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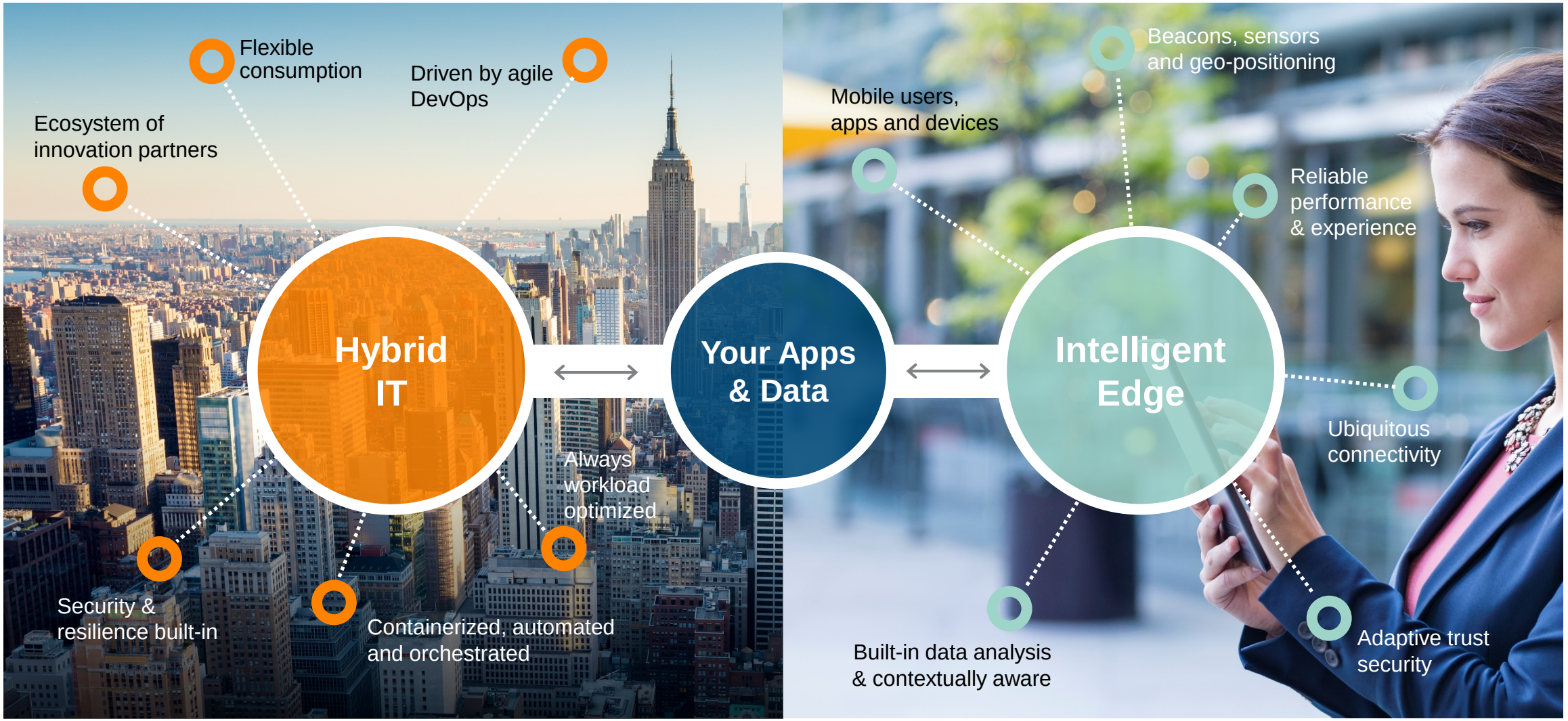
Intelligent Edge Protection

