FSI ITAM & Security Challenges
Innovative Hardware Asset Risk Management

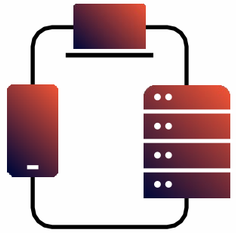
Presented By

SEPIO

Questions our FSI customers ask themselves -

- Are all my assets listed?
- Where are my assets located?
- Are there any vulnerable assets that put us at risk?
- Are my assets verified, and can I trust them?
- Where are my regulatory compliance gaps?

Hardware assets pose major security concerns



1

Visibility and validation of **all Hardware Assets** including:

- Peripheral devices
- (MAC-less devices)
- Hardware BOM

2

Hardware Zero Trust
Control access to the enterprise through **granular policy enforcement & hardware identity validation**

3

Rogue Device Mitigation (RDM) of spoofed, manipulated devices, and hidden implants

4

Detection of Hardware Manipulation within the supply chain

Hardware attack tools are gaining popularity

- Every physical asset is an exposure
- Uncontrolled assets are an entry point for malware/ransomware payloads
- Uncontrolled assets are an exit door for sensitive data leakage
- Uncontrolled asset provide a permanent foothold for threat actors in the organization: MiTM, Data manipulation etc.

Demonstrated value to IT operation

Existing CMDB, CMMS and NAC performance boost

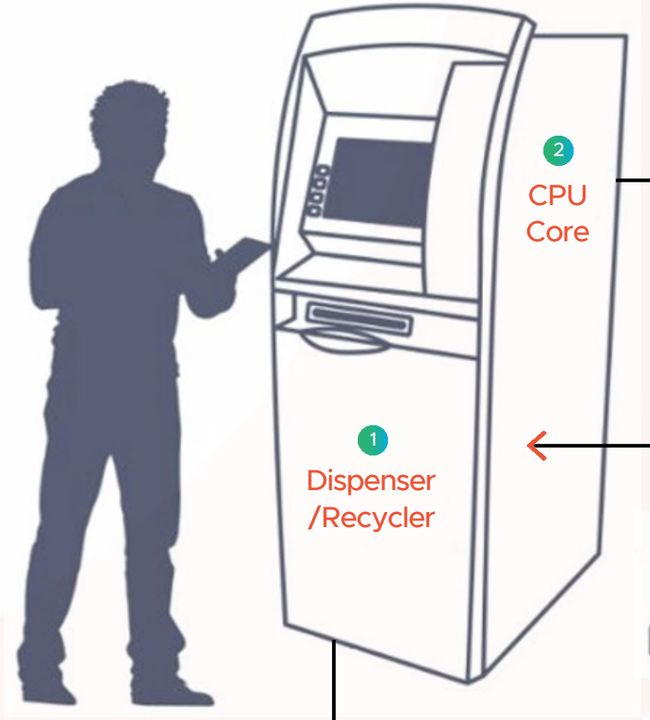
Visibility across inventory, shadow and rogue assets

Reduced hardware clutter and better budget spending

Uninterrupted streamlined operations

Attack study

ATM use case: FiXS The new ATM malware in LATAM

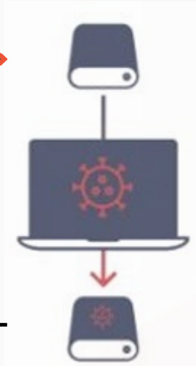


Mule opens soft zone to extract Hard Disk

1 Dispenser /Recycler

2 CPU Core

Ploutus-I is installed in a whitelisted folder And added to the registry run key



3 Hard Disk infected is connected back

Mule connects external keyboard disguised as a webcam

Sepio detects the disguised keyboard & blocks it at connection. Stops the execution before it starts.

4 Ploutus-I
Validates activation code entered with the keyboard

5 Mule enters combination of F keys to start dispensing

6 Ploutus-I
spawn GG.exe which controls XFS Middleware

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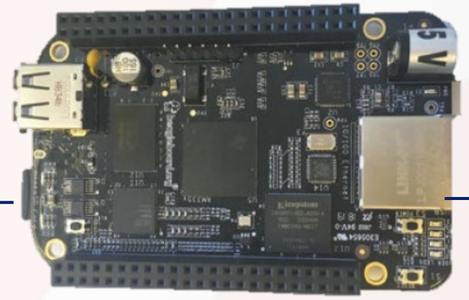
USB use case: Bypassing biometric security measures

