IT and OT Convergence: Risk, Reward, and Automated Response

GREG GRAY / CIO

THREAT LANDSCAPE

https://www.emsisoft.com/en/blog/29220/ransomware-as-a-service/
https://arstechnica.com/information-technology/2022/03/lapsus-and-solar-winds-hackers-both-use-the-same-old-trick-to-bypass-mfa/
https://www.firstpost.com/tech/news-analysis/newbie-hackers-are-using-openais-chatgpt-generative-ai-bot-to-write-dangerous-malware-11951952.html

REGULATORY LANDSCAPE

- POTUS has called for sweeping changes in the critical infrastructure
- TSA regulatory requirements for airports, pipelines, and rail
- FERC has called for NERC CIP updates
- EPA will gain power to enforce cyber security requirements

Increased controls

- Continuous monitoring and detection of critical assets
- Prevent, detect, and respond to cyber threats
- Email protection
- Anomaly detection and response
- Log retention
- Network segmentation

D. Implement continuous monitoring and detection policies and procedures that are designed to prevent, detect, and respond to cybersecurity threats and correct anomalies affecting Critical Cyber Systems. These measures must include:

1. Capabilities to—

a. Defend against malicious email, such as spam and phishing emails, to preclude or mitigate against adverse impacts to operations;

[10] This policy should be compliant with the most current version of the National Institute of Standards and Technology's Special Publication 800-63, Digital Identity Guidelines (available at https://csrc.nist.gov/publications/detail/sp/800-63/3/final).

b. Block ingress and egress communications with known or suspected malicious Internet Protocol addresses;

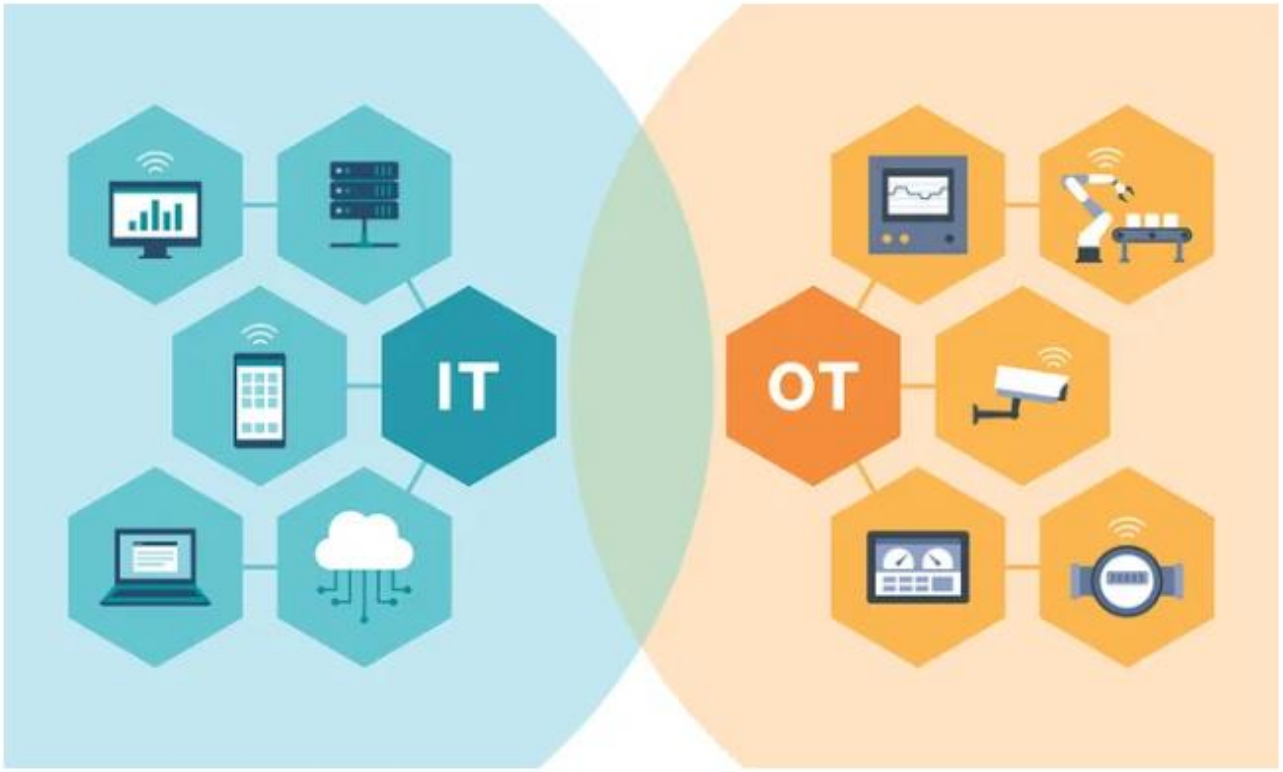
c. Control impact of known or suspected malicious web domains or web applications, such as by preventing users and devices from accessing malicious websites;

d. Block and prevent unauthorized code, including macro scripts, from executing; and

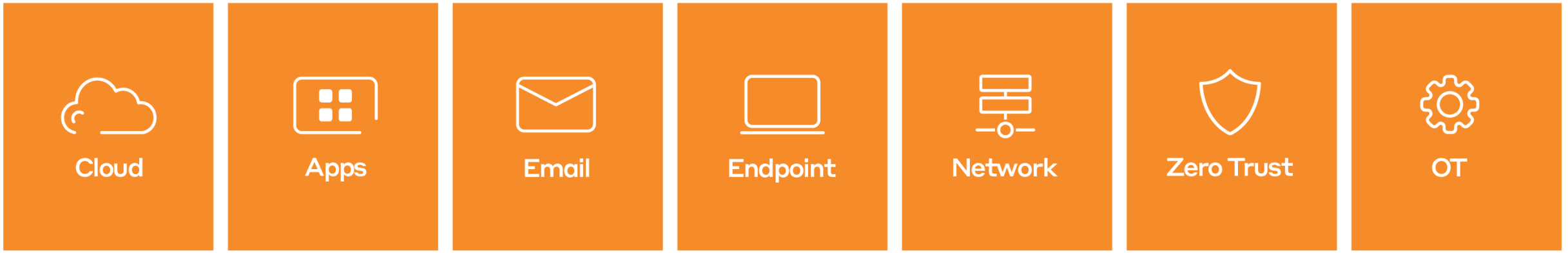
e. Monitor and/or block connections from known or suspected malicious command and control servers (such as Tor exit nodes, and other anonymization services).