Sicherheit im Zeitalter von IoT und Mobility

September 26, 2017



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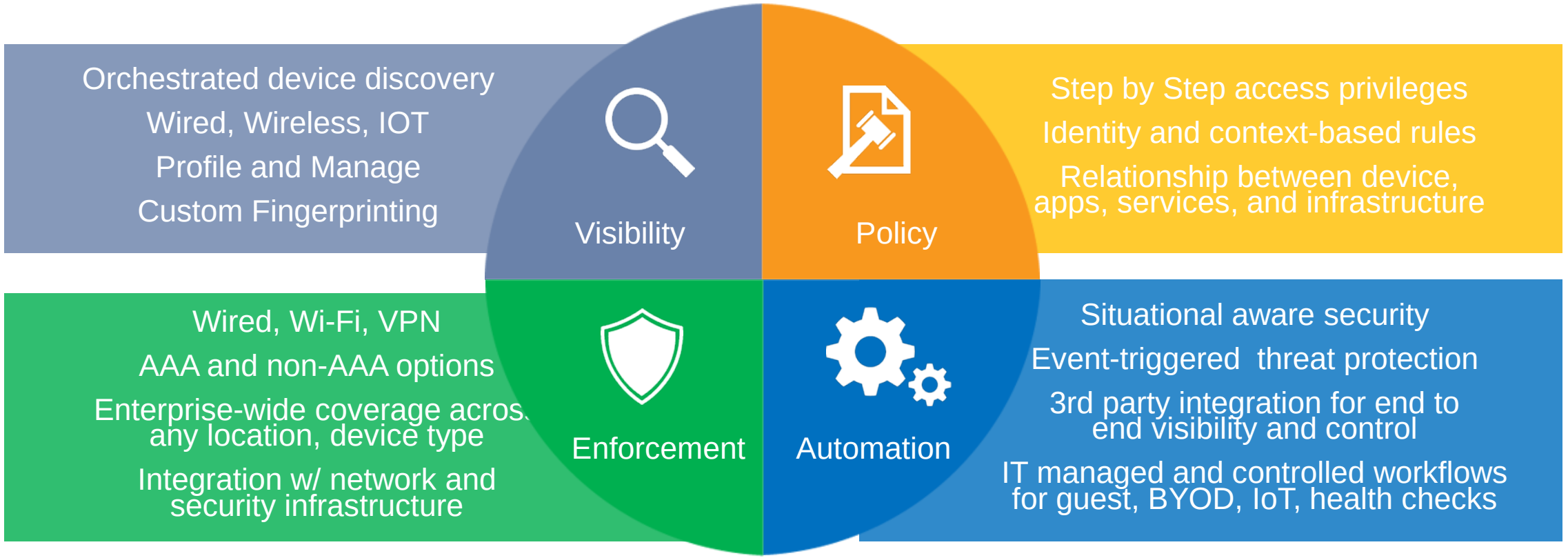
“Aruba takes untrusted devices and converts them into sources of trusted and actionable data”

The Fundamentals of Network Access

- **Profile** the Asset
  - Asset, location and basic posture information
  - Passive and active techniques
- **Validate** the Identity
  - Traditional network authentication methods 802.1x, MAC, PSKs
  - Leverage profile data as input to identity
  - Reference an existing asset register or start building one
- **Authorize** its Role
  - Lookup existing databases or trigger approval workflows
  - IT policies about security behavior, risk, access control
  - OT policies regarding SLA, auditing, compliance

The 4 stages of visibility and control



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ClearPass Policy Manager and NAC Solution

CLEARPASS POLICY MGR

Built-in:

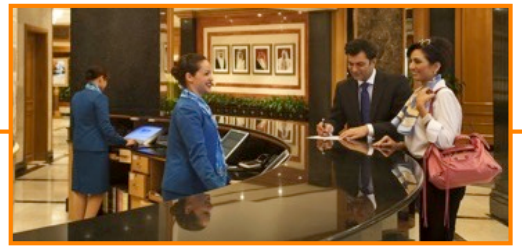
- Policy Engine
- RADIUS/CoA/TACACS
- Profiling
- Accounting/reports
- Identity store

REMOTE LOCATION

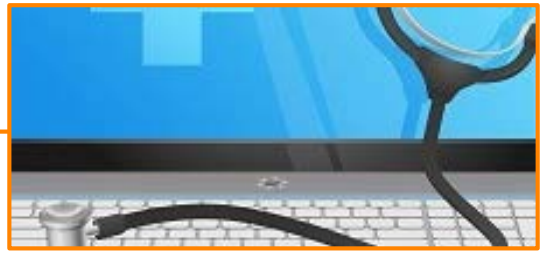
Expandable Applications

- BYOD onboarding
- Simple guest access
- Health assessments

Onboard



Guest



OnGuard

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Sources of Usable Context

Device Profiling

- Samsung SM-G900
- Android
- “Jons-Galaxy”

EMM/MDM

- Personal owned
- Registered
- OS up-to-date

- Hansen, Jon [Sales]
- MDM enabled = true
- In-compliance = true

Identity Stores

- Hansen, Jon [Sales]
- Title – COO
- Dept – Executive office
- City – London

Active Directory

Office 365

MySQL

Google Apps

SAML

OAUTH 2

Enforcement Points

- Location – Bldg 10
- Floor – 3
- Bandwidth – 10Mbps

Comprehensive Profiler Methods

Helps ensure accurate fingerprints

Passive Profiling

- DHCP Fingerprinting (MAC OUI & Certain Options)
  - DHCP Relay or SPAN
- HTTP User-Agent
  - AOS IF-MAP Interface, Guest and Onboard Workflows
- TCP Fingerprinting (SYN, SYN/ACK)
  - SPAN
- ARP
  - SPAN
- Cisco Device Sensor
- Netflow/IPFIX
  - Identifies open ports

