



Apresentações Aruba

Airheads Tech Talk

28 de março de 2019 | Penha Longa Resort

Agradecemos aos nossos Patrocinadores

Network+ e Support+++

Connect

Network





arubanetworks.com/airheads-community/

Agenda

Primeira Parte

09:00 **Registo e Café de Boas Vindas, *com o apoio da Tech Data***

09:30 **Boas-vindas**

Aruba Airheads Talk

José Tormo, Southern Europe Director, Aruba

Fernando Teixeira, Portugal Country Manager, Aruba

Rita Ribeirinho, Marketing Manager, Hewlett Packard Enterprise Portugal

Estudo de Caso da Universidade Católica Portuguesa

Helie de Chantérac, Professor & IT Department Director, Univ. Católica Portuguesa

Clearpass e Cibersegurança: Como controlar o desconhecido?

Borja Mendaza, Systems Engineer, Aruba

Agenda

Segunda Parte

11:00 **Intervalo para café, com o apoio da Arrow**

11:30 **Cape Networks e Experiência de utilização:** Tenha uma visibilidade 360°
Pedro Lourenço, Systems Engineer, Aruba

SD Branch: Simplifique a implementação e gestão de soluções distribuídas
Rafael Rivero, Systems Engineer, Aruba

A importância das comunicações na competição

Elisabete Jacinto, Piloto. Vencedora do Rali África Race na categoria de Camiões

Jorge Gil, Team Manager da Equipa Elisabete Jacinto

Fernando Teixeira, Portugal Country Manager, Aruba

13:00 **Almoço, com o apoio da CPC DI**

14:30 Encerramento previsto



Airheads Talk

À conversa sobre a inovação e o setor das redes

José Tormo, Southern Europe Director, Aruba

Fernando Teixeira, Portugal Country Manager, Aruba

Rita Ribeirinho, Marketing Manager, Hewlett Packard Enterprise Portugal

ROI SUMMARY FOR A MOBILE FIRST NETWORKING SOLUTION

5 Year ROI

360%

Average Annual Benefits
(per 100 Users)