IT & OT Convergence

- Cloud-hosted Email
- Email remains a primary attack surface
- IT and OT networks have become porous
- Monitoring IT without OT and Email introduces visibility gaps



Visibility needs



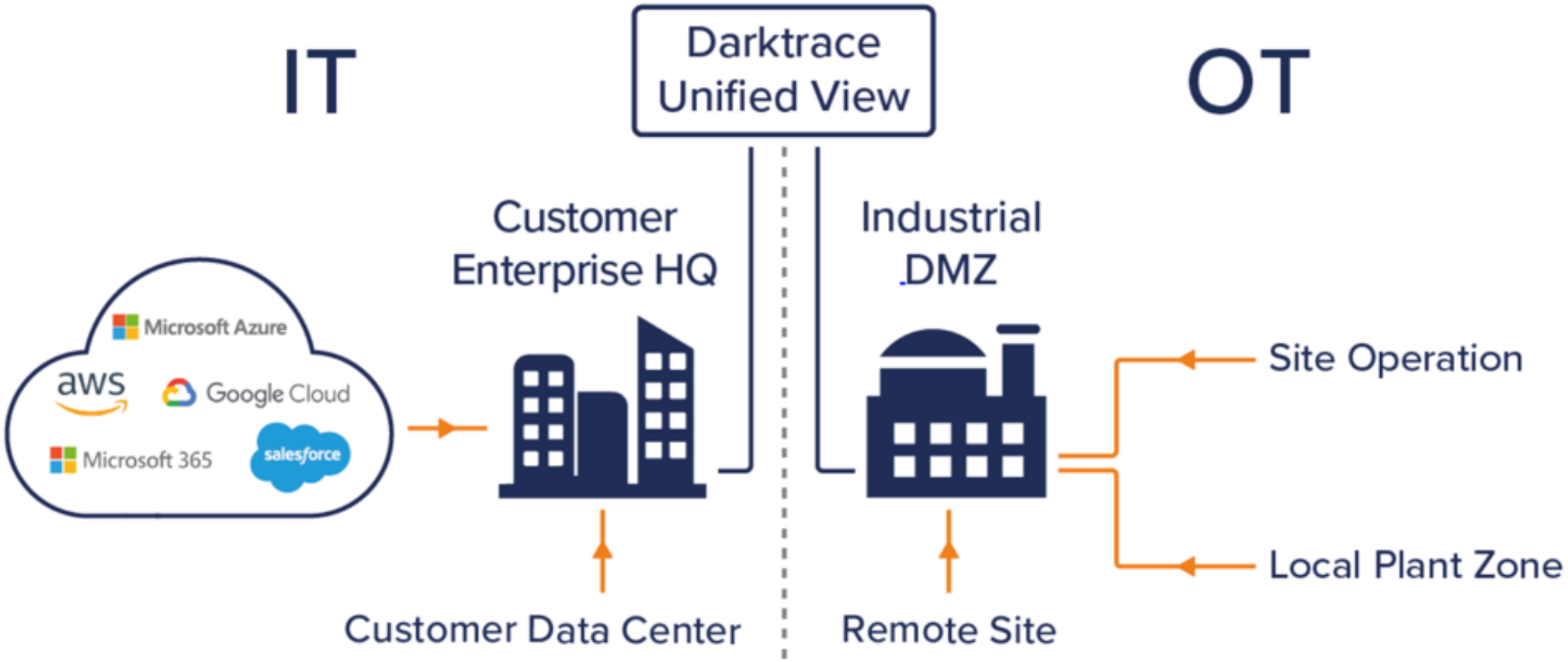
Google Cloud Dropbox slack zscaler The Cloud Security Company CROWDSTRIKE Office 365 box salesforce