Active Profiling

- Windows Management Instrumentation (WMI)
- Nmap
- MDM/EMM
- SSH
- ARP Table
  - SNMP
- MAC/Interface Table
  - SNMP
- CDP/LLDP Table
  - SNMP





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ClearPass Exchange

Granular traffic control with user and device data

Next-Gen Perimeter Defense

paloalto NETWORKS, ★ Juniper Networks, Check Point Software Technologies Ltd, Fortinet

Visibility and interactive control features

ArcSight An HP Company, splunk>, RSA SecurID, ServiceNow, QRadar, ★ Duo

SIEM, Automation, MFA

Client Devices

IoT Devices

MDM / EMM

airwatch, MobileIron, Google, Citrix, ★ Microsoft, BlackBerry

Network controls using real-time device data

Infrastructure

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Visibility into location and time with granular controls

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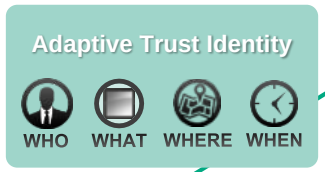
★ NEW

Demo Time

Use Case: IoT Device Security Incident



ClearPass

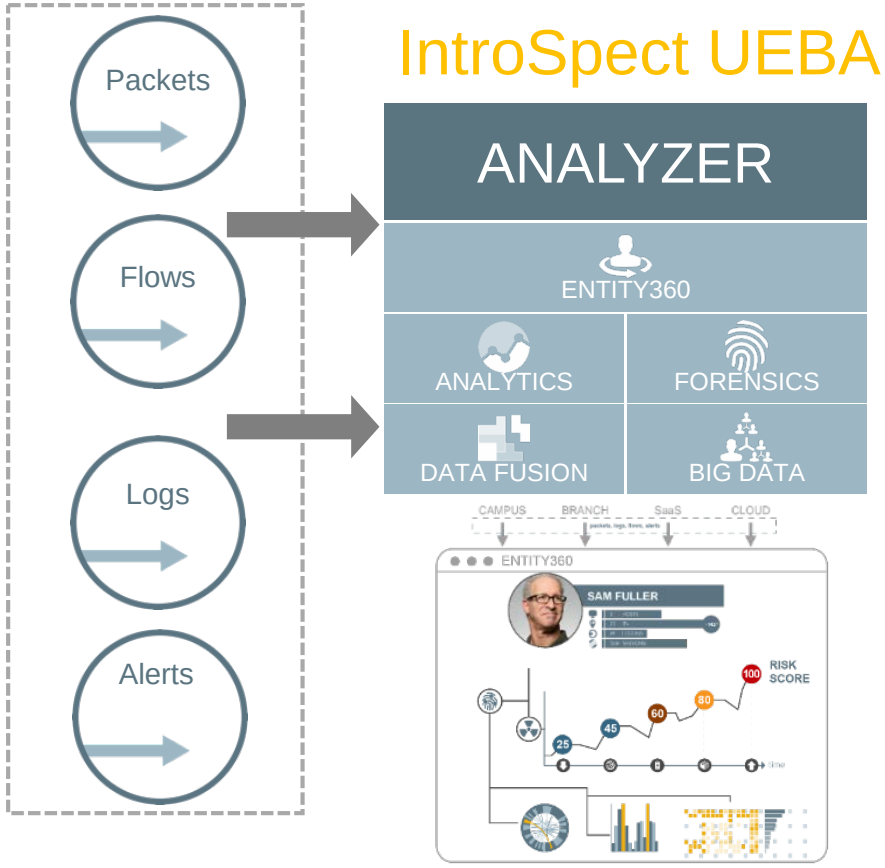
Operator — WHO

Asset DB — WHAT, WHERE, WHEN

- Update switch (sandbox role, shutdown port)
- Update FW policy for store
- Block access to update URL
- Generate notifications to OT and IT
- Update risk profile for other fridges
- Flag inventory application to review data

Vendor: **Selecta**
Class: **Beverage Fridge**
Role: **Store IoT devices**
Location: **Pike Place, Seattle**
Authentication: **MAC, SQL**
Mac Address: **AA:BB:CC:11:22:33**
Firmware Version: **12.35b**
Risk Profile: **High (open ports)**
Polling Frequency: **83 in last 5 mins**
BW Profile: **89% increase**

IntroSpect Overview



Entity360 Profile with Risk Scoring

- Most complete visibility
- 100+ supervised and unsupervised machine learning models
- Integrated forensics data
- Scales from small projects to full enterprise deployment
- Open, integrated platform
- Fast-start option