\$126,906

Payback Period

9 Months

ACCESS ARCHITECTURE



**Campus
Controller**



ClearPass



**Access
Points and
Switches**



**User and
Devices**

AirWave



**User
Experience
Insight**



ALE



NetInsight



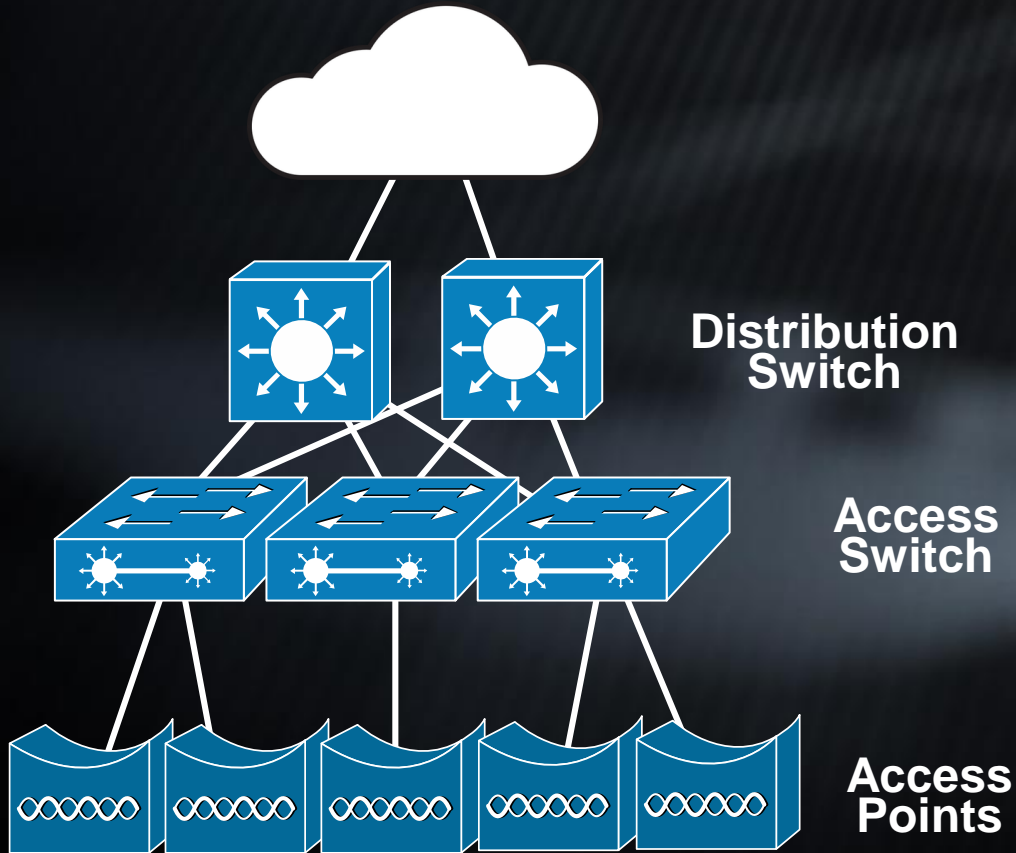
IntroSpect



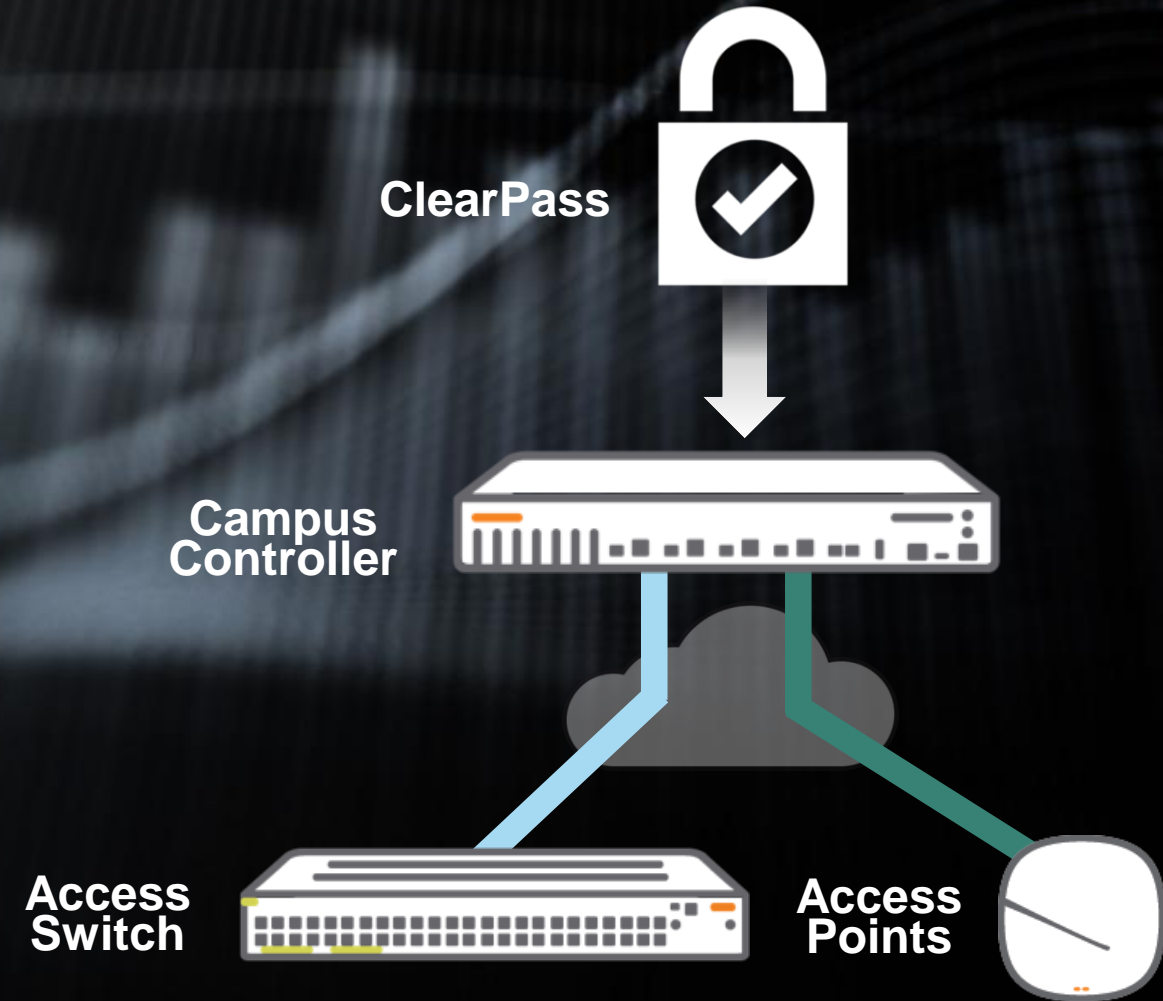
Meridian



POLICY OVERLAY



Previous Model



New Model

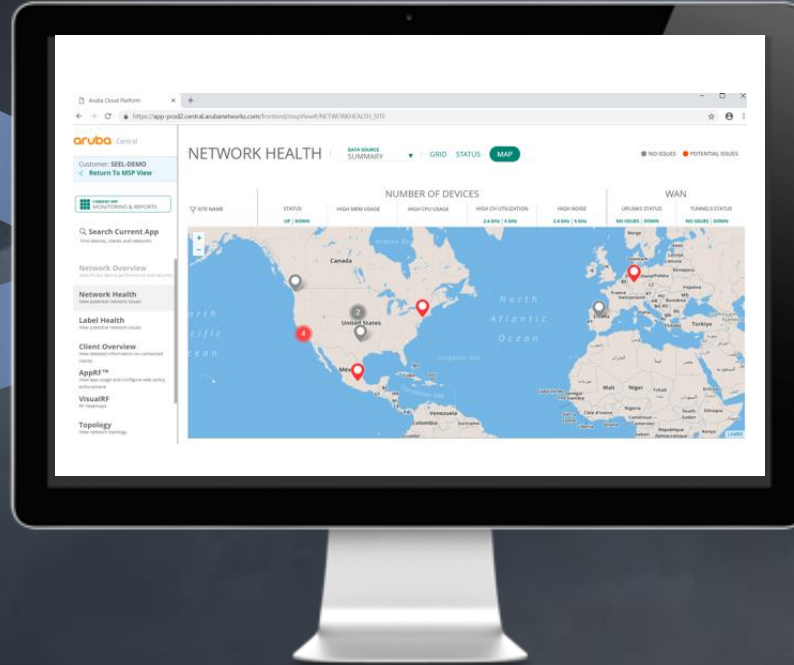
MARKET NEED AND DRIVERS



Branch



Branch



ARUBA SD-BRANCH



Cloud and SaaS



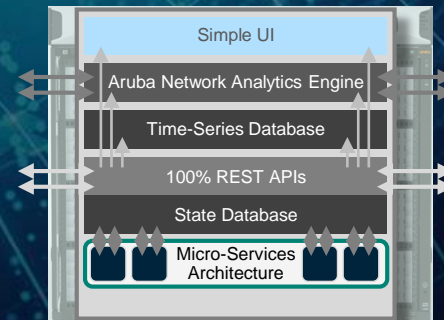
HQ Data Center

INNOVATIVE PORTFOLIO

HARDWARE



SOFTWARE



AOS-CX

ANALYTICS & AUTOMATION



Network
Analytics
Engine



NetEdit



a Hewlett Packard
Enterprise company

Obrigado



ClearPass e Cibersegurança

Como controlar o desconhecido?

Borja Mendaza
Aruba Systems Engineer, HPE

Where are the threats coming from?



Aruba 360 Secure Fabric

Open Analytics-driven Security for the Mobile, Cloud, and IoT Era

ClearPass | IntroSpect

Discover, Authorization and Integrated Attack Detection and Response

Analytics

Supervised and Unsupervised Machine Learning

Other Infrastructure



Aruba Mobile First Infrastructure with Aruba Secure Core

Secure Boot | Encryption | DPI | VPN | IPS | Firewall

Aruba 360 Secure Exchange



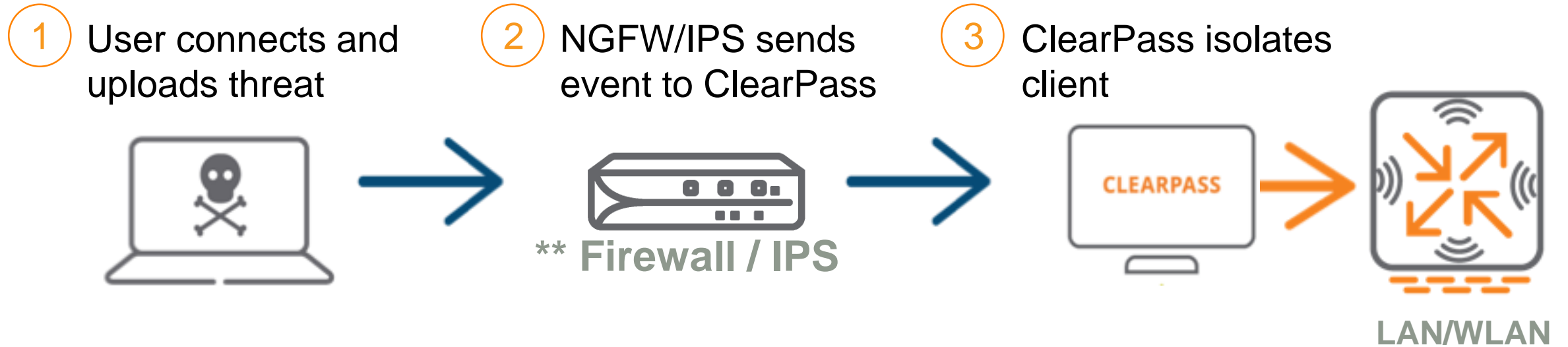
360° active cyber protection and secure access
from the edge, to the core, to the cloud—for any network

Aruba 360 Secure Fabric

ClearPass



Ingress Threat Protection Using Ingress Event Engine



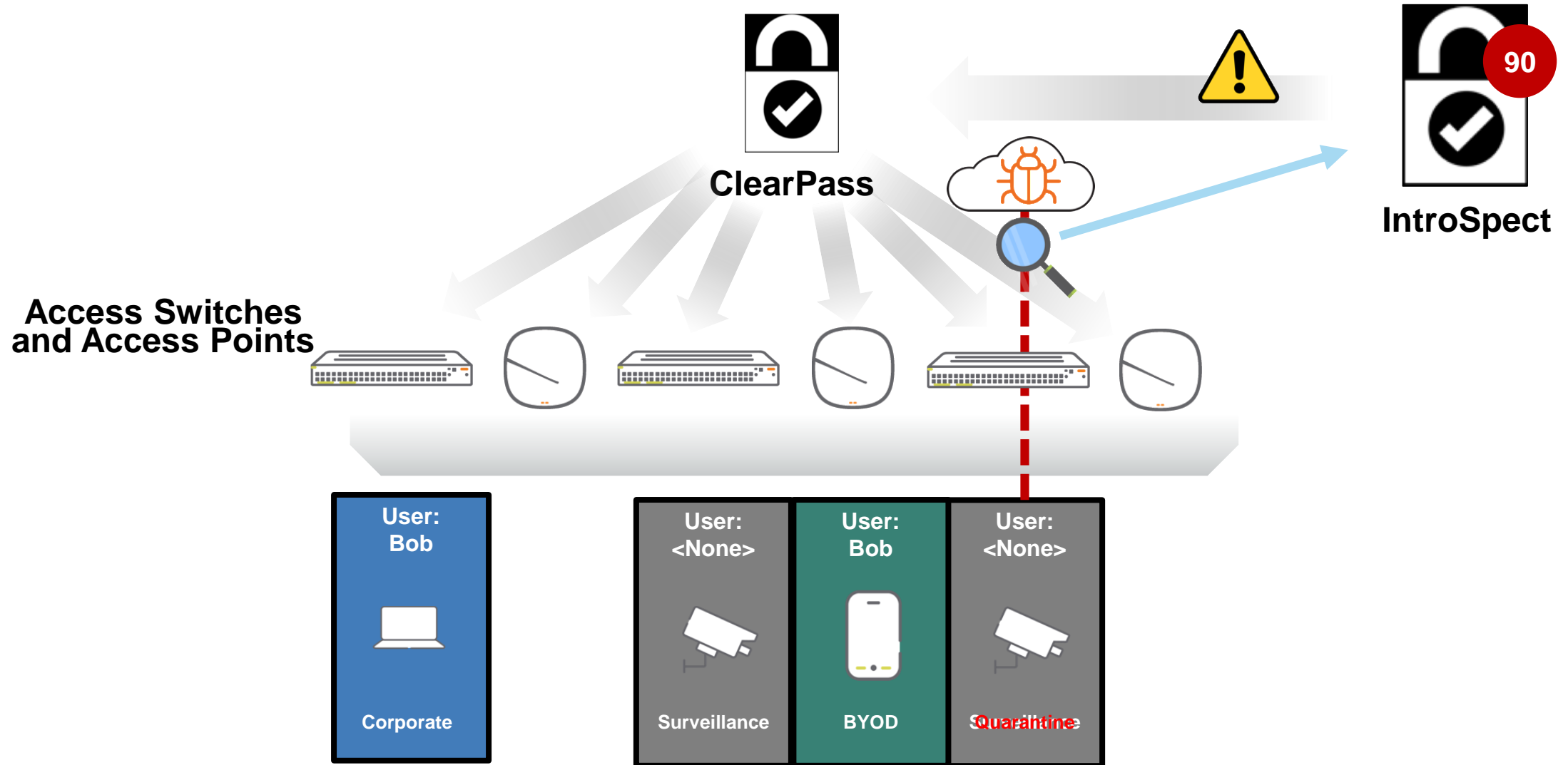
Perform actions based on real-time threat detection

- Offers enhanced user experience as ClearPass can initiate user notifications, help-desk tickets, and update third-party security solutions
- ** Device in step 2 can be an on-premises MDM/EMM, SIEM, etc.