aws okta DUO Microsoft Azure PAS Google Workspace CISCO SentinelOne

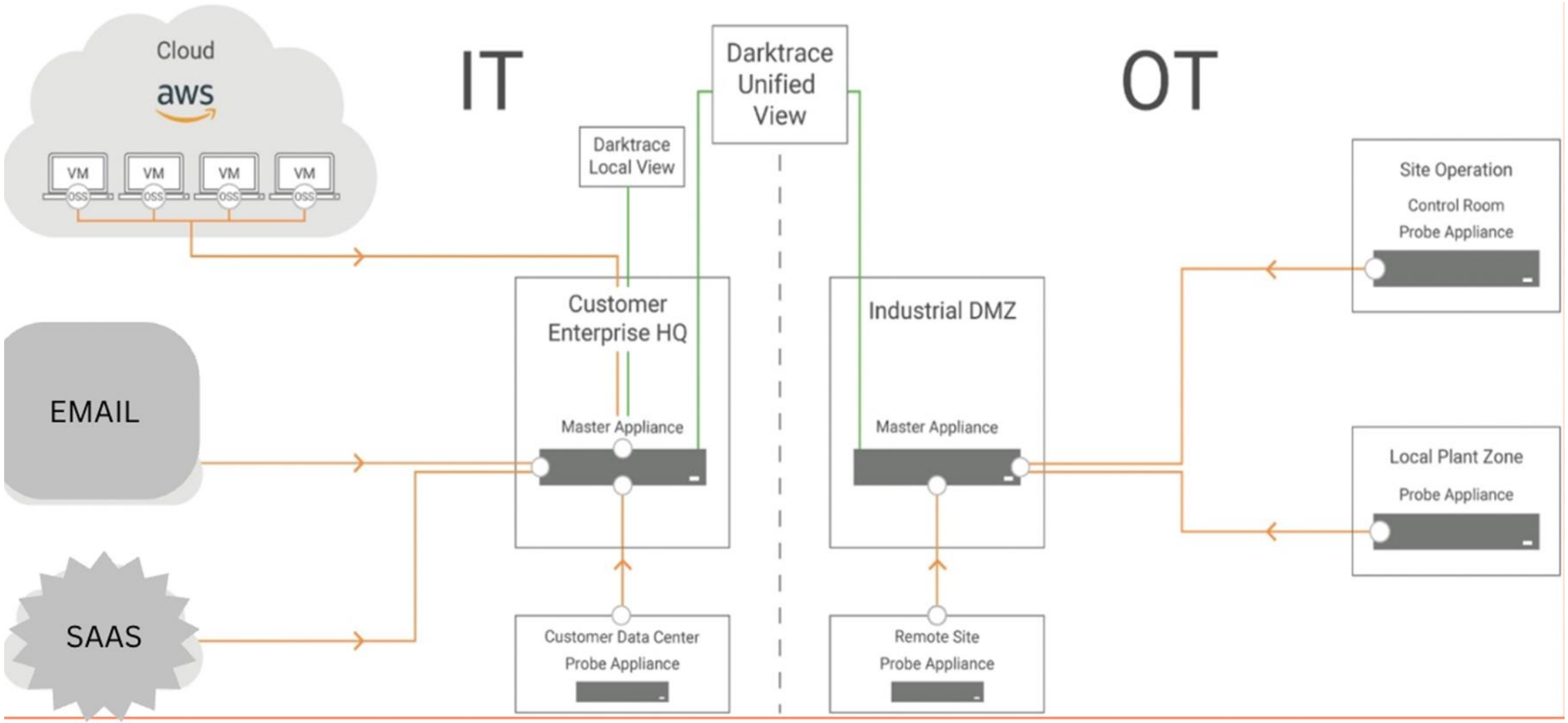
A shift in mindset and tooling is required

From	To
• Signatures	• Machine Leaning (ML) and Autonomous Response
• Rules	• Machine Leaning (ML) and Autonomous Response
• Lack of visibility or context	• Unified view across IT, OT, and Email
• Retrospective tooling	• Self Learning Artificial Intelligence (AI)