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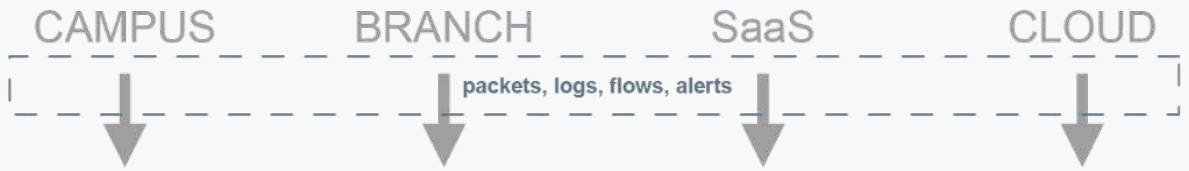
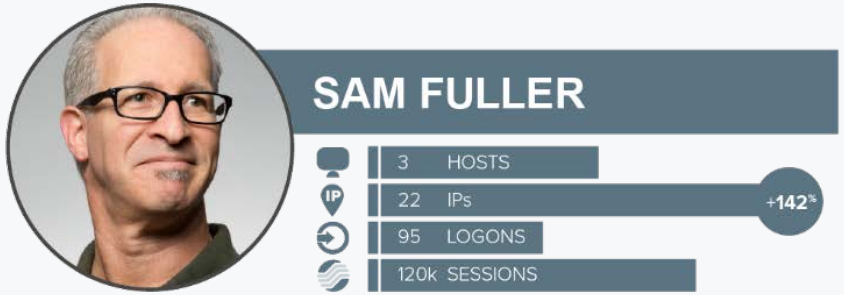
The Start: User/Entity View of Events

IP Address





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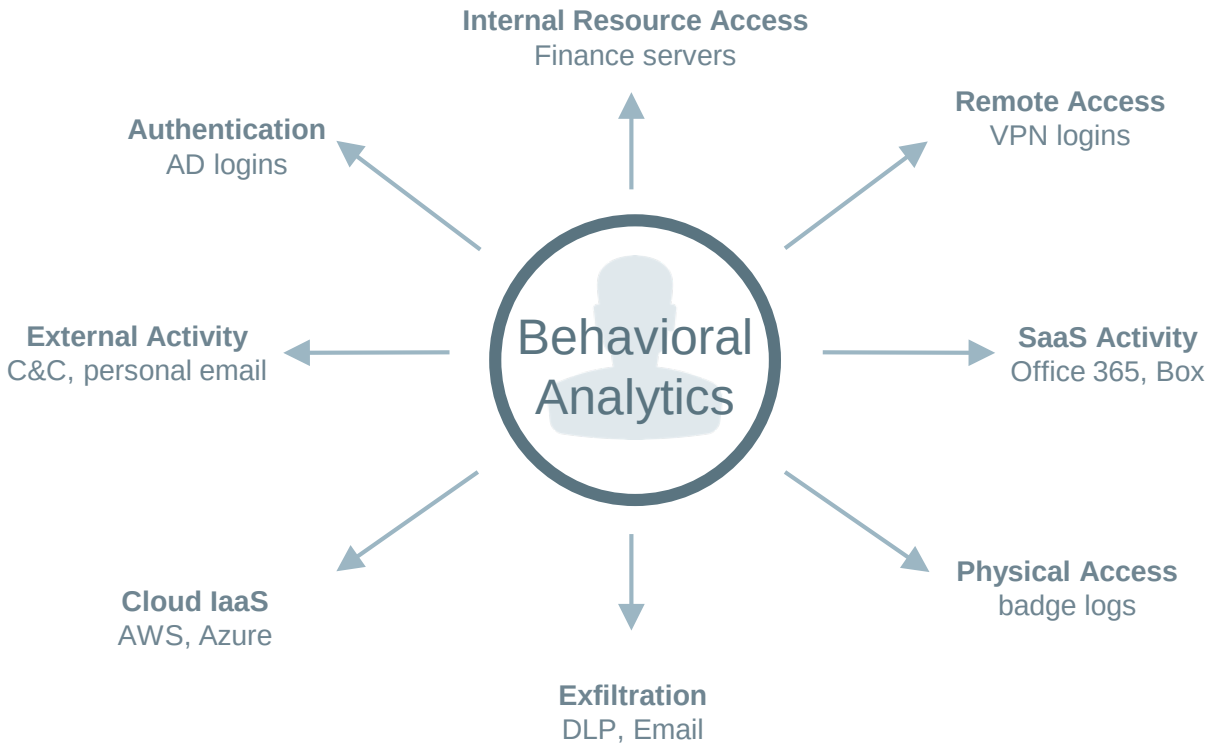
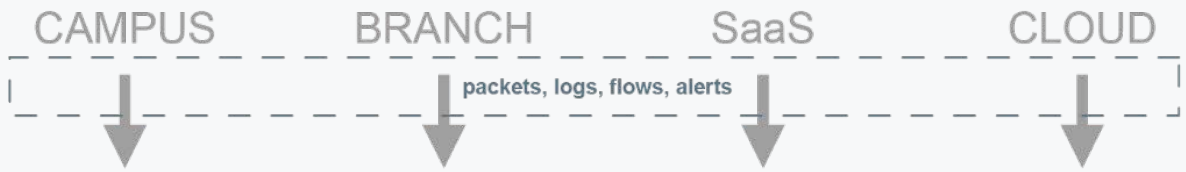
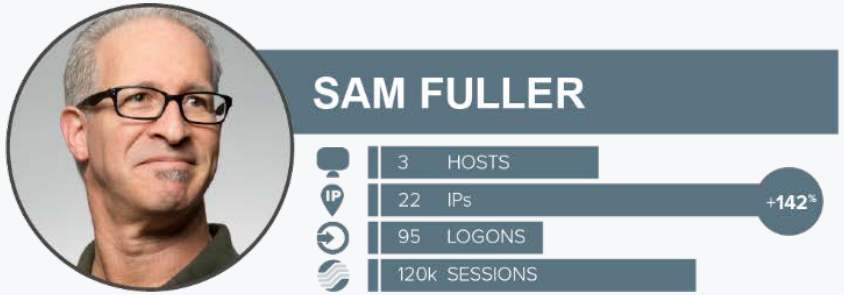
Behavior – Many Different Dimensions