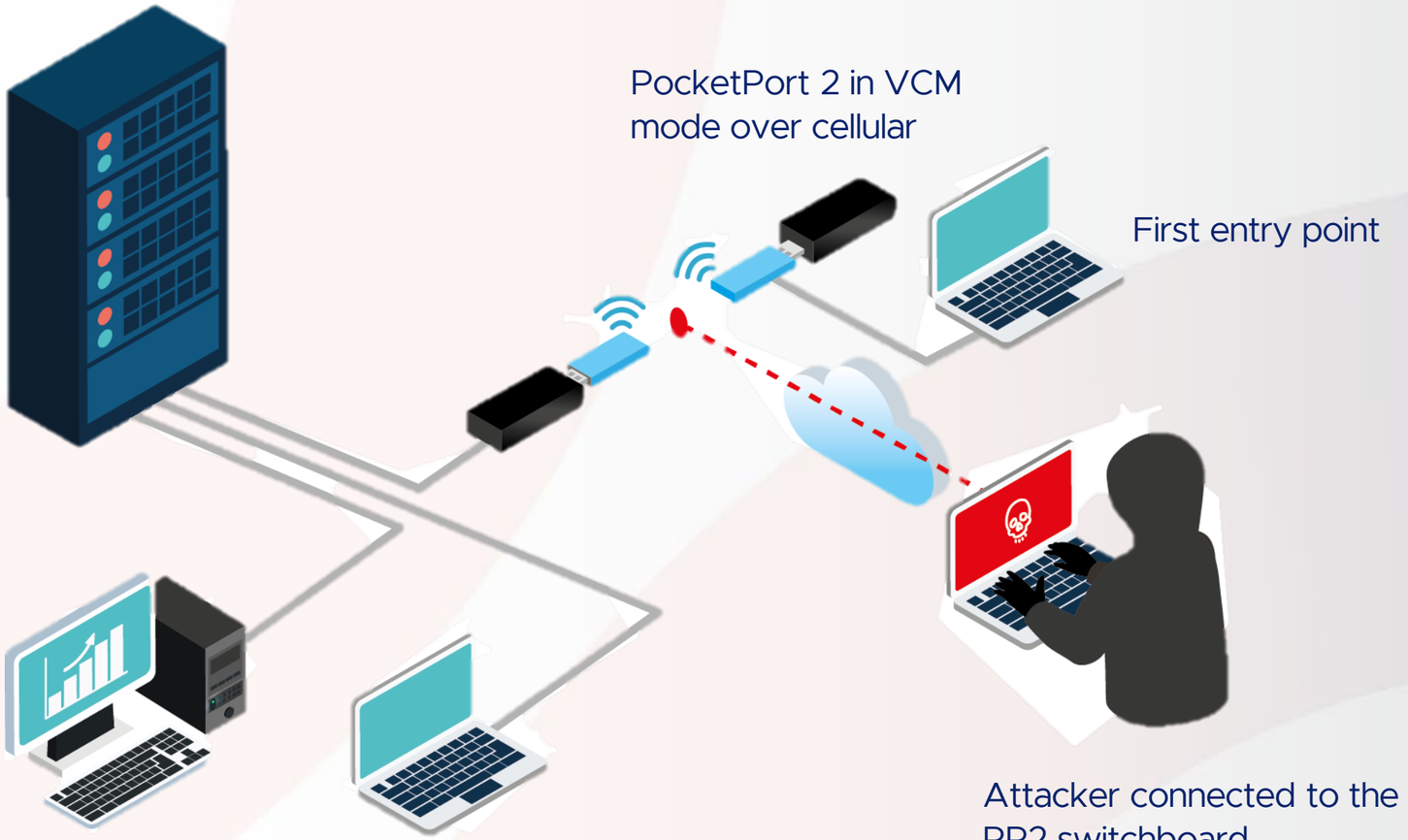
Palm vein scanner
connected over USB



Beaglebone low-cost board
running USB Proxy MiTM.

High privilege user
endpoint

Network use case: MiTM transparent attack



Peripheral asset attacks

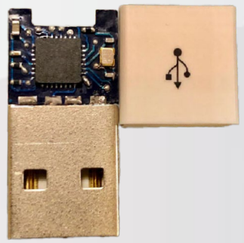
Way In

```
0x8A,0xC6,0x22,...
http://URL...
cmd /c netsh wlan show
profiles "+NetName+"...
```

Depending on attacker's "style" and prior knowledge of the target, they will either:

- Use HID emulation for binary payload
- "Send" the target PC to a pre-known/prepared web URL to download the payload
- Act as a Network Interface and inject the payload into the PC
- Use USB Proxy MiTM attacks

Way Out



- Exfiltrate the data directly to the attack tool
- Use an integrated Wi-Fi to remotely extract
- Connect to the internet and exfiltrate the data "invisibly" – such as adding comments on youtube
- Use continuous and invisible remote shell into corporate PCs

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Network asset – MiTM & 802.1xbypassing

- Unmanaged switch & uncontrolled (MiTM) hardware are completely invisible to **NAC** and **IDS/IPS**
- Any device that is connected poses a risk-
  - **Spoof to be a legitimate device** and send traffic into the network
  - **Intercept/manipulate** traffic between a legitimate asset and the network
  - **Invisibly infect/attack** a legitimate asset without being flagged
  - Create as **invisible and continuous** foothold in the infrastructure

Avoiding existing technologies blind spots

Friend or Foe?