Unified View into IT, OT, and Email



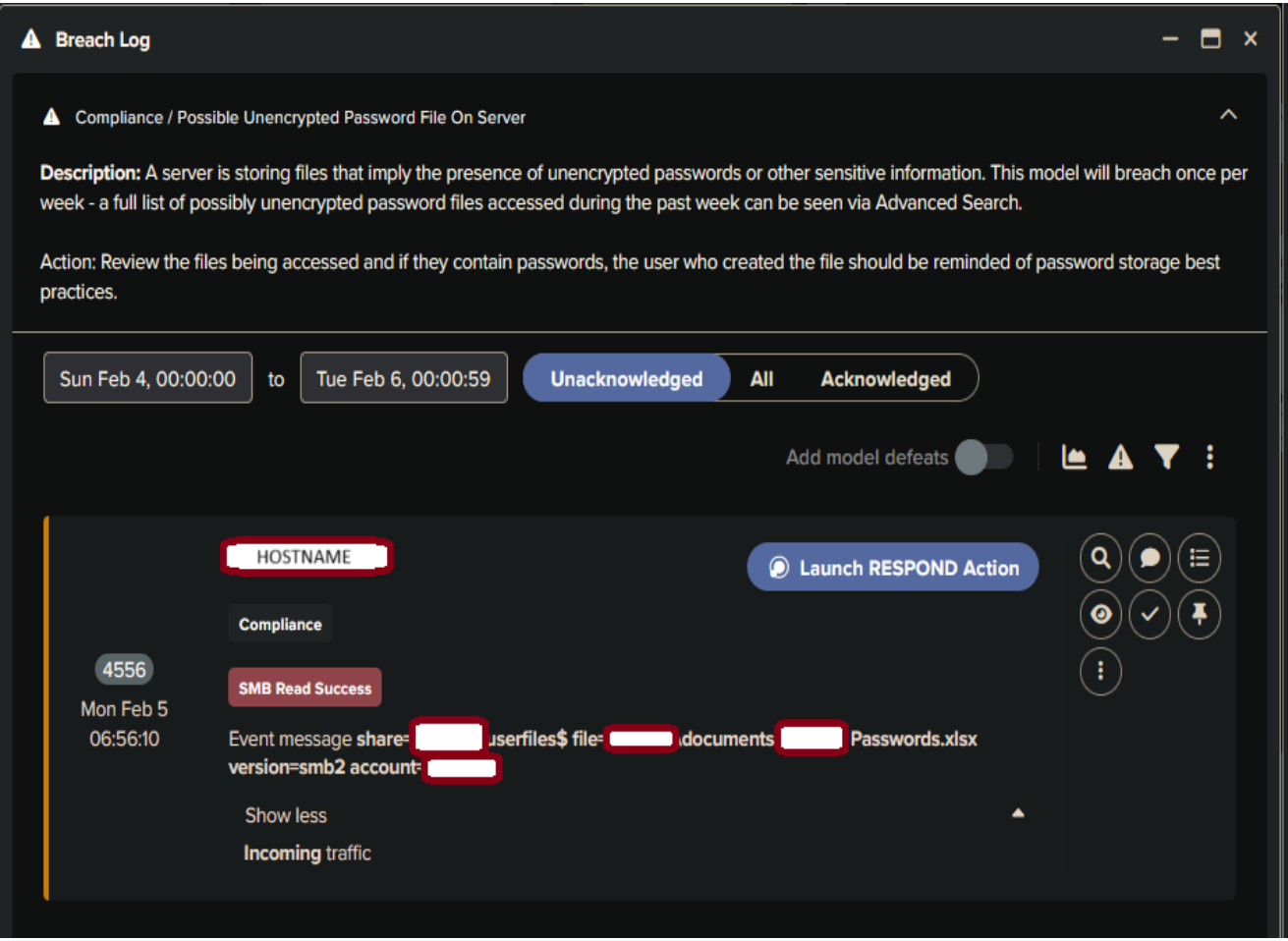
Unified View into IT, OT, and Email

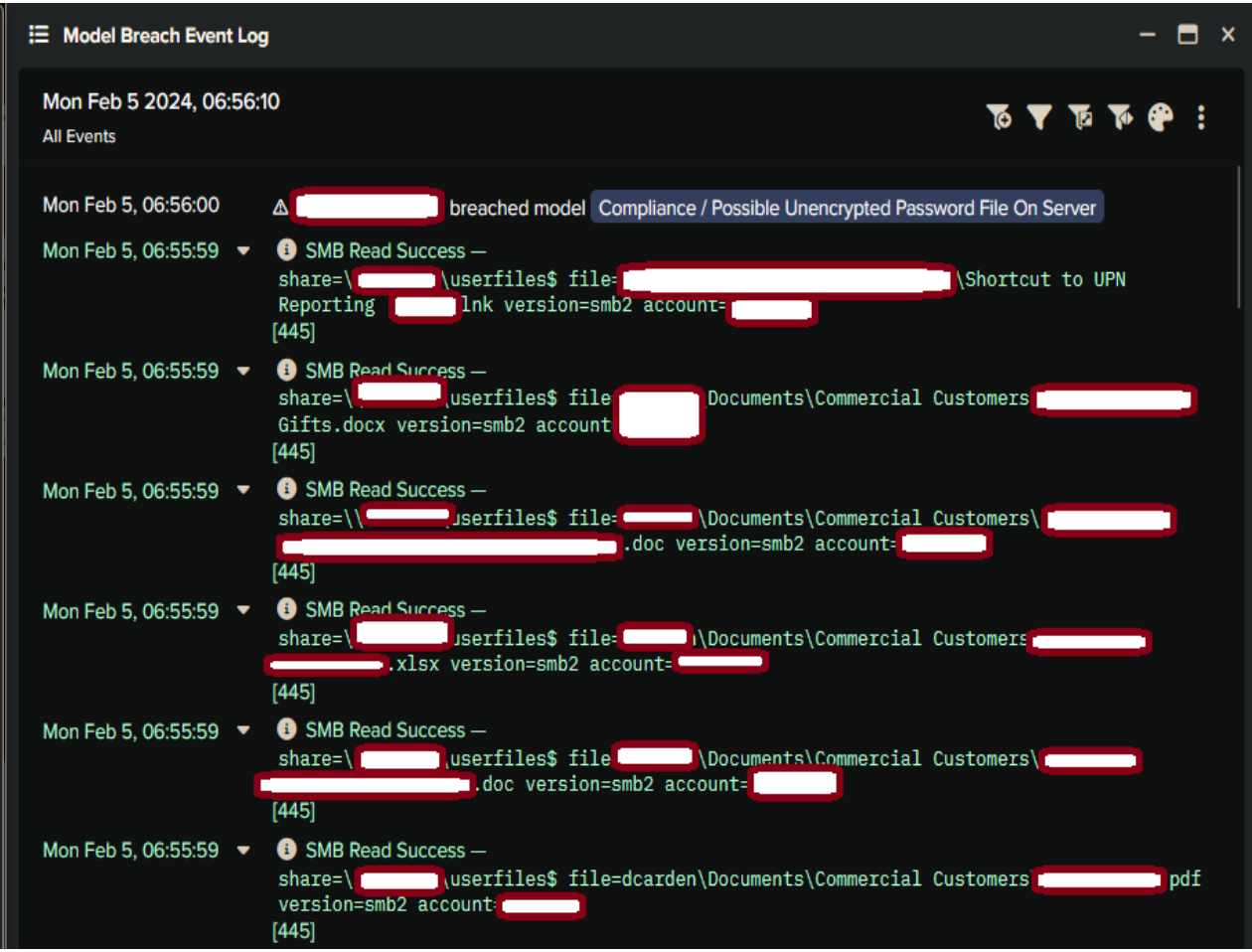


Cyber AI Analyst & Autonomous Response

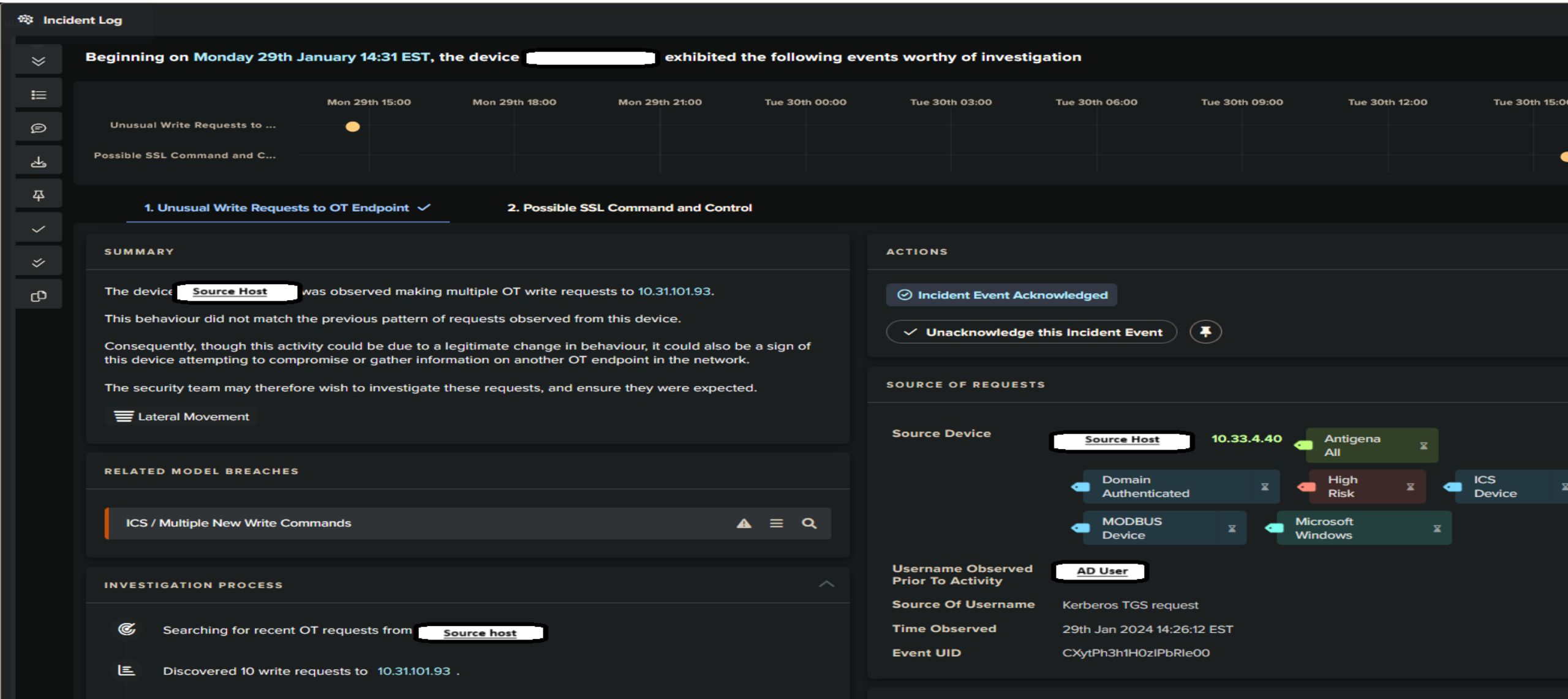
- Autonomously investigates and prioritize security events
- Pulls together related events and behaviors into Incident Reports using natural language narrative