Context-Aware, Network-Driven **Secure Access**



Unified Policy Definition



Understanding Connectivity Options

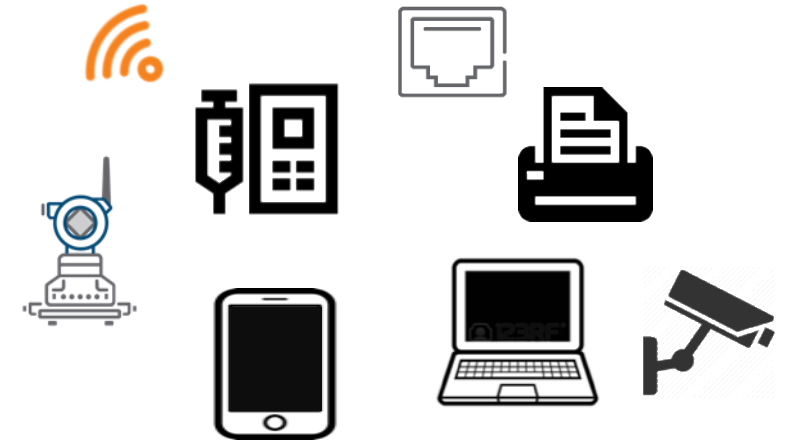
Customers want to **manage**
what devices connect



Only some support .1X
suplicants



50% of IoT may be
wired



- ClearPass supports any customer Infrastructure and need

CLEARPASS: GETTING CUSTOMERS STARTED



Guest

Policy
Engine

Reporting

3rd Party
Integrations

TACACS+

Onboard

Device onboarding and privileges

OnGuard

Device health checks

Why ClearPass Onboard?



- Automated configuration:
Network settings and certs
- Built-in certificate authority (CA):
Including user and device data
- Can include in MDM/EMM
workflows
- Add security without increasing
IT workload or user frustration

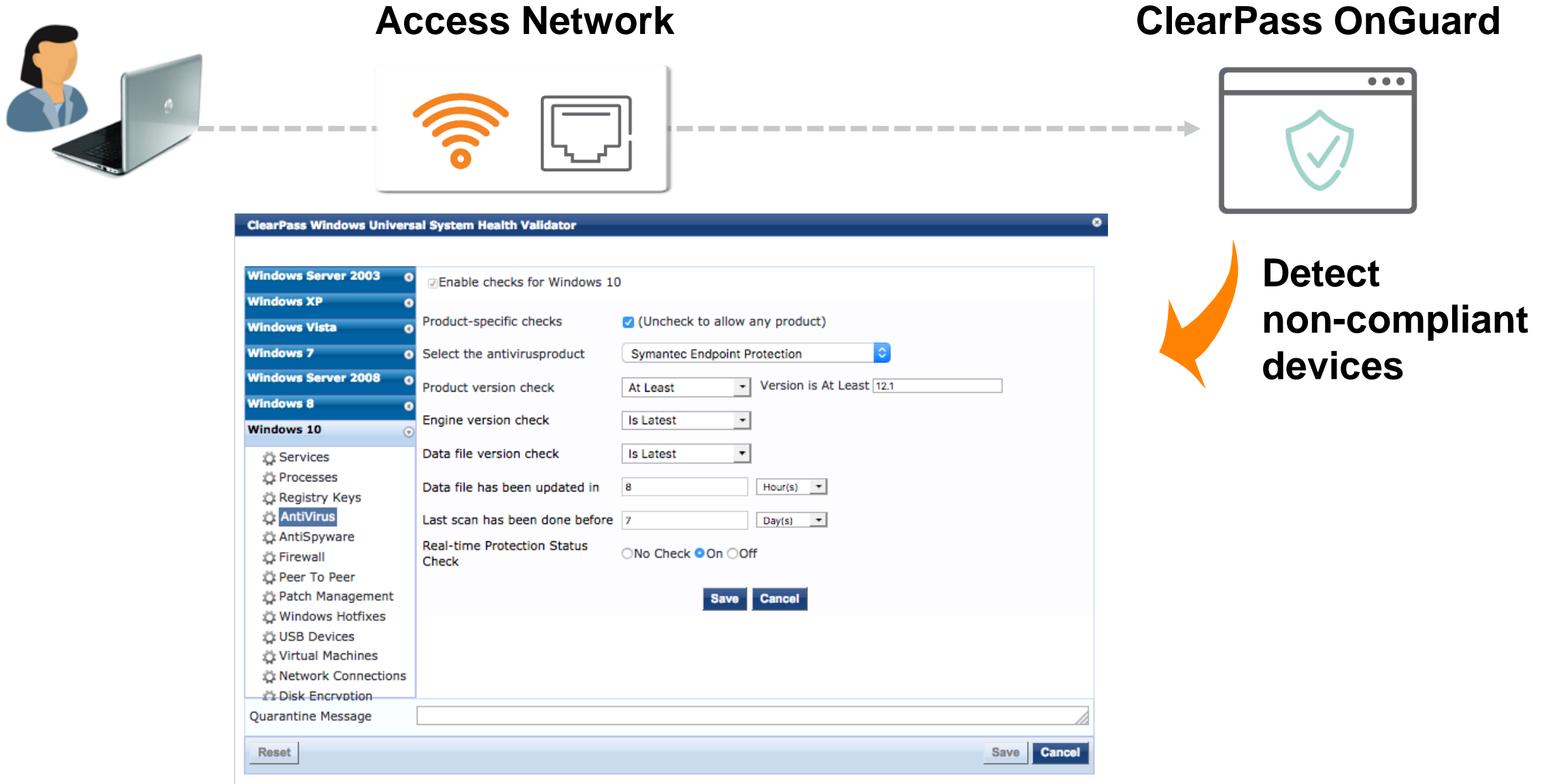
Why ClearPass OnGuard?