Same MAC

MAC:00D085045802

MAC:00D085045802

Same Ports

Zenmap

Scan Tools Profile Help

Target: 192.168.10.46 Profile: Intense scan Scan Cancel

Command: nmap -T4 -A -v 192.168.10.46

Hosts Services

OS Host

Nmap Output Ports / Hosts Topology Host Details Scans

nmap -T4 -A -v 192.168.10.46 Details

```
Starting Nmap 7.91 ( https://nmap.org ) at 2023-04-18 10:15 Jerusalem Daylight Time
NSE: Loaded 153 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 10:15
Completed NSE at 10:15, 0.00s elapsed
Initiating NSE at 10:15
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Initiating NSE at 10:15
Completed NSE at 10:15, 0.00s elapsed
Initiating ARP Ping Scan at 10:15
Scanning 192.168.10.46 [1 port]
Completed ARP Ping Scan at 10:15, 0.25s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 10:15
Completed Parallel DNS resolution of 1 host. at 10:15, 0.07s elapsed
Initiating SYN Stealth Scan at 10:15
Scanning 192.168.10.46 [1000 ports]
Discovered open port 443/tcp on 192.168.10.46
Discovered open port 80/tcp on 192.168.10.46
Discovered open port 631/tcp on 192.168.10.46
Discovered open port 9100/tcp on 192.168.10.46
Discovered open port 515/tcp on 192.168.10.46
Completed SYN Stealth Scan at 10:15, 1.76s elapsed (1000 total ports)
Initiating Service scan at 10:15
```

Zenmap

Scan Tools Profile Help

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Same Traffic

Traffic Log - Network Threat Protection Logs

File Edit View Filter Action Help

Date and...	Action	Severity	Direction	Protocol	Source Host	Source MAC	Source Port	Destination Host	Destination MAC	Destination Port	Applic
22/11/2013 8:07...	Allowed	5	Incoming	UDP	192.168.0.55	7C-05-07-91-D...	5353	224.0.0.251	01-00-5E-00-0...	5353	
22/11/2013 8:07...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52814	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.55	7C-05-07-91-D...	1900	239.255.255.250	01-00-5E-7F-F...	1900	
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.70	00-50-56-BE-7...	58498	192.168.0.117	00-0C-29-99-9...	443	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.56	00-0F-FE-F9-5...	137	192.168.0.127	FF-FF-FF-FF-F...	137	C:\Win
22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.63	00-0F-FE-FD-8...	137	192.168.0.127	FF-FF-FF-FF-F...	137	C:\Win
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52815	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52816	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
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22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.51	B4-B5-2F-7F-B...	50146	239.255.255.250	01-00-5E-7F-F...	1900	
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22/11/2013 8:07...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52814	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.55	7C-05-07-91-D...	1900	239.255.255.250	01-00-5E-7F-F...	1900	
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.70	00-50-56-BE-7...	58498	192.168.0.117	00-0C-29-99-9...	443	D:\Pro
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22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52815	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52816	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Outgoing	TCP	192.168.0.117	00-0C-29-99-9...	42301	192.168.0.110	00-0C-29-2E-4...	8016	C:\Win
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52817	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	TCP	192.168.0.111	A0-B3-CC-4E-C...	52818	216.2.48.149	00-09-0F-09-0...	80	D:\Pro
22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.51	B4-B5-2F-7F-B...	50146	239.255.255.250	01-00-5E-7F-F...	1900	
22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.57	00-23-18-C3-F...	137	192.168.0.127	FF-FF-FF-FF-F...	137	C:\Win
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22/11/2013 8:08...	Allowed	5	Incoming	UDP	192.168.0.55	7C-05-07-91-D...	51452	224.0.0.252	01-00-5E-00-0...	5355	C:\Win
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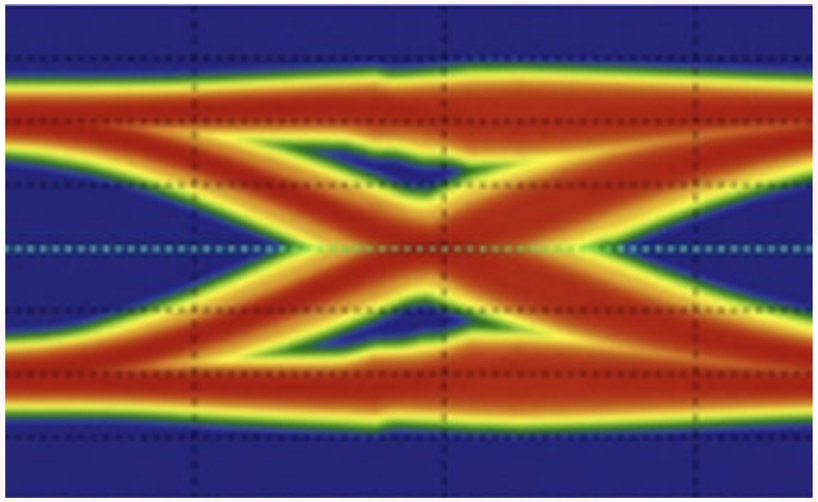
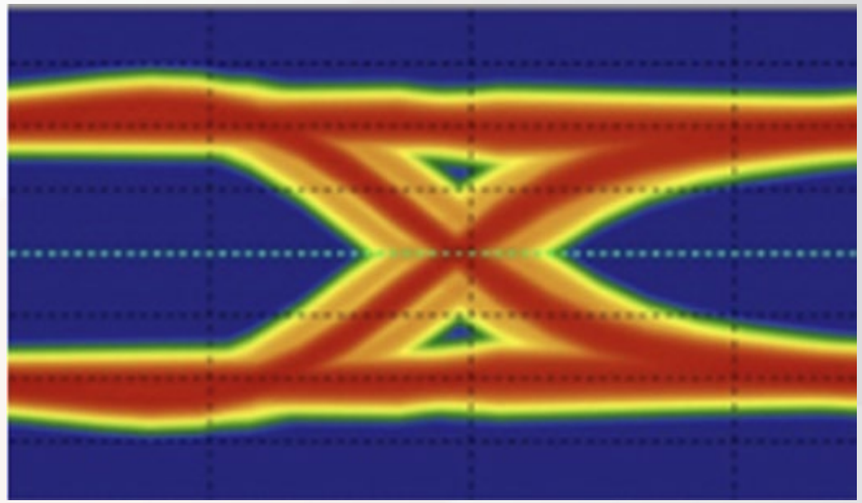
22/11/2013 8:09...	Allowed	5	Incoming	UDP	192.168.0.64	E0-69-95-FA-3...	52124	224.0.0.252	01-00-5E-00-0...	5355	C:\Win
22/11/2013 8:09...	Allowed	5	Incoming	UDP	192.168.0.64	E0-69-95-FA-3...	137	192.168.0.127	FF-FF-FF-FF-F...	137	C:\Win