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Basics of Behavioral Analytics

MACHINE LEARNING

UNSUPERVISED

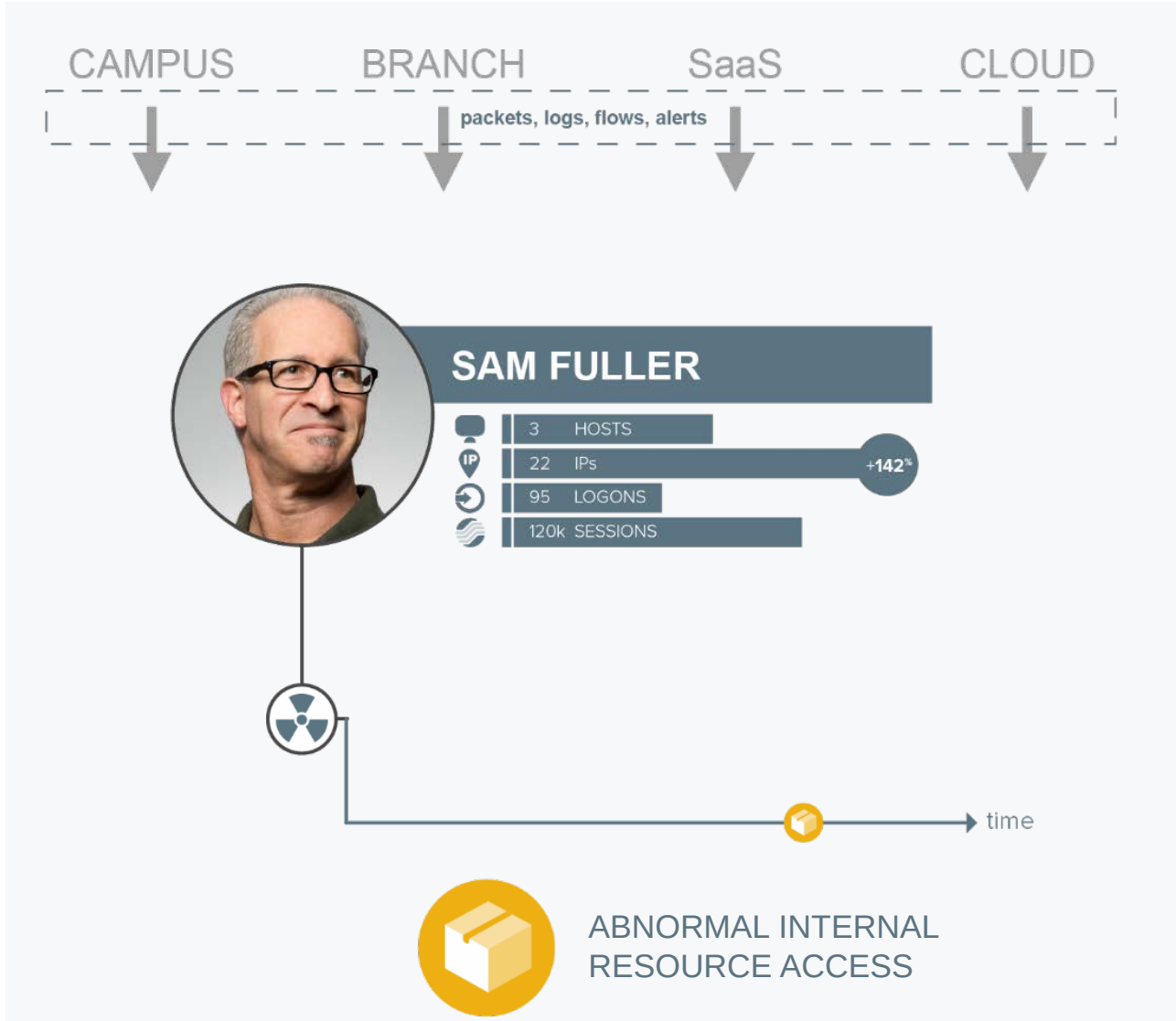
Behavioral Analytics

BASELINES

INDIVIDUAL
HISTORICAL

+

PEER GROUP
(e.g. from AD designation or profiling from ClearPass)