- Reduces triage time by up to 92%
- Neutralizes in-progress attacks
- Makes thousands of calculations at machine speed

Cyber AI Analyst – IT Breach





Cyber AI Analyst – OT Breach



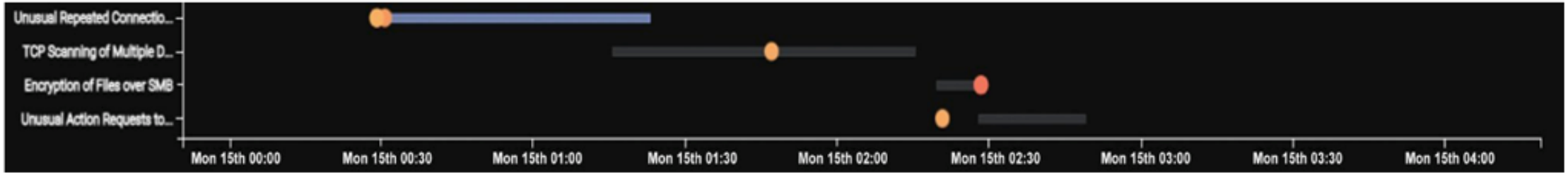
Conti Ransomware

Command and Control (C2)

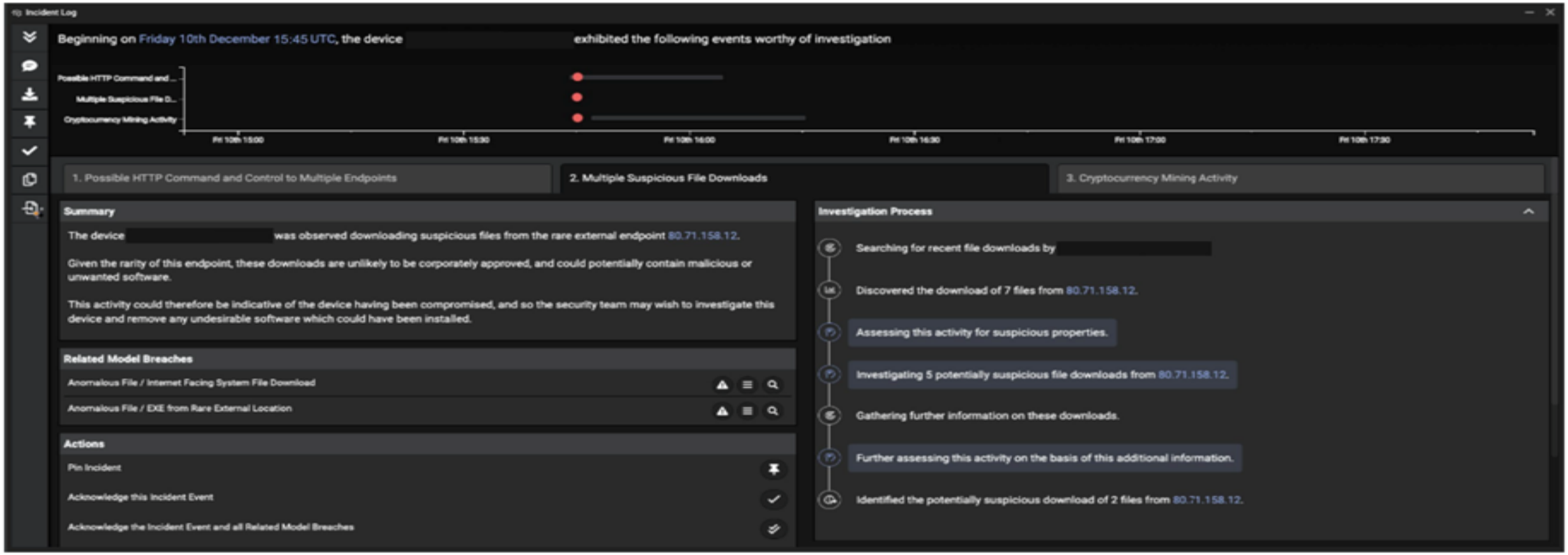
- Encrypted via SSL
- Ports 465, 995, 2222
- C2 Communications blocked