Different Asset DNA !





Sepio’s unique approach

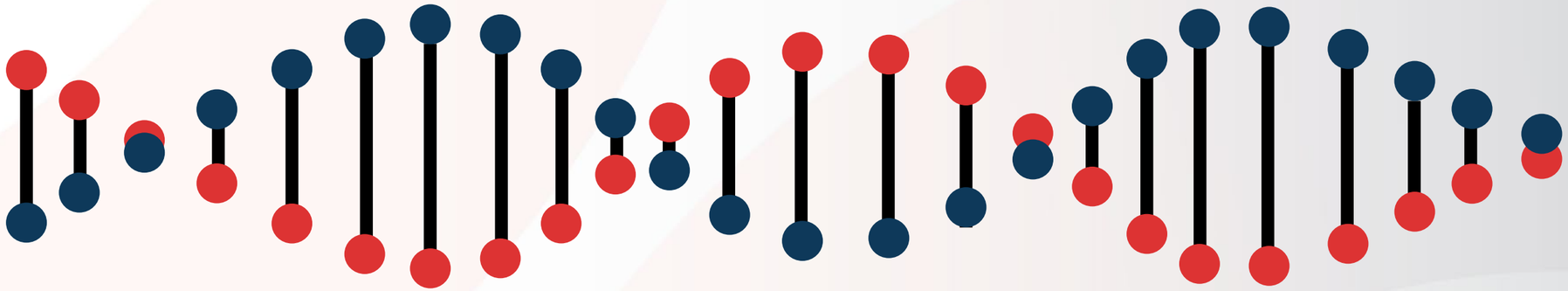
Harnessing new data source

getting to the true source of asset risk without traffic monitoring

- Create an Asset DNA
- Risk assessment
- Asset mapping

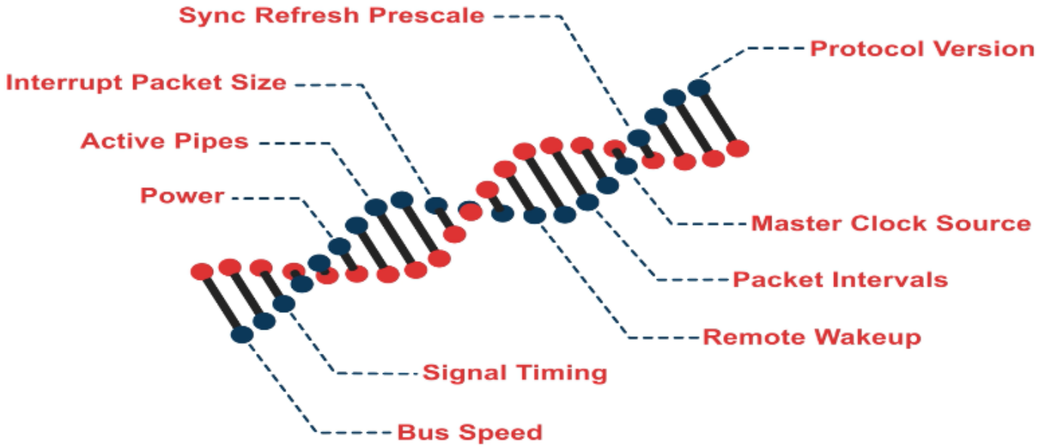
How do we do it?