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Finding the Malicious in the Anomalous

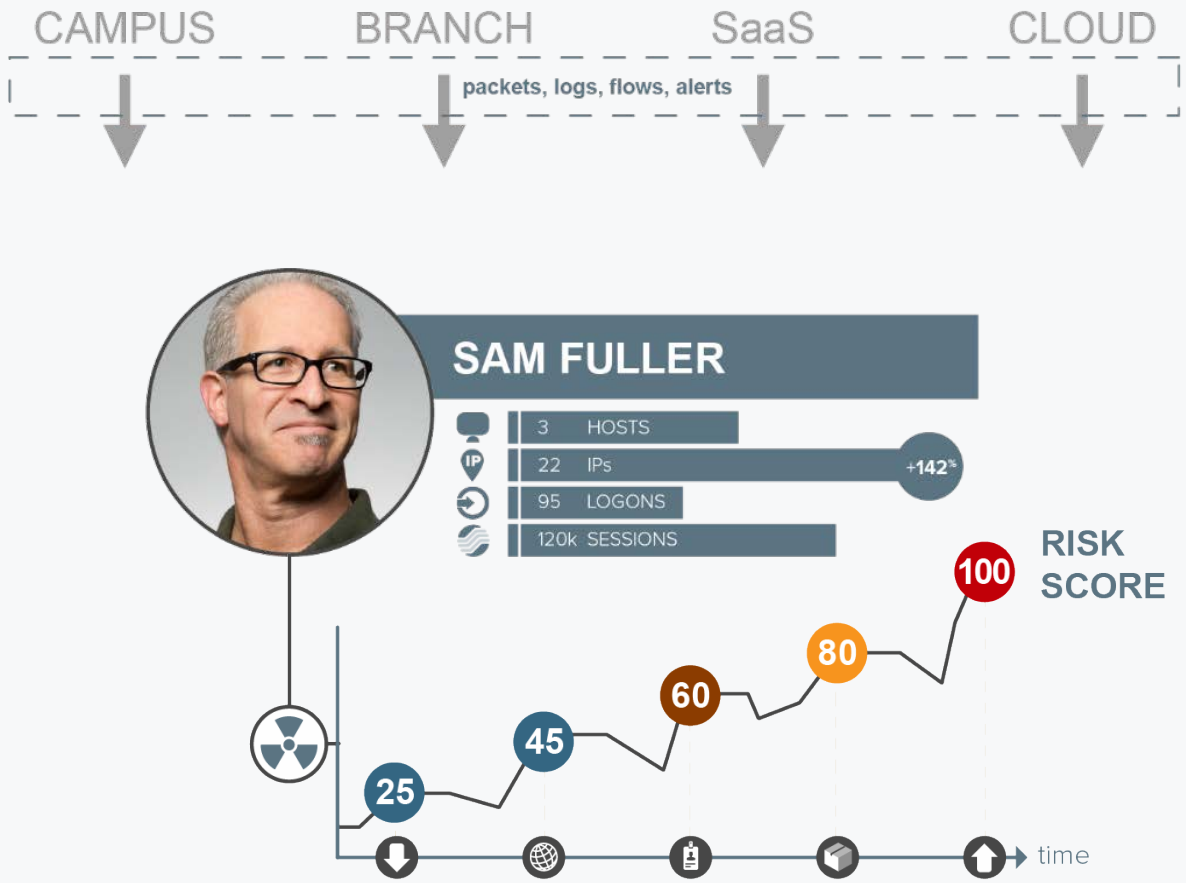
BUSINESS CONTEXT
High Value Assets
High Value Actors

MACHINE LEARNING

SUPERVISED
UNSUPERVISED

THIRD PARTY ALERTS

DLP
Sandbox
Firewalls
STIX
Rules
Etc.



