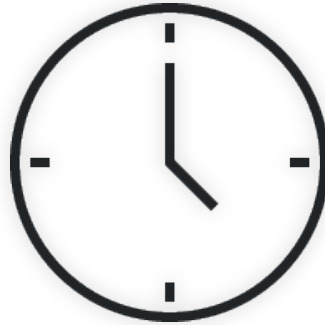
Conducts continuous or schedule analysis of these logs for anomalies.

Reports threats in a form and in a manner that is consistent with your IT policies.

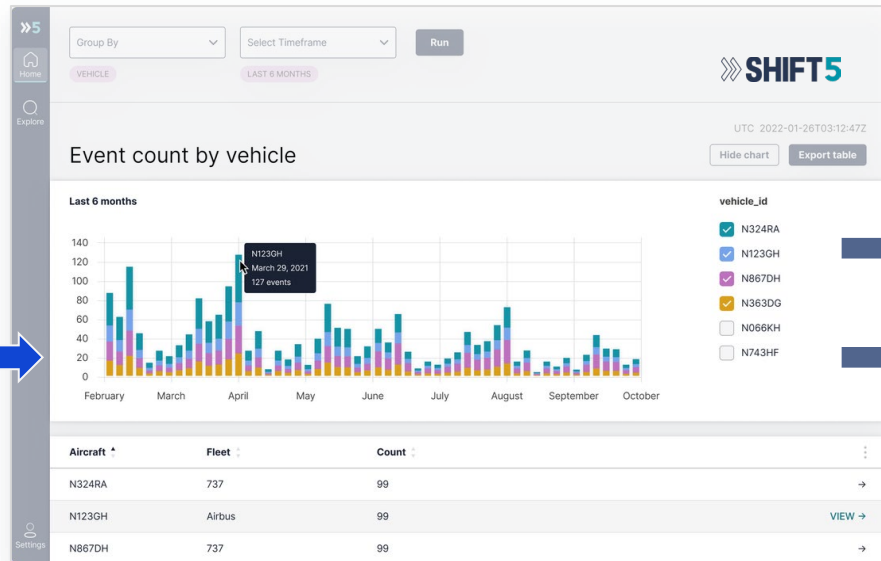Helps you verify compliance with ANSP and identify threats to the overall system.

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Shift5: How does security log file analysis work?

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