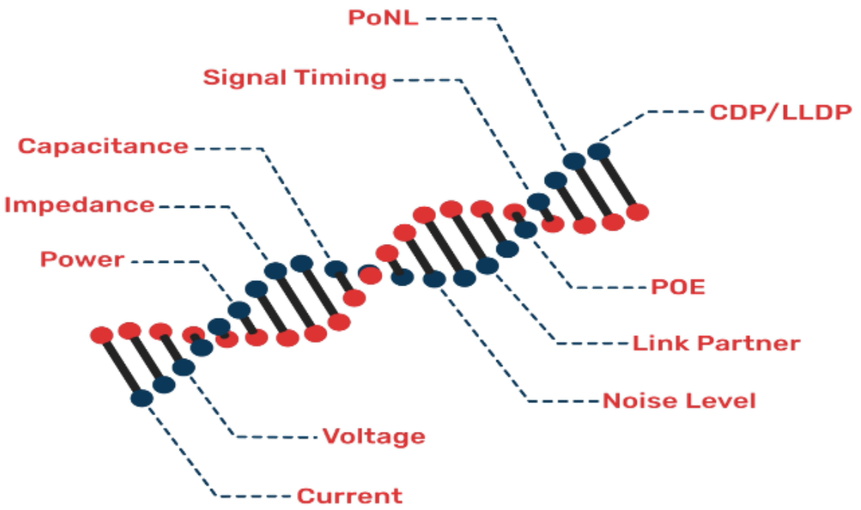
Asset DNA



Introducing Asset DNA

Host



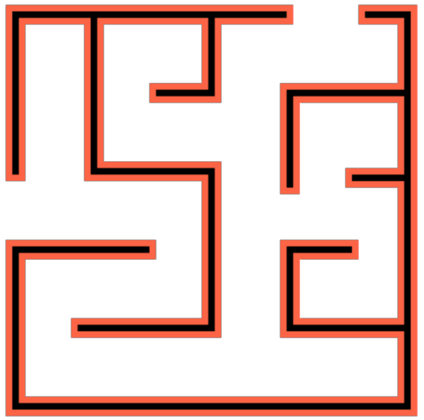


Network

SEPIO

Asset DNA provides a single source of truth, focusing on EXISTENCE – rather than ACTIVITY.

With our patented technology, we now harness a new data source – physical layer to accurately identify and classify your assets.



Passive network probing is an IT/OT nightmare

Sepio's trafficless solution avoids cumbersome deployments and privacy issues, vertical, type and protocol indifferent, at any scale, without effecting the network performance.

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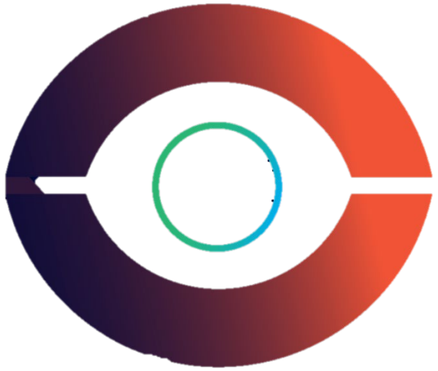


XDR/EDR device control still has blind spots

Sepio's enhanced visibility provides unmatched rogue device mitigation, while supporting USB entitlement at scale.

SEPIO

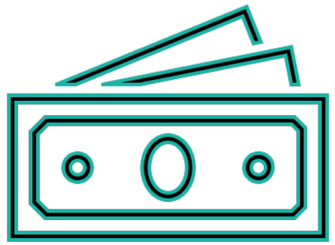
Go beyond legacy NAC solutions

Embrace Sepio's Zero Trust Hardware Access (ZTHA) to augment your ZTNA initiatives across all your assets (IT/IoT/OT).

Establish trust validate assets, enforce regulatory compliance with a single low TCO solution.

SEPIO

Sepio’s proven value for FSI



Finance Business Benefits

- Complete asset visibility
- Mitigate rogue devices and supply chain risks.
- Close NAC gaps and fortify micro segmentation
- Support regulatory compliance
- Budget and resource planning
- Apply assets usage policy entitlement, at scale.

“Sepio sheds light on items I couldn’t identify and now I can make better decisions; I can contextualize what a device is where I wouldn’t have had visibility otherwise.”

Director of Network Architecture and Engineering,
Tier 1 Financial Institution

Who benefits from our data?

