Solana Networks

www.solananetworks.com

SOLANA
NETWORKS

Corporate Overview

- Established in 2003; Based in Ottawa, Canada
- Products: Network and Security monitoring solutions
- Services: Network and Security software analytics
- Expertise: AI/ML for Traffic Analysis, cyber security; Large scale network asset discovery

Solana Products

SmartFlow

Security Monitoring based on Network Anomaly Detection & Machine Learning

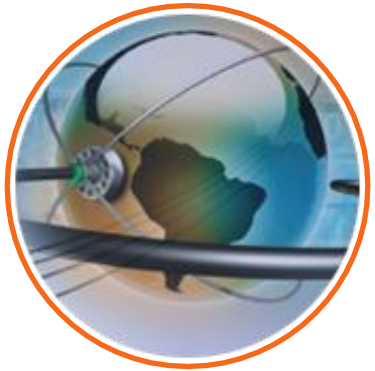
SparrowIQ

Advanced Network Traffic Analytics

SmartHawk

Network Asset and Topology Discovery for Large Enterprises and Service Provides

Solana Services



Cyber Security

Specialist in network security -- machine learning based POC development for cyber threat detection in automobile, SCADA and IT networks

Software & Applications

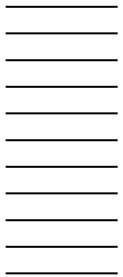
Networking Software development for network and data centre asset discovery, traffic analysis and ML based analytics development

Example Cyber Security Projects

1. SmartFlow – Netflow based anomaly detection solution for IT networks
2. Cyber Defence Decision Support Tool
3. Intrusion Detection System - SCADA
4. CYTHREIDS - Cyber alert false positive reduction
5. Cyber threat detection for automotive application

SmartFlow – Netflow Anomaly Detection

Flow Data



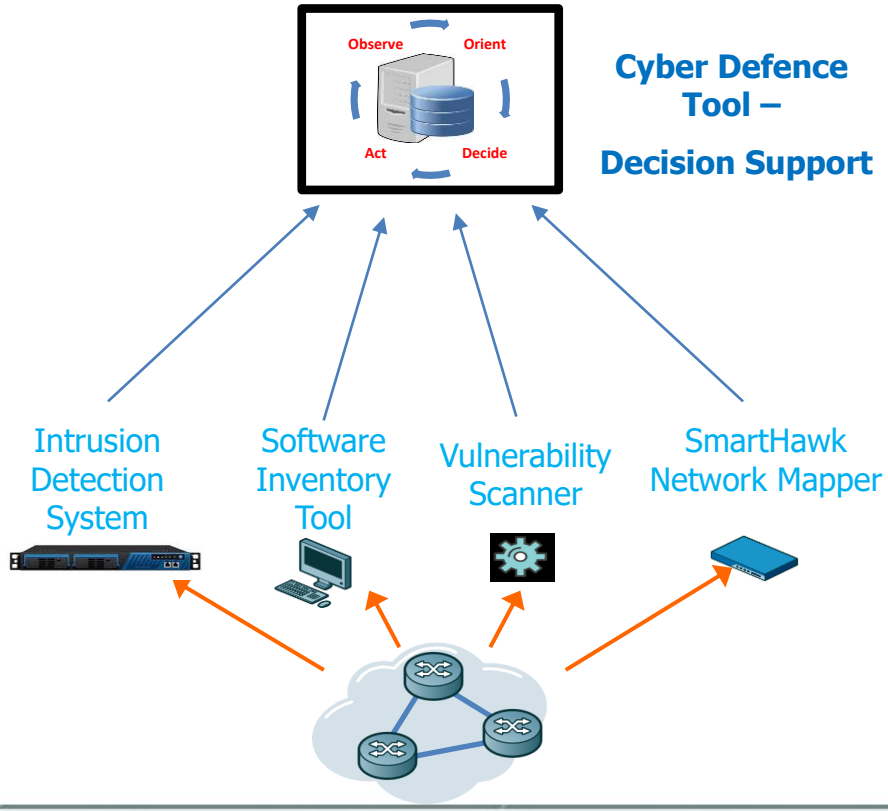
Traffic Matrix

Anomaly Detection Algorithm

- Identify attacks based on traffic flow anomaly
  - Baseline network behavior & apply analytics on flow features to detect anomalies
  - Pinpoint offending flows
  - Analyze flow characteristics to identify attack type
  - Drilldown capabilities to detect offending Ips
  - Integrate with discovered network topology & network map