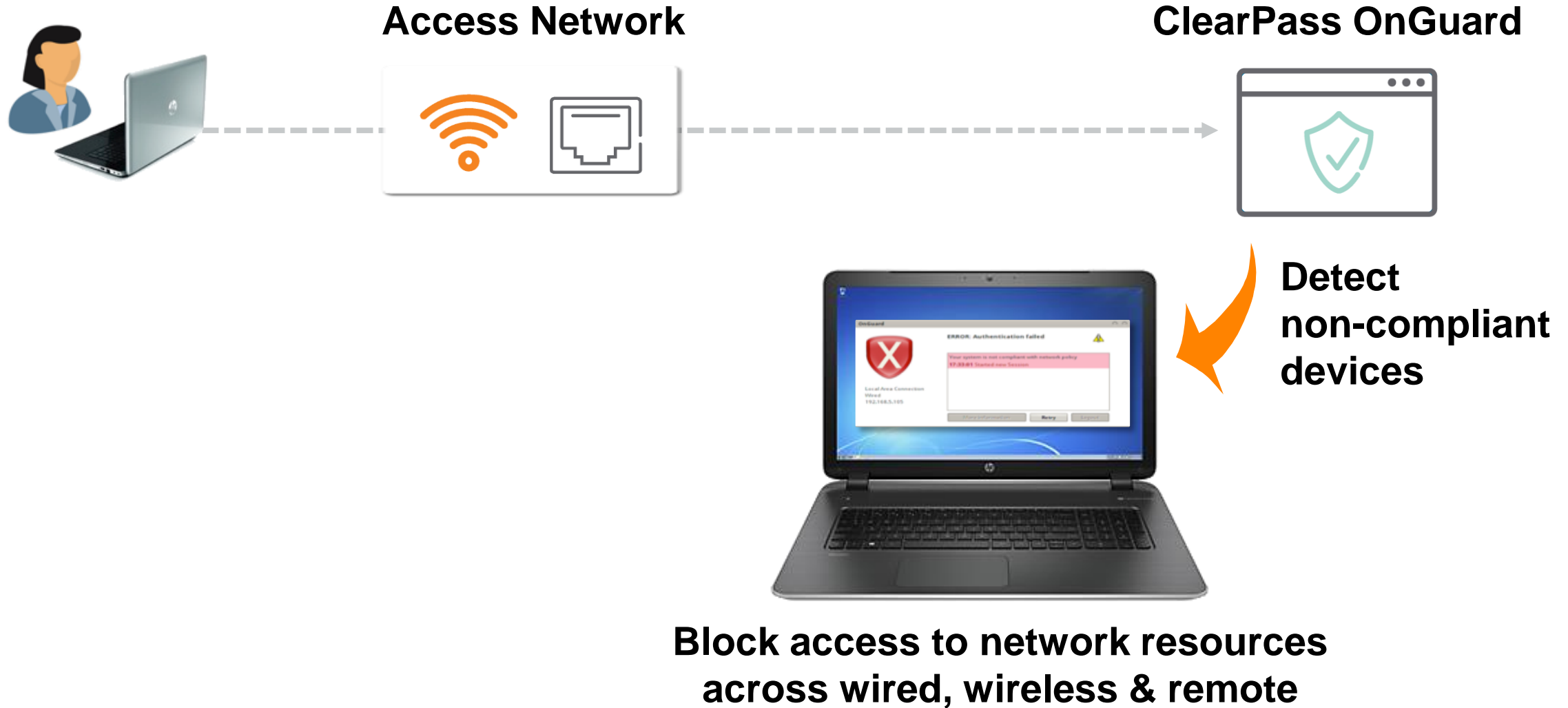
Endpoint Health

- Check health before network access
- Multiple operating systems supported
- Persistent and dissolvable agents
- Can also be used with BYOD workflows

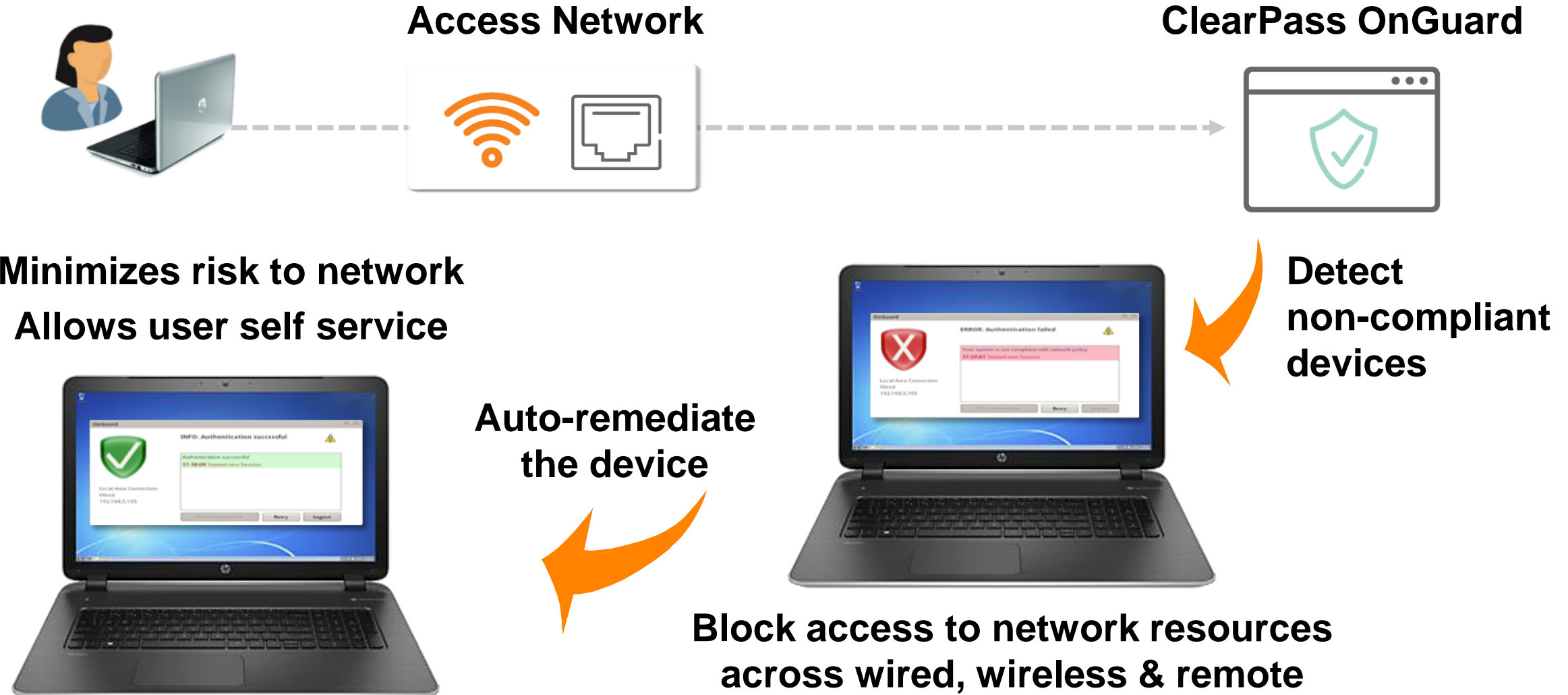
Automate Device Health Checking



Automate Device Health Checking



Automate Device Health Checking



ClearPass Policy Manager 6.8.0 **New version Highlights**

- Improved Conflict Detection
- Improved Posture Support
 - Agentless Support
 - Improved Linux Support
- Product Integrations & Communication Improvements
 - RadSec
 - WPA3
 - MPSK
- Security Hardening
- UI/UX Tweaks

Aruba Multi Pre-Shared Key (MPSK)

- Per-device passphrase, role and owner for headless devices
 - Eliminates IT/user workload to change traditionally shared passphrases if any device is compromised
- Reduces security breaches
- Supported with ArubaOS 8.4+ on Mobility Controllers & Instant
- Not designed to be a replacement or alternative for secure authentication or full capable devices (devices with .1X supplicant)

New device being created by **alice@aruba.io**.

Student Device Registration

* MAC Address:

[Where do I find this?](#)

* Device Name:

[Give this device a nickname \(example: "timc-xbox"\)](#)

Wi-Fi Password:

☒ Use a unique Wi-Fi password for this device

Device Sharing:

☐ Enable Device Sharing

[Share your device with roommates and friends!](#)

* Device Type:

Game Console

Notes:

* Terms of Use:

☐ I am responsible for this device and accept the [terms of use](#)

Register

* required field

[Back to devices](#) [Manage devices](#)