SIEM/SOAR

- Instant alerts when unwanted or rogue devices are connected, eliminating unnecessary noise
- Contextual information, i.e. asset location, expedites response time to prevent crises
- Publicly recognized asset vulnerability module (OSINT and proprietary) for an immediate mitigation

Security team

- Understand what needs attention with actionable data
- Enforce organization policies and establish trust at the asset level
- Greater ROI by radically improving the efficacy of existing tools

ITAM & CMDB

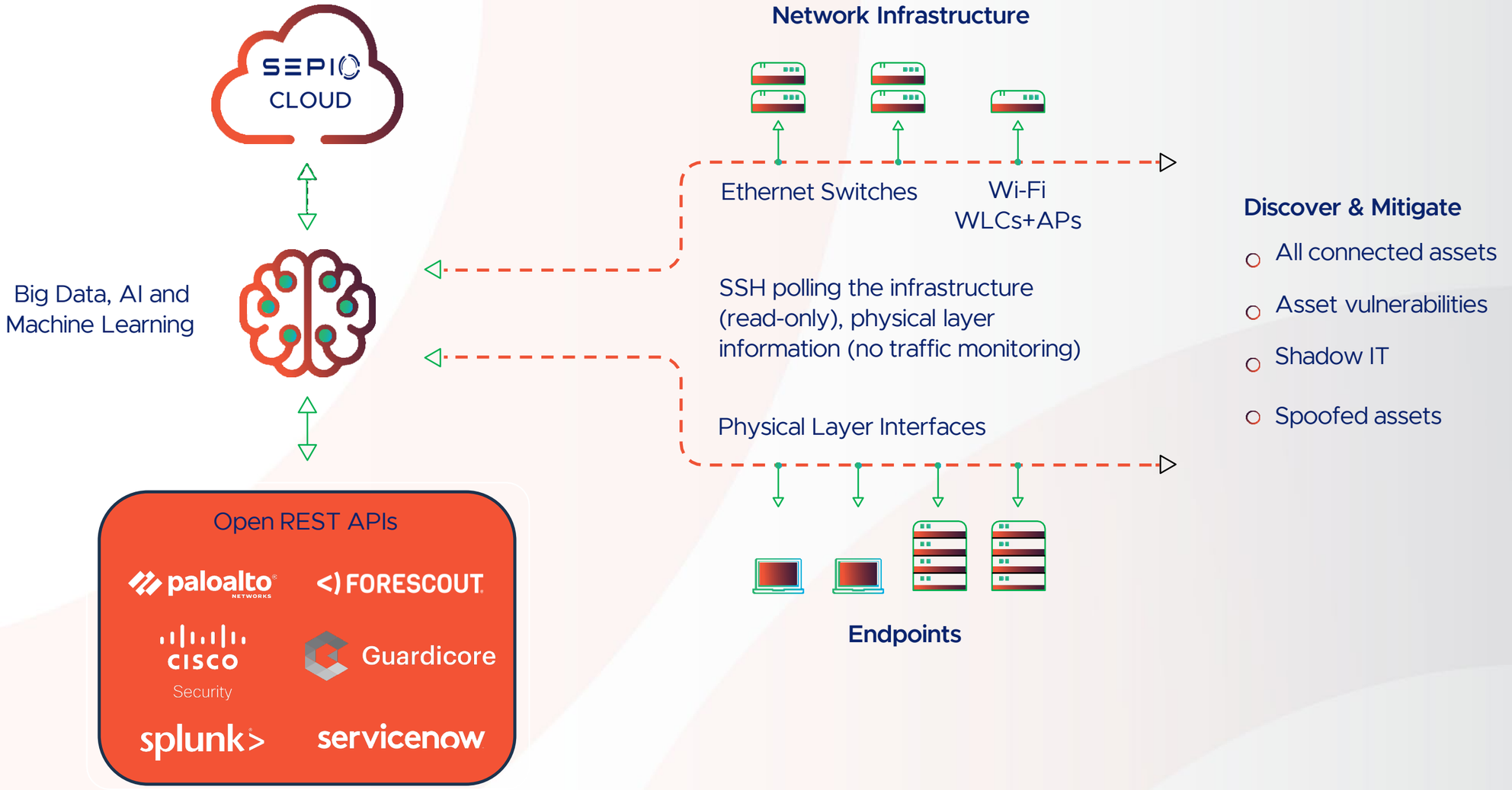
- Reduce complexity with a consolidated source of asset visibility across all environments
- Reduce hardware clutter
- Ensure operational efficiency of assets

CAASM

- Augment existing data sources
- Validate security controls
- Remediate issues

SEPIO

Architecture and Deployment aspects


SEPIO CLOUD
Big Data, AI and Machine Learning
Open REST APIs
paloalto NETWORKS
FORESCOUT
cisco Security
Guardicore
splunk>
servicenow
Network Infrastructure
Ethernet Switches
Wi-Fi WLCs+APs
SSH polling the infrastructure (read-only), physical layer information (no traffic monitoring)
Physical Layer Interfaces
Endpoints
Discover & Mitigate
All connected assets
Asset vulnerabilities
Shadow IT
Spoofed assets

Sepio agent deployment options

Fixed agent (including VDI support)