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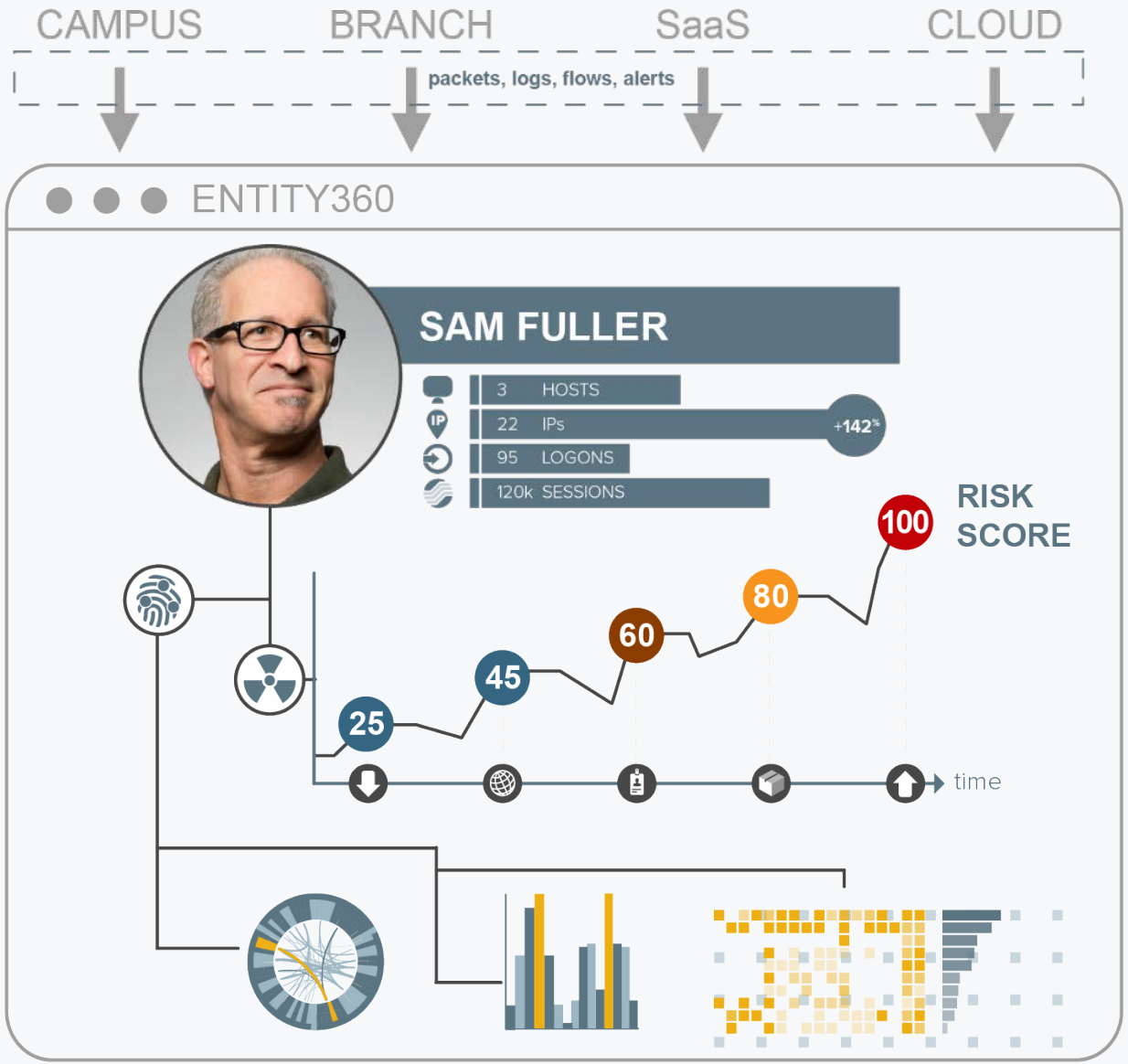
Accelerated Investigation and Response