Aruba IoT




 Ttc7r49J


med-tech@aruba.io 

 med-tech



 7T8dJHDp


alice@aruba.io 

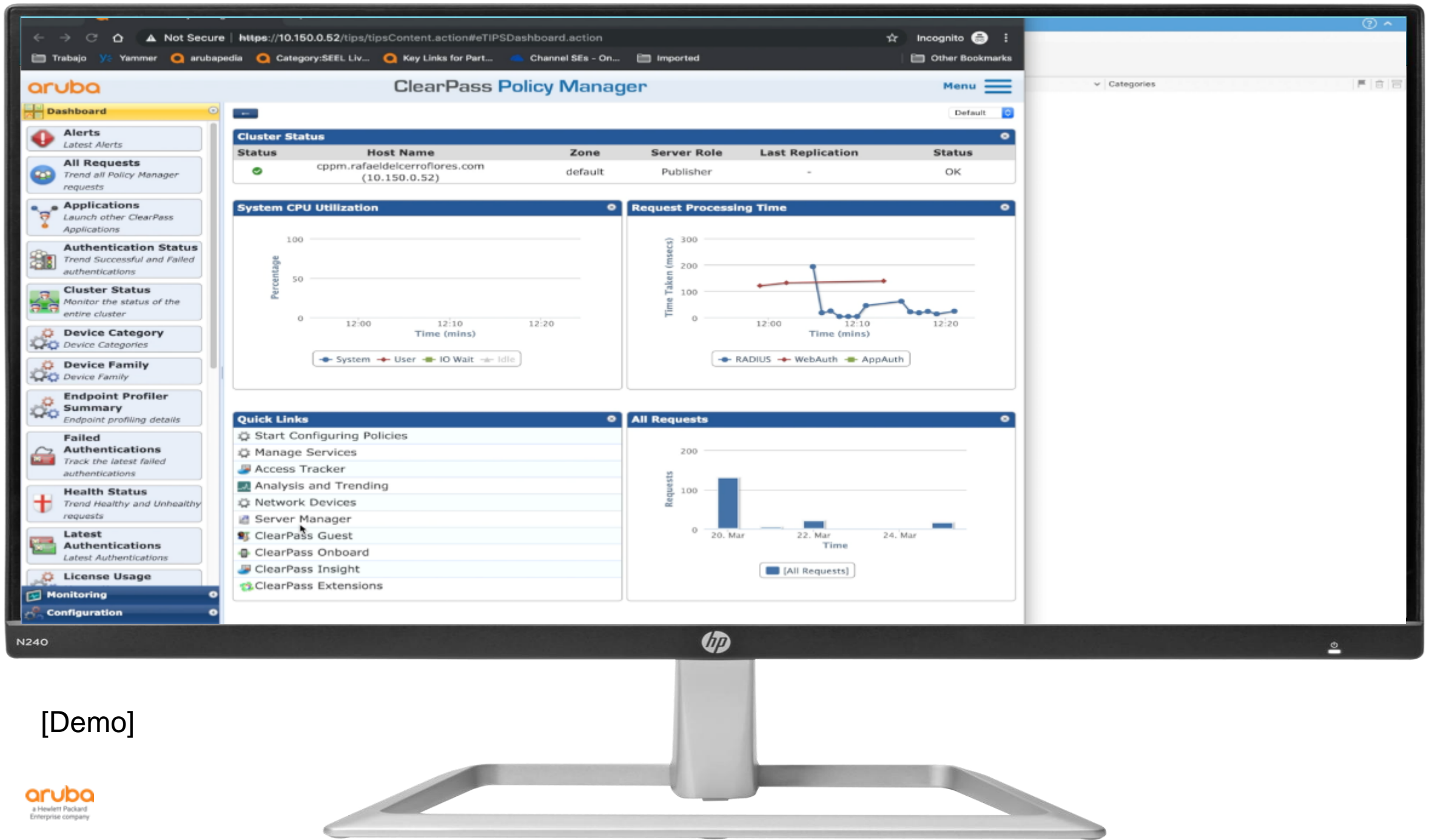
 game-console



 8VFL2nRa

asmith@siemens.com 

 bldg-infra



[Demo]



a Hewlett Packard
Enterprise company

IntroSpect

User and Entity Behaviour Analytics

People Move. Security Must Follow.

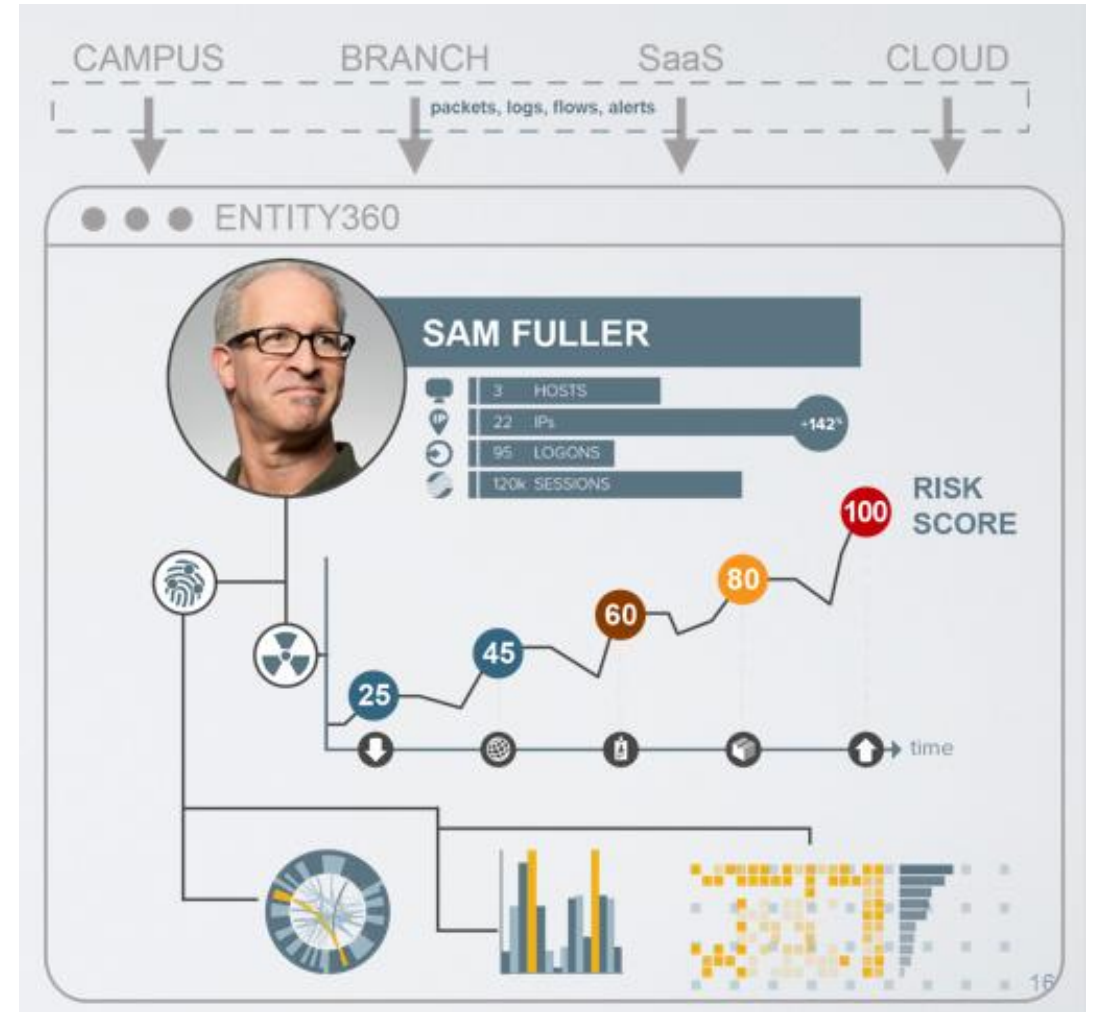
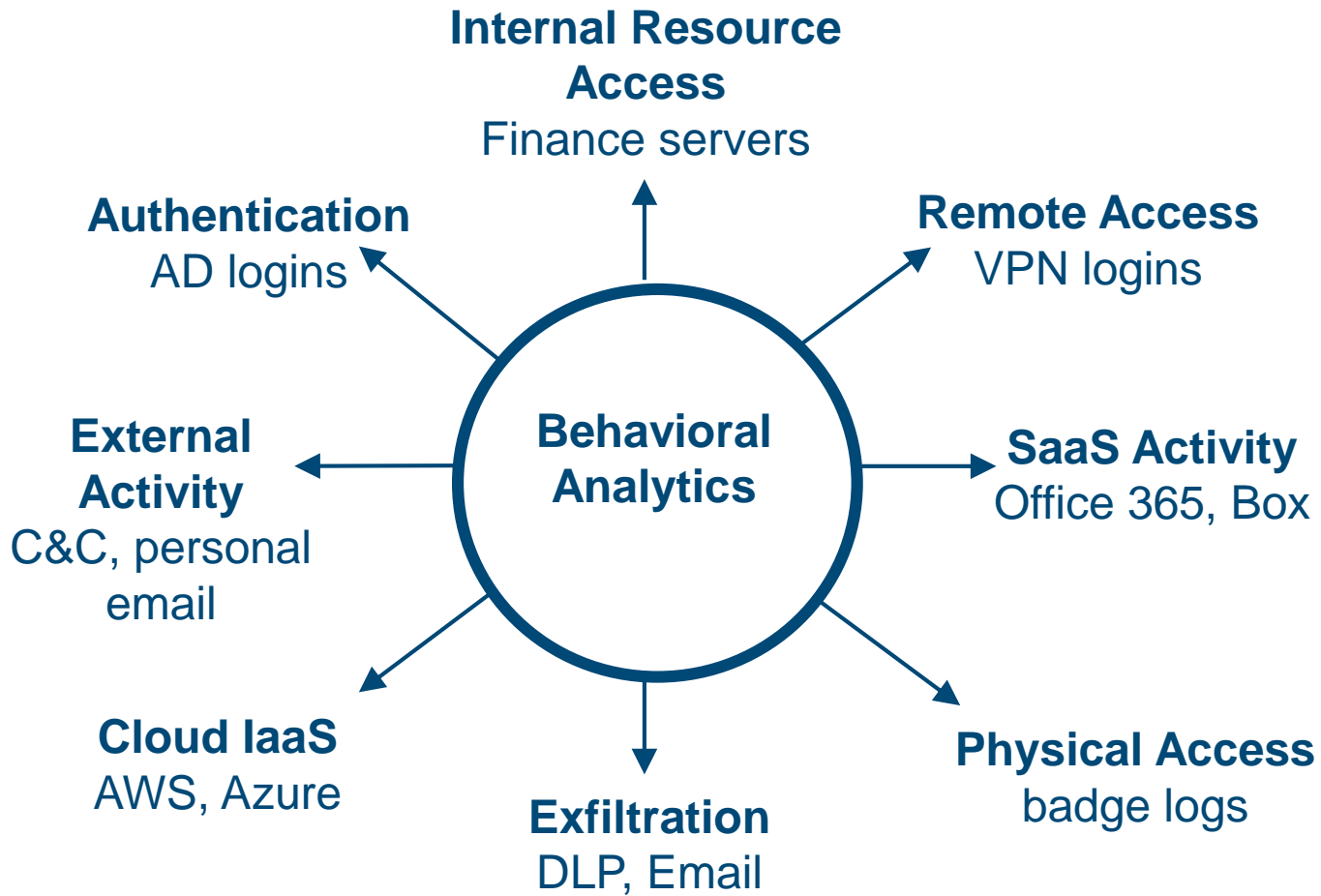


**90% of the security budget is
spent on the perimeter**

People Move. Security Must Follow.