Encryption

- Compromised machine account
- Unusual SMB
- Unresponsive ICS device
- Ransomware note written



Conti Ransomware & Autonomous Response



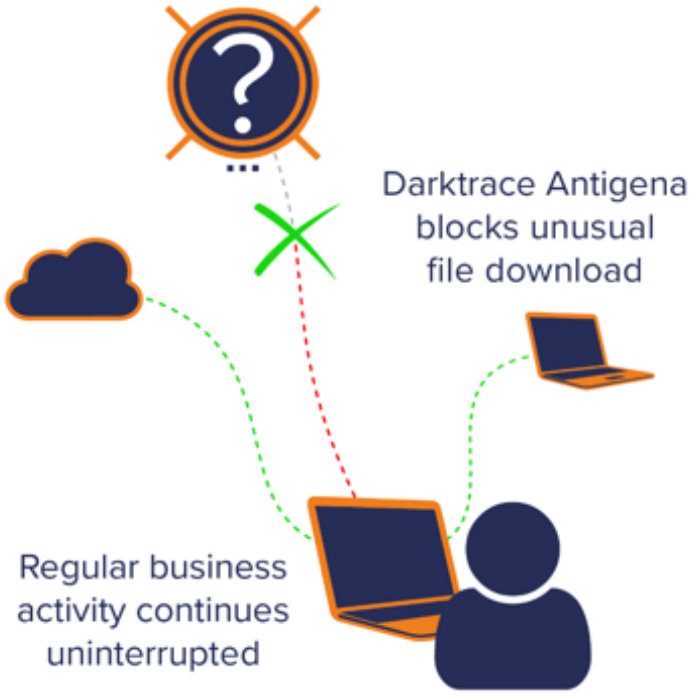
Sun Dec 12, 16:18:10 Antigena Response — Block connections to 164.52.212.196 port 88 for 2 hours [88]

Sun Dec 12, 16:18:08 connected to 164.52.212.196 [88]

A rare port for the HTTP protocol. A new connection externally on port 88

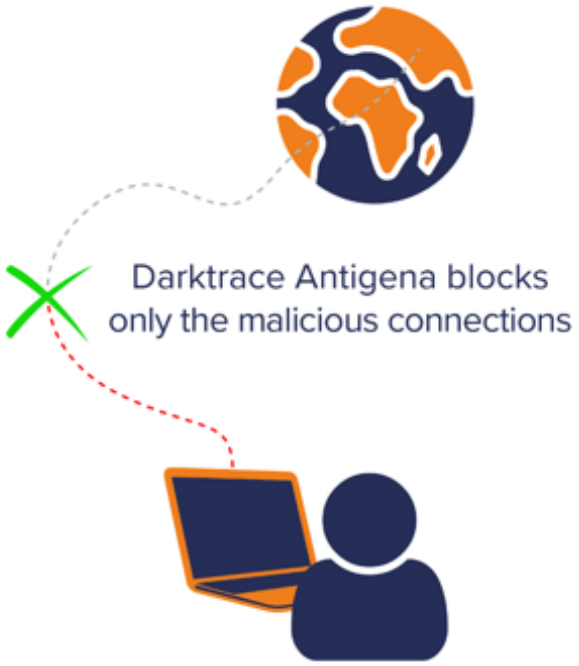
Stopping threats at multiple stages

1. Employee clicks on a link containing unknown malware



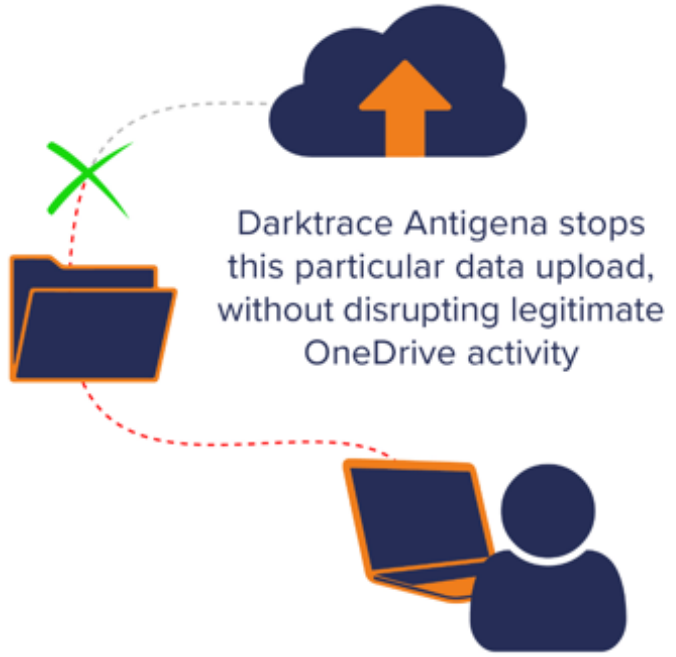
IF THE ATTACK CONTINUES...