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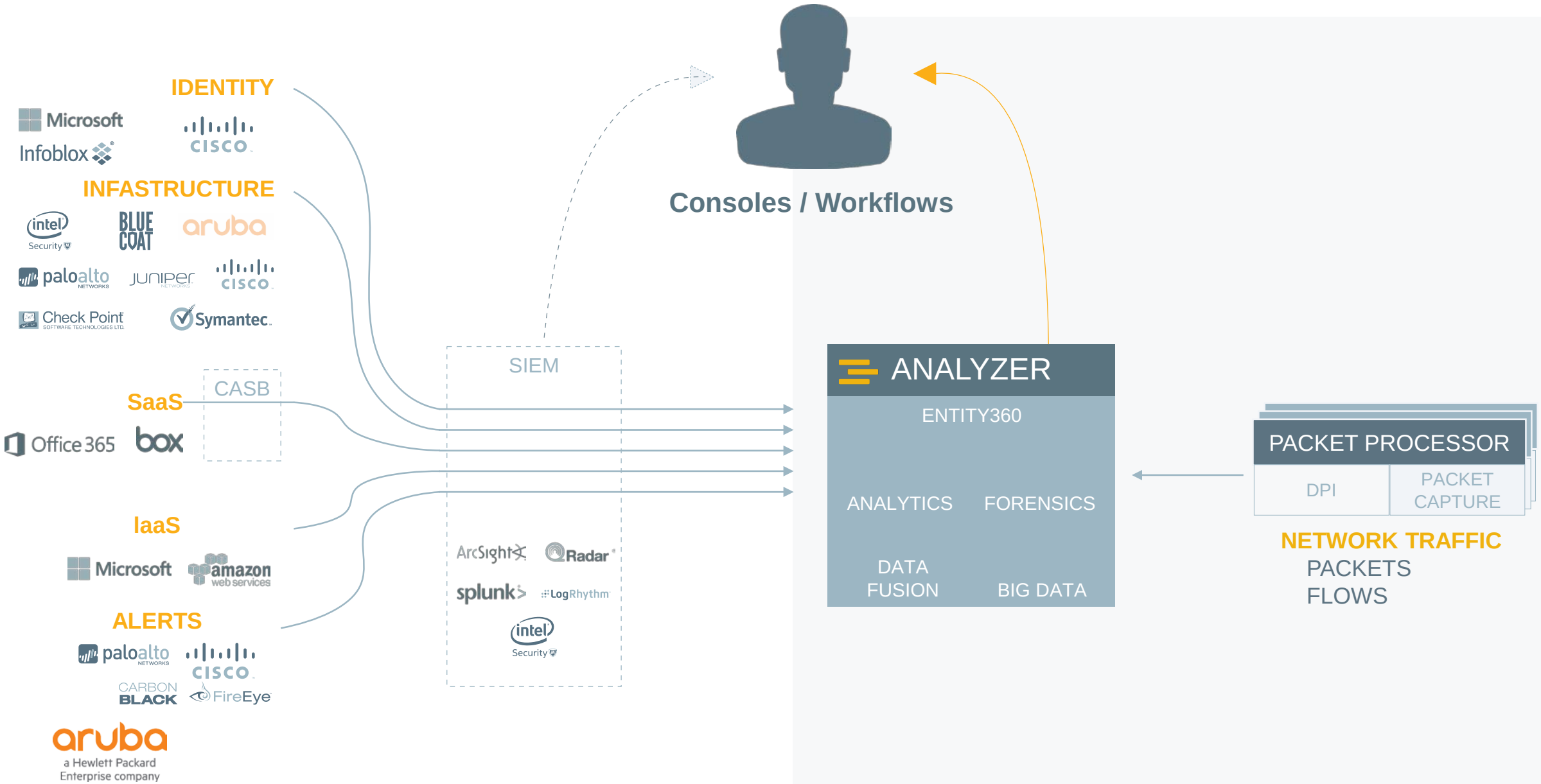
SOLUTION – INTEGRATED WITH SECURITY ECOSYSTEM



ClearPass + IntroSpect = 360° Protection!

1. Detect and Authorize

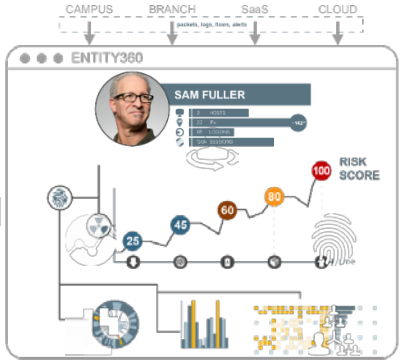
Wired/Wireless
Device Authentication

ClearPass Policy Manager

User/Device Context

Actionable Alerts

IntroSpect UEBA



Entity360 Profile with Risk Scoring

2. Monitor and Alert

3. Decide and Act

ClearPass Real-time Policy-based Actions

- Real-time quarantine,
- Re-authentication
- Bandwidth Control
- Blacklist

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www.arubanetworks.com/clearpass

www.IntroSpect.com

Demo Time

Why all of this?

- BYOD, NAC, Guest Access, OT, IT
  - Different level of scale…..again
  - Cannot VLAN or MAC whitelist your way out of IoT
  - Automation a requirement, not a nice to have

- Role Based Access Control is key
  - Extend WLAN roles to the LAN and VPN
  - Leverage controllers for low bandwidth LAN devices
  - Firewall at the edge to help with network segmentation

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