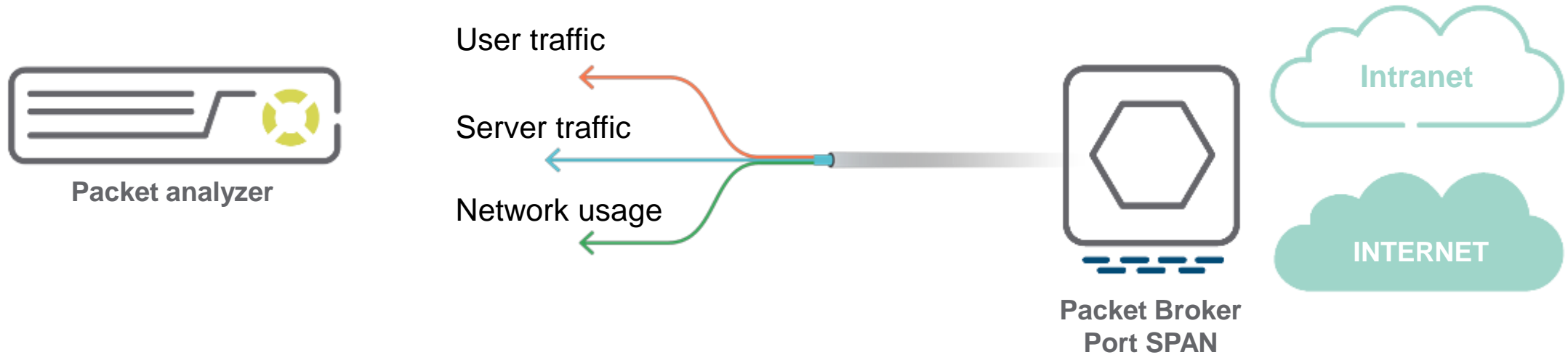


How does IntroSpect define the behaviour?



Behaviour analytics

What is a NTA solution? (Network Traffic Analysis)



Advantages

- Checks all the network traffic
- It can perform packet analysis
- Internal and external traffic

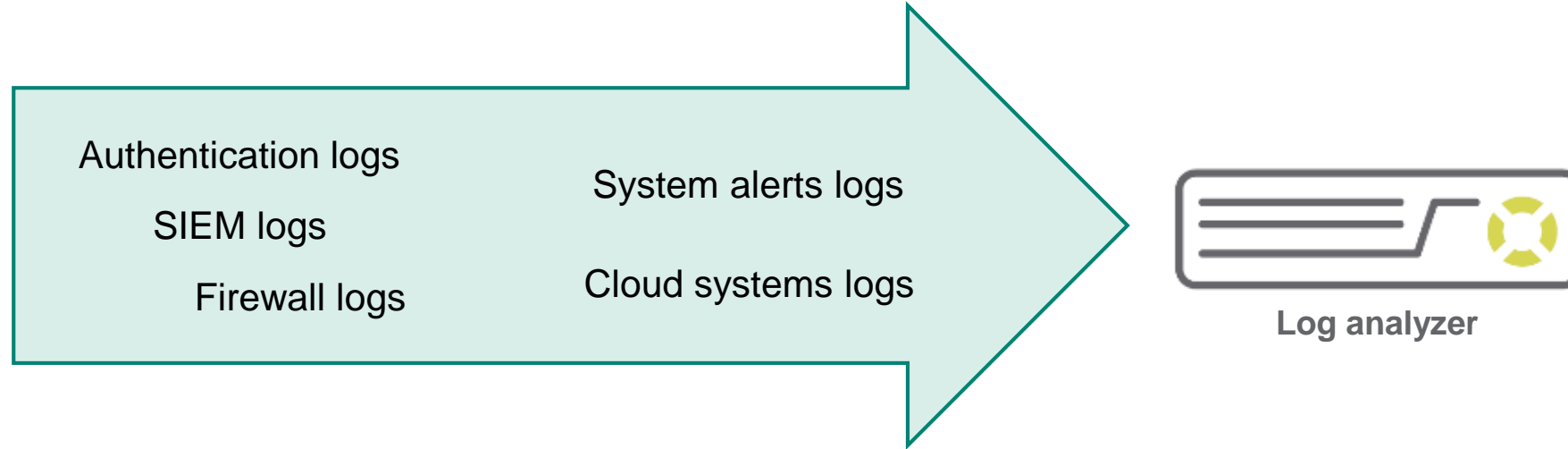


Disadvantages

- No user correlation
- No information from other systems
- It needs to see all the traffic

Behaviour analytics

What is a UBA solution? (User Behaviour Analytics)



Advantages

- Information from other systems
- Event correlation
- Contextual information

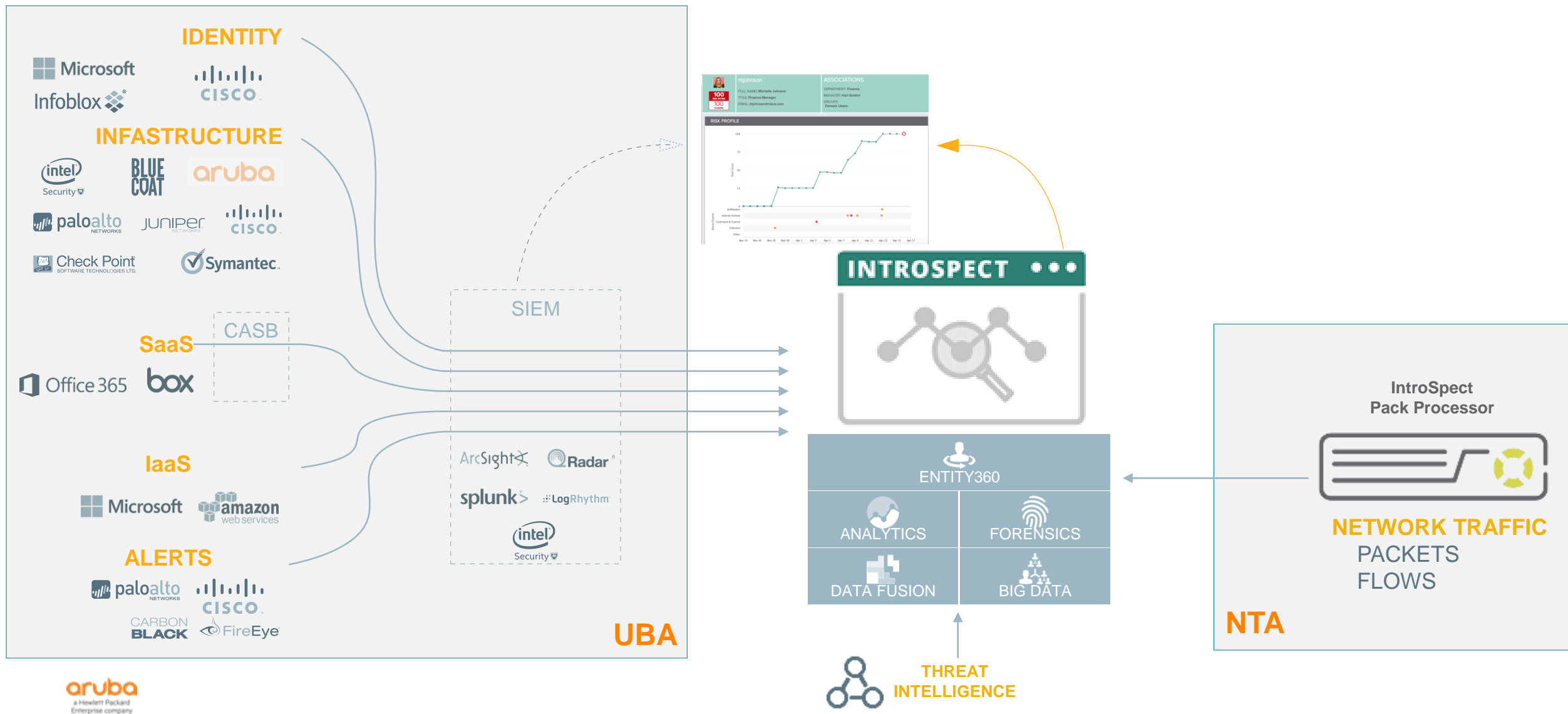


Disadvantages

- Cannot see all the network traffic
- Incomplete information

IntroSpect, UEBA solution

UEBA (User and Entity Behavior Analytics)





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Obrigado



Networks e Experiência de utilização

Tenha uma visibilidade 360°

Pedro Lourenço
Aruba Systems Engineer, HPE

O Edge: Onde o Digital se torna Real



Rede = Business Critical

“O wifi não funciona...”