2. Command and Control communication begins



IF THE ATTACK CONTINUES...

3. Endpoint attempts to upload sensitive documents onto OneDrive



Command and Control (C2) & beaconing

Initial Compromise

- Contractor initial entry point
- Long dwell time

Vulnerable HMI and ICS Historian

- Poorly segregated network
- Windows based VMs
- Running popular ICS software

Lateral Movement

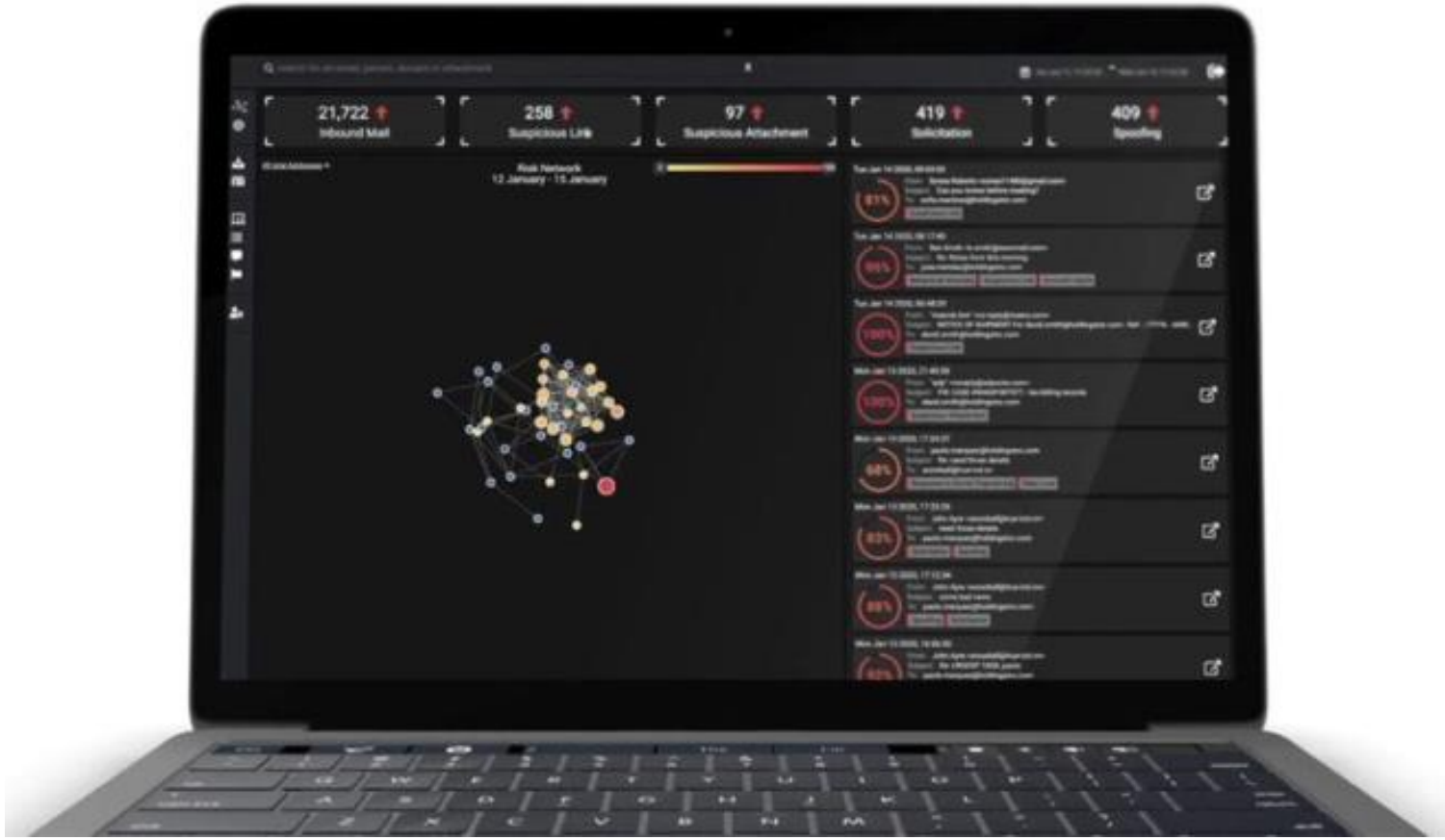
- Living Off The Land
- Obtaining admin privileges
- Abuse of remote procedure calls
- SetupPrep.exe

Example use cases in OT

- Unexpected IT/OT convergence and shadow devices
- APT and Zero Day exploits
- Contractors operating out of scope or with infected devices
- Supply Chain Compromise
- Physical Access granted through cyber attack
- Misconfigured / degraded PLC and other operational anomalies