Cyber Network Defence

- **Problem:**
  - Cannot block all security threats
  - IT security resources/budgets are finite.
- **Solution**: Tools to understand network cyber posture & vulnerabilities:
  - Analytics to evaluate cyber security risk
  - Identify potential risk mitigation actions
  - Proactive suggestion of remediation / actions
- Retrieve data from multiple cyber security sensors & combine with analytics



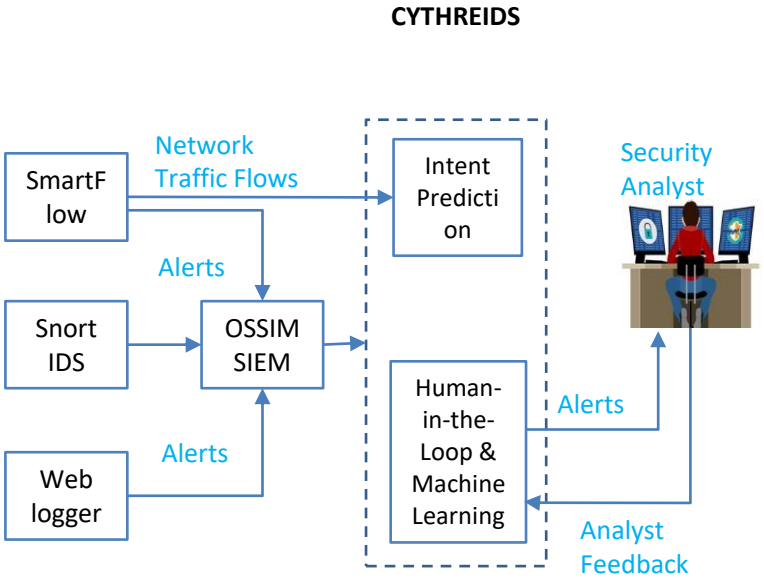
Intrusion Detection System for SCADA

Intrusion Detection System (IDS) for SCADA Industrial Control Network

- Implemented module for Suricata IDS
- Added support for signature-based threat detection for the EtherNet/IP Protocol (ENIP)
- Available in Suricata 3.2 Release
- Designed to work with Snort Rule-sets
- Work involved
  - Rule parsing & Packet parsing
  - Signature-based match functions
  - Alert definitions

CYTHREIDS – Cyber Alert False Positive Reduction

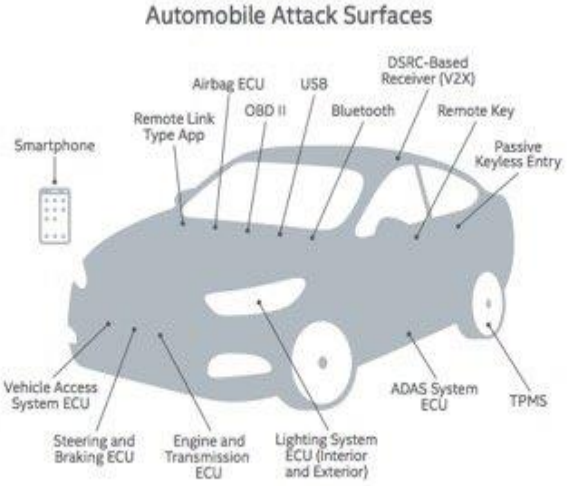
- **Problem**:
  - Security tools generate a large number of false positives that overwhelms analysts
  - Use analyst's feedback combined with machine learning to reduce false positives
- **Solution**: Develop a system with Human-in-the-Loop (HIL):
  - Analyst flags cyber alerts as valid and invalid during learning phase and used to build a supervised ML model
  - For prototype, alerts from 3 security sensors are used: IDS, Anomaly detector and Web logger with SSH attack prevention



Cyber threat detection for Automobile

Distributed Anomaly Detection

- **Problem**:
  - Detect cyber threat in automobile CAN bus
  - Solution must be with a low computation cost
- **Solution**: Cyber threat detection by analyzing traffic behavior:
  - The approach uses machine distributed computation to reduce computation cost
  - Advanced machine learning techniques on CAN bus data is applied to ensure low false positive
  - The solution works as complementary approach with other threat detection mechanism



Fifteen of the most hackable and exposed attack surfaces, including several electronic control units, on a next-generation car.

Source: McAfee Labs