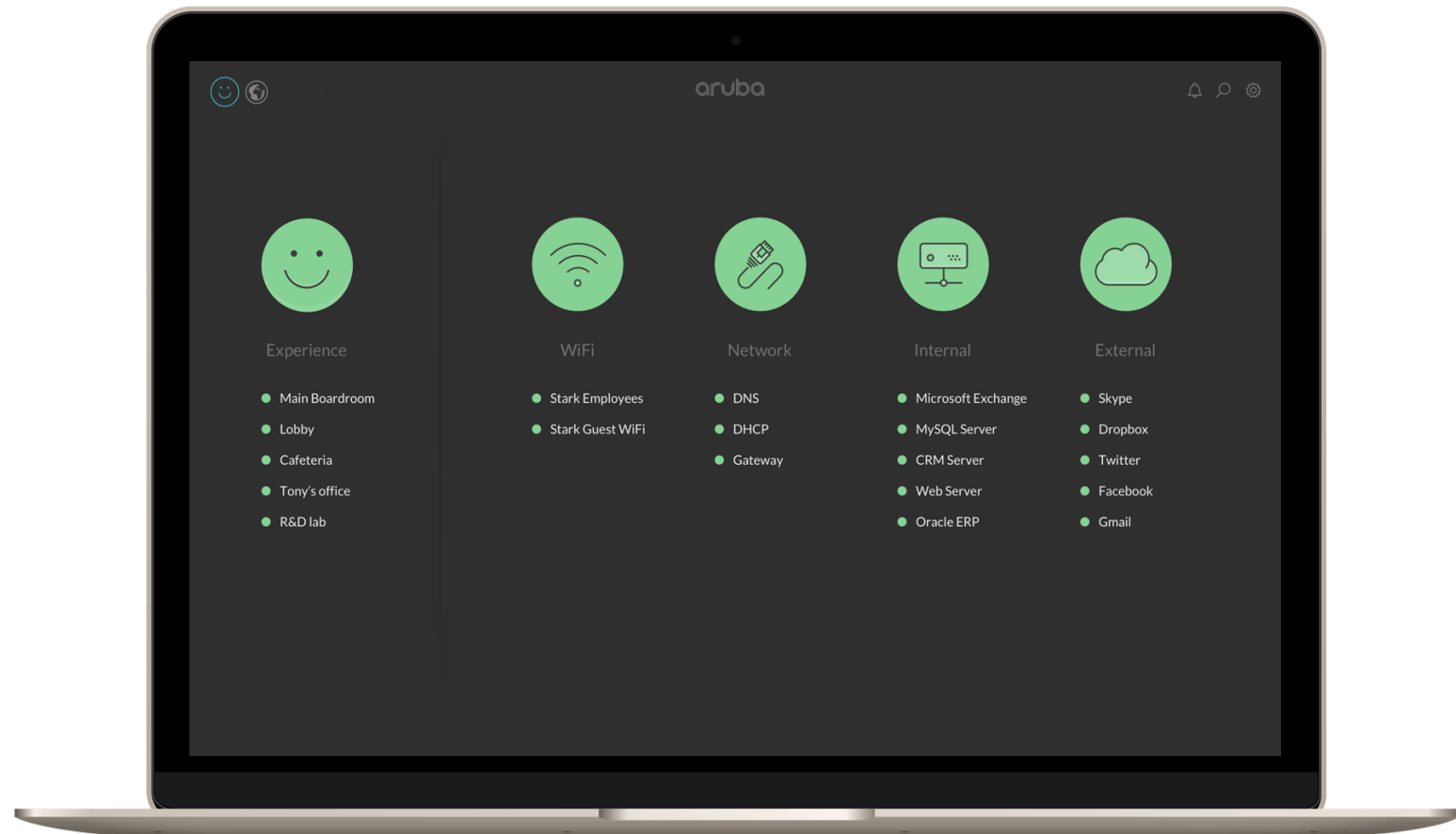
Por onde começar?



- unavailable
- High AP association time
- Failure to associate to Access Point
- Failure to roam between Access Points
- Access Point misconfiguration
- Rogue Access Points
- Co-Channel Interference
- Adjacent Channel Interference
- High Packet Latency
- High DHCP response time
- DHCP server misconfiguration
- IP address conflict
- Packet filtering misconfiguration
- QoS configuration for VoIP
- Queue length congestion
- Power over Ethernet port failure
- Incorrect VLAN assignment
- Gateway unreachable
- High WAN latency
- No connectivity beyond gateway
- Large broadcast storm
- DNS server unavailable
- High DNS response time
- Captive portal offline
- Captive portal unreachable
- Captive portal timeout
- High page load time for captive portals
- High load on captive portal server
- AAA server offline/unreachable
- High load on AAA server
- High latency to application
- High packet loss to application
- CDN/POC misconfiguration
- BGP black hole
- Low Signal Strength
- Low Bit Rate
- High Packet Loss
- High Channel Utilization
- Access Point missing or unavailable
- High AP association time
- Failure to associate to Access Point
- Failure to roam between Access Points
- Access Point misconfiguration
- Rogue Access Points

Aruba User Experience Insight – Cape Sensors

Solução cloud based que disponibiliza ao IT **visibilidade** da **experiência de utilizador** através de testes ao acesso e aplicações, 24x7, mediante a utilização de sensores



Como Funciona



Sensor

- Simples, ZTP config
- Testa WiFi 24x7
- Backup 3G/4G (Twilio)
- PoE ou transformador

WiFi

- SSID visível?
- Associação WiFi
- Ambiente RF

Rede

- Autenticação?
- DHCP, DNS...?
- Velocidade?
- Fiabilidade?

Captive Portal

- Redirect?
- Autenticação?
- Billing?
- Acesso Internet?

Serviços

- YouTube, FB...?
- Aplicações Corporativas
- Bottlenecks
- Throughput

User Experience Insight

Formerly known as Cape Networks/Service Assurance

1. Simples:

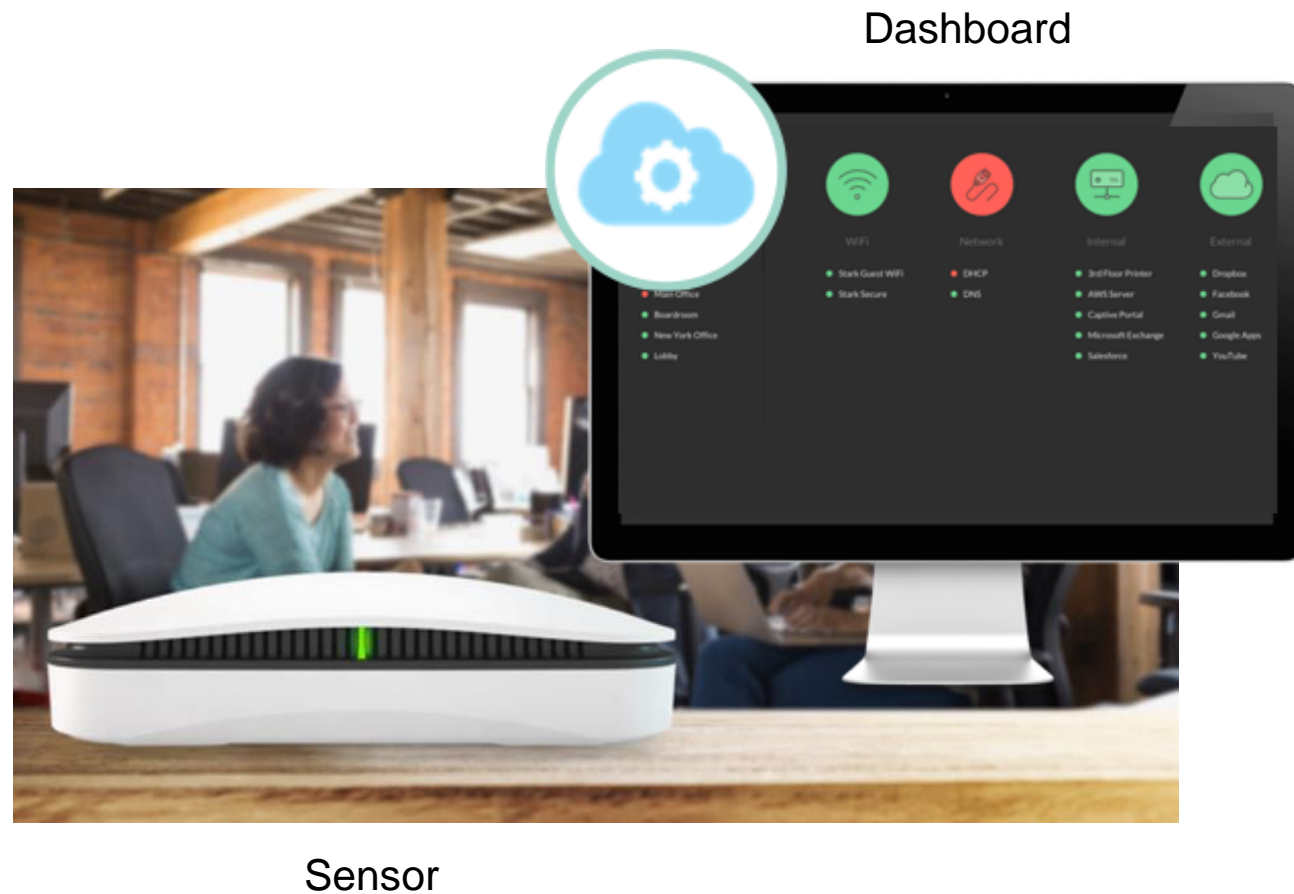
- Deployment simples, mede diretamente a experiência de utilizador