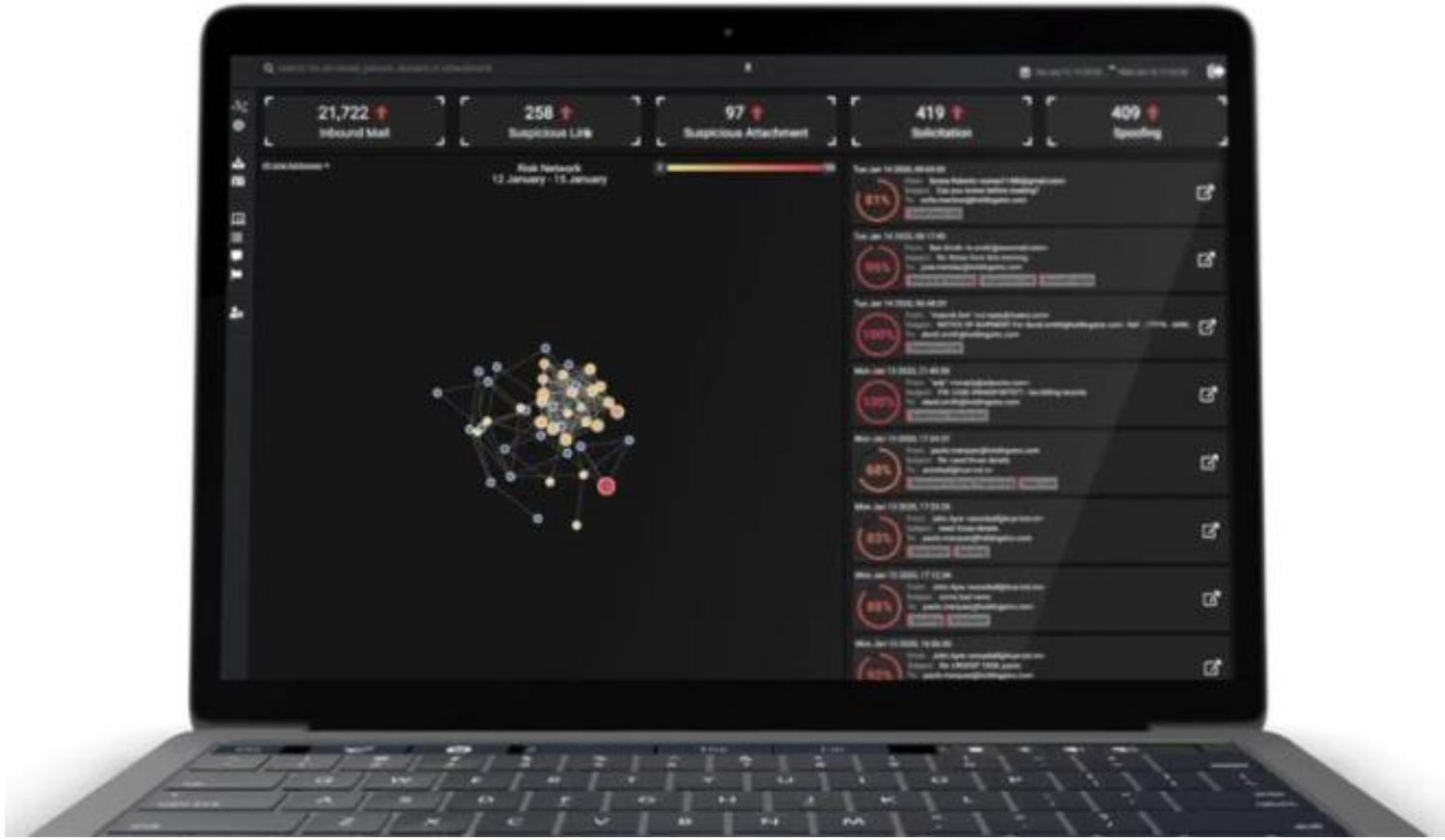
Email Protection + AI

- Creates behavioral profiles for every person
- Identifies relationships between senders and receivers
- Real-time determination of email legitimacy
- Configurable actions based on threat severity



Email Protection + AI (continued)

- Understands normal user behavior including account based behavior
- Meridian approved actions feed back into the AI, resulting in improved decision-making
- Autonomous response to lock attackers
- Includes impossible travel capabilities



CEO Targeted Phishing Email

Meridian: Password System Reminder

"Meridian IT Service - (No Reply)" <support@reudatur.com>

To: chrish@meridian.coop

100%

WED FEB 7 2024, 18:18:20

Held

- Credential Harvesting
- Internal IT Impersonation
- Phishing Link
- User Impersonation
- Low Mailing History
- No Association
- Spoofing Indicators
- Unknown Correspondent
- VIP

Hold message

ANOMALY INDICATORS

The sender appears to be impersonating an internal service by referencing **meridian** in their **display name**. This tactic allows attacks to avoid any validation checks which apply to this domain.

The email contains a highly suspicious link to a host **webemail.constructoin.best**. The host has a **100**% rarity score based on references in internal traffic. The link was **hidden** from the user and masked by text reading **Keep retktfMY Passvart1dword**.

HISTORY 0 Users 0 Days

ASSOCIATION 0 Users Never

VALIDATION SPF DKIM DMARC

Meridian + Darktrace better together

- Same great team, now with OT and email insight
- Accelerated by Artificial Intelligence (AI) and Machine Learning (ML)
- Increased visibility with IT, OT, and Email
- Meridian SOC informs and trains the ML algorithms
- Meridian audits recommended autonomous response
- Meridian to serve as a Managed Security Service Provider (MSSP) offering SOC capacities to Darktrace customers.
- 24/7, Excellent track record, US-based and deeply familiar with cooperatives

MERIDIAN COOPERATIVE

DARKTRACE

MERIDIAN CYBERSECURITY PARTNERS

ENDPOINT DETECTION & RESPONSE

CROWDSTRIKE

24/7 MONITORING

DARKTRACE

MULTIFACTOR AUTHENTICATION

CISCO DUO

NEXT GENERATION FIREWALL

FORTINET

VULNERABILITY SCANNING

Greenbone

PENTESTING-AS-A-SERVICE (PTaaS)

HORIZON3.ai

~~TRUST BUT~~ VERIFY

CYBER AWARENESS EDUCATION

KnowBe4

Human error. Conquered.

PATCH MANAGEMENT

ninjaOne

SIEM & HOST INTRUSION DETECTION SYSTEM

wazuh.

CONNECT WITH US

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