Session based

Dissolvable agent

Typical Customer Journey

Workshop with extended team

Identify key use cases – endpoint or network

PoV – installs in hours; standard duration up to 2 weeks

Develop deployment and integration plan

Present business case for approval

Deployment process

1. **Install the software only Sepio Platform using preferred method**

   Cloud, virtual, on-prem or via Azure marketplace

2. **Using the browser UI, import a license**

3. **Import switches/WLC to Sepio**

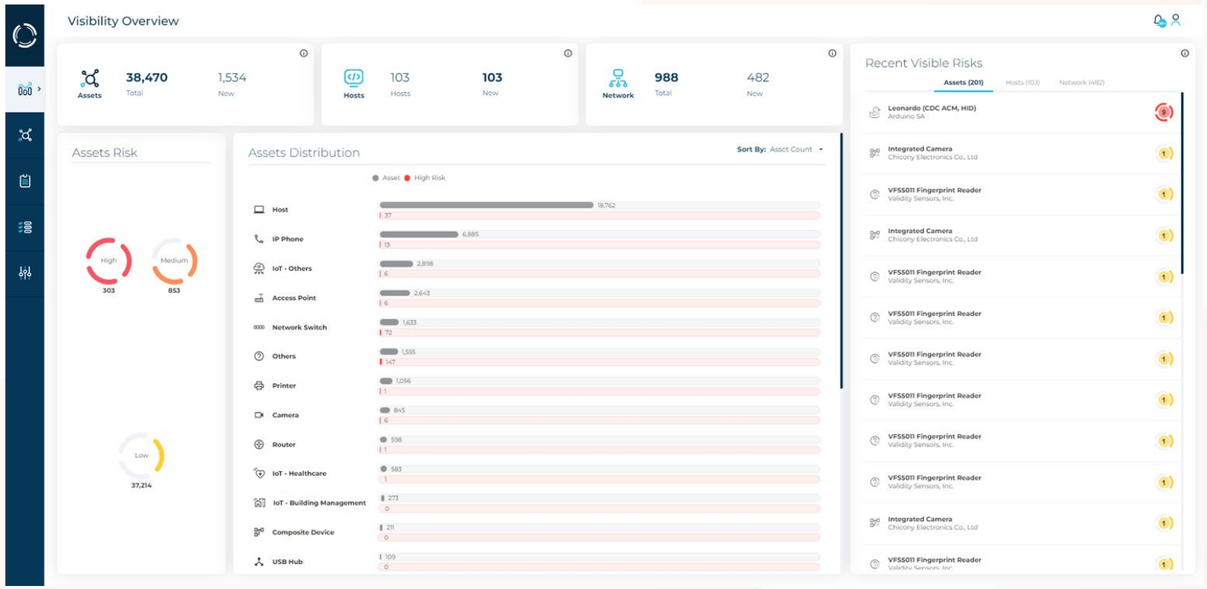
   Can be done manually by providing IP-SSH username – SSH password
   Can be done by importing CSV file

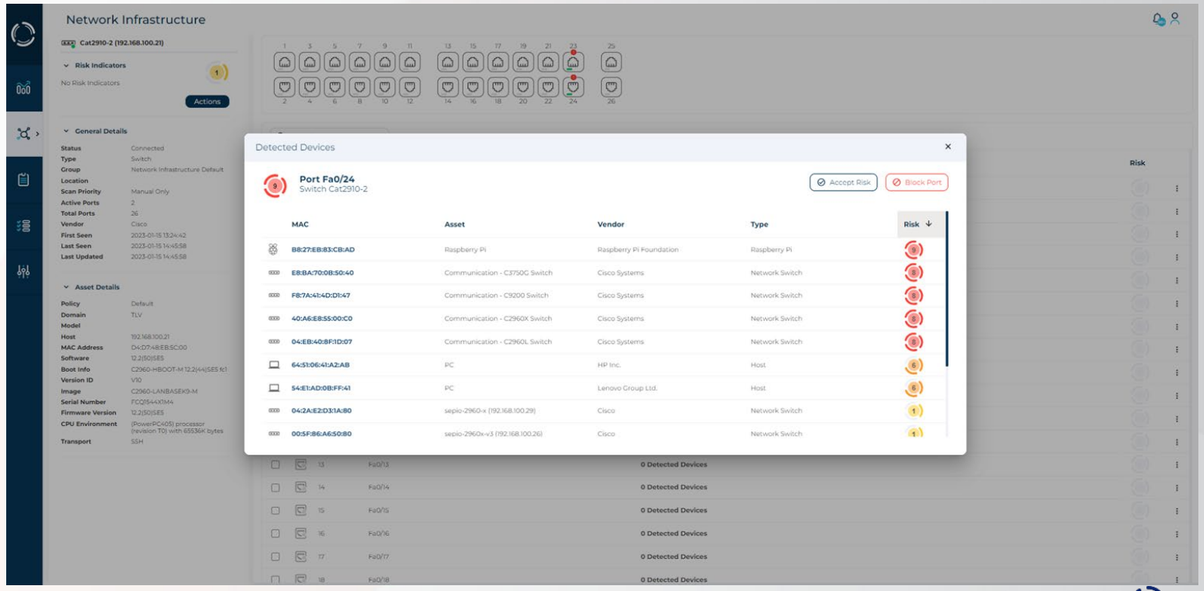
4. **Deploy Sepio agents**

   Supports Windows/RHEL/Debian

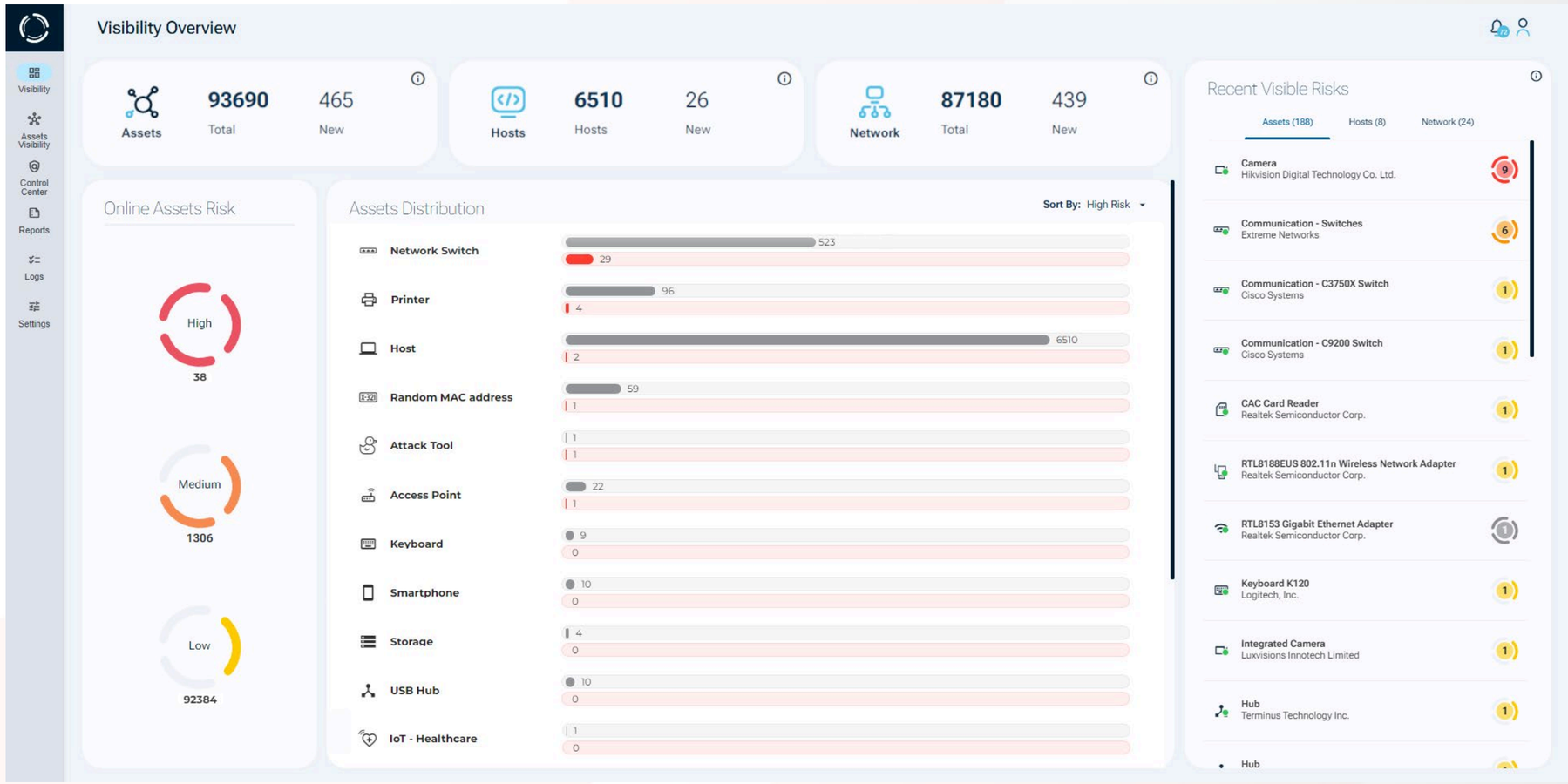
   Can be installed manually or using a distribution tool

5. **Complete integration in upstream systems**





Sepio’s Asset Risk Management solution



Additional video resources

https://www.youtube.com/watch?v=vDTtbfXDwbc

https://www.youtube.com/watch?v=pLHIiLh3njg&list=PLIhAGMBWwGmdlt7aRfTc0C07N_1kA49p4&index=15

https://www.youtube.com/watch?v=GBqYnaI0XBU&list=PLIhAGMBWwGmdlt7aRfTc0C07N_1kA49p4&index=20

SEPIO

See what you've been missing.