2. Proactivo:

- Valida continuamente o acesso e reponsividade de aplicações

3. Agnóstico:

- SaaS, aplicação, ou service de rede
- Testes Wired/Wireless em qualquer rede





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Enterprise company

Obrigado



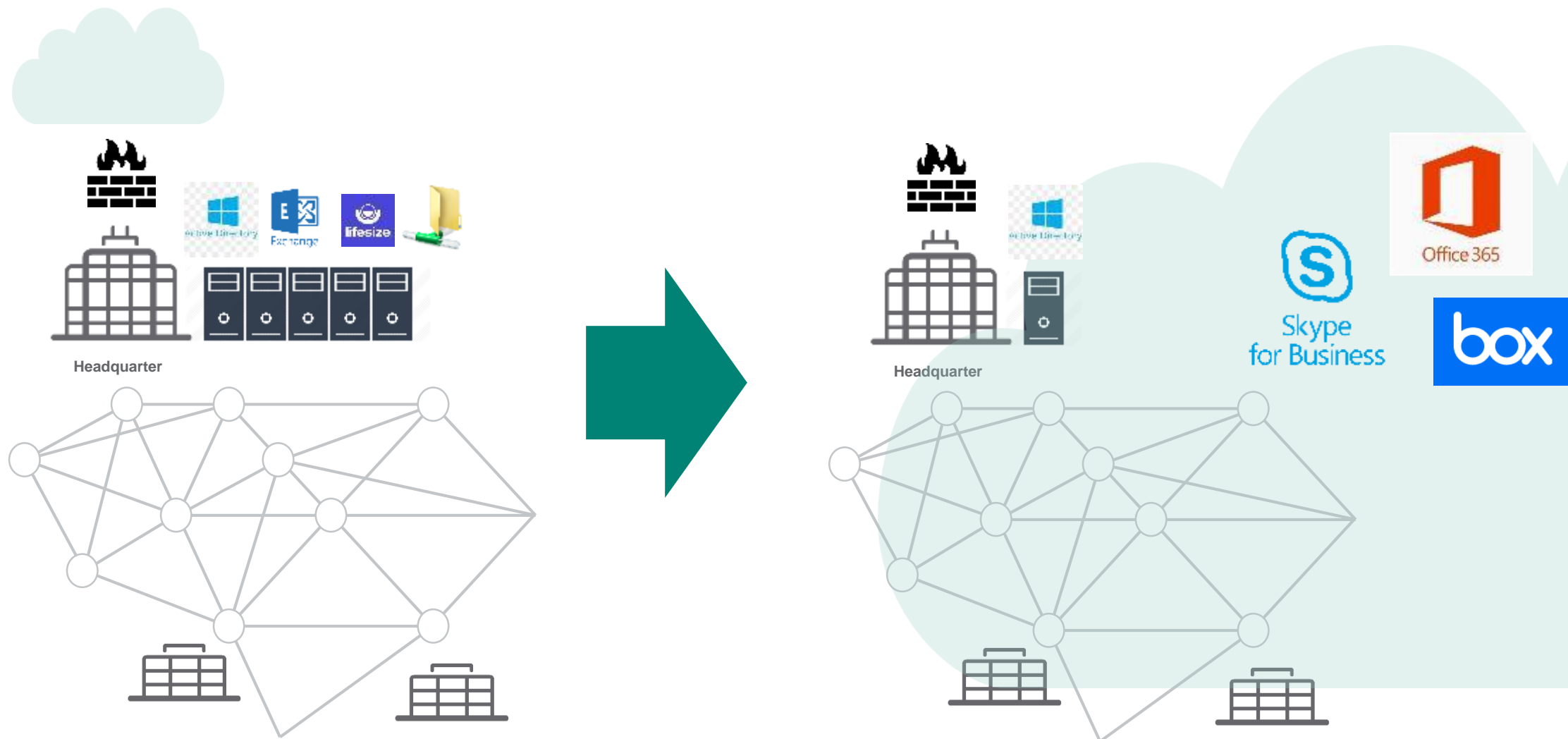
SD-Branch

Simplifique a implementação e gestão de
soluções distribuídas

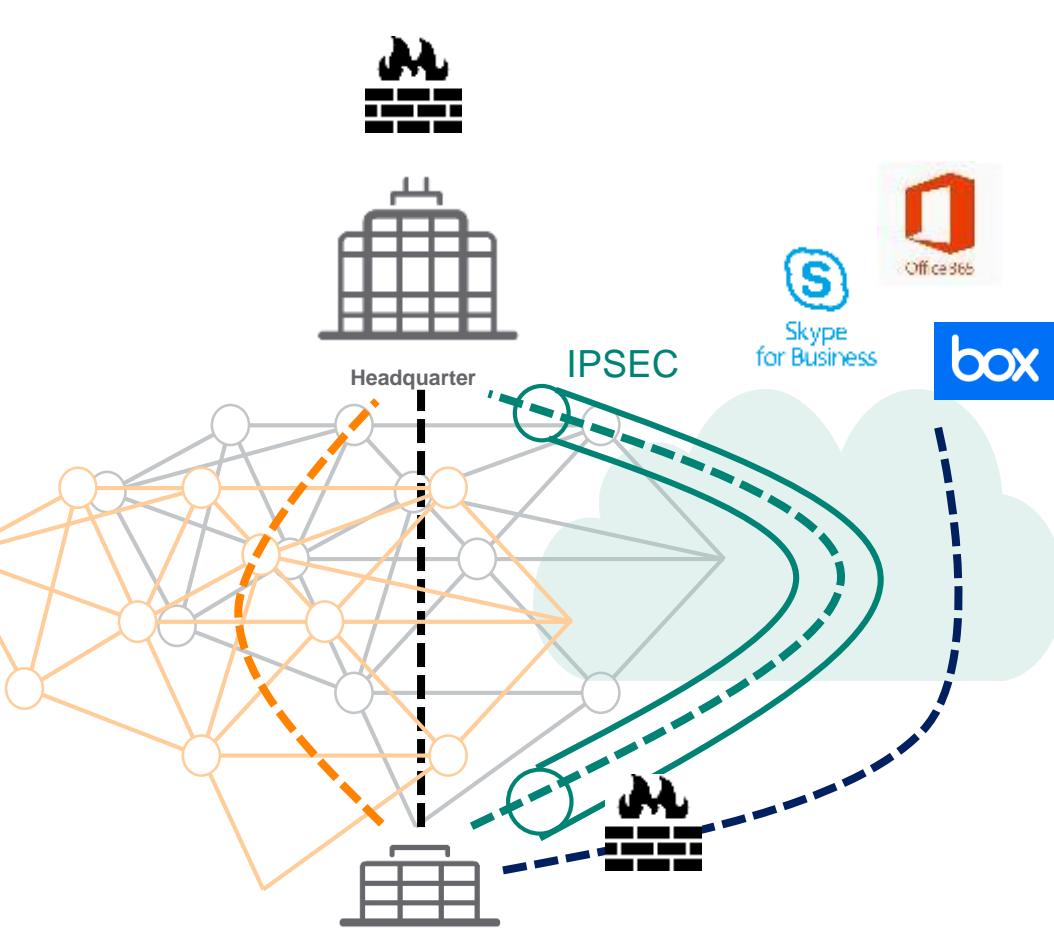
Rafael Rivero

Aruba Systems Engineer, HPE

Evolution of the corporate network



New demands on your distributed connection



Wideband connection as corporate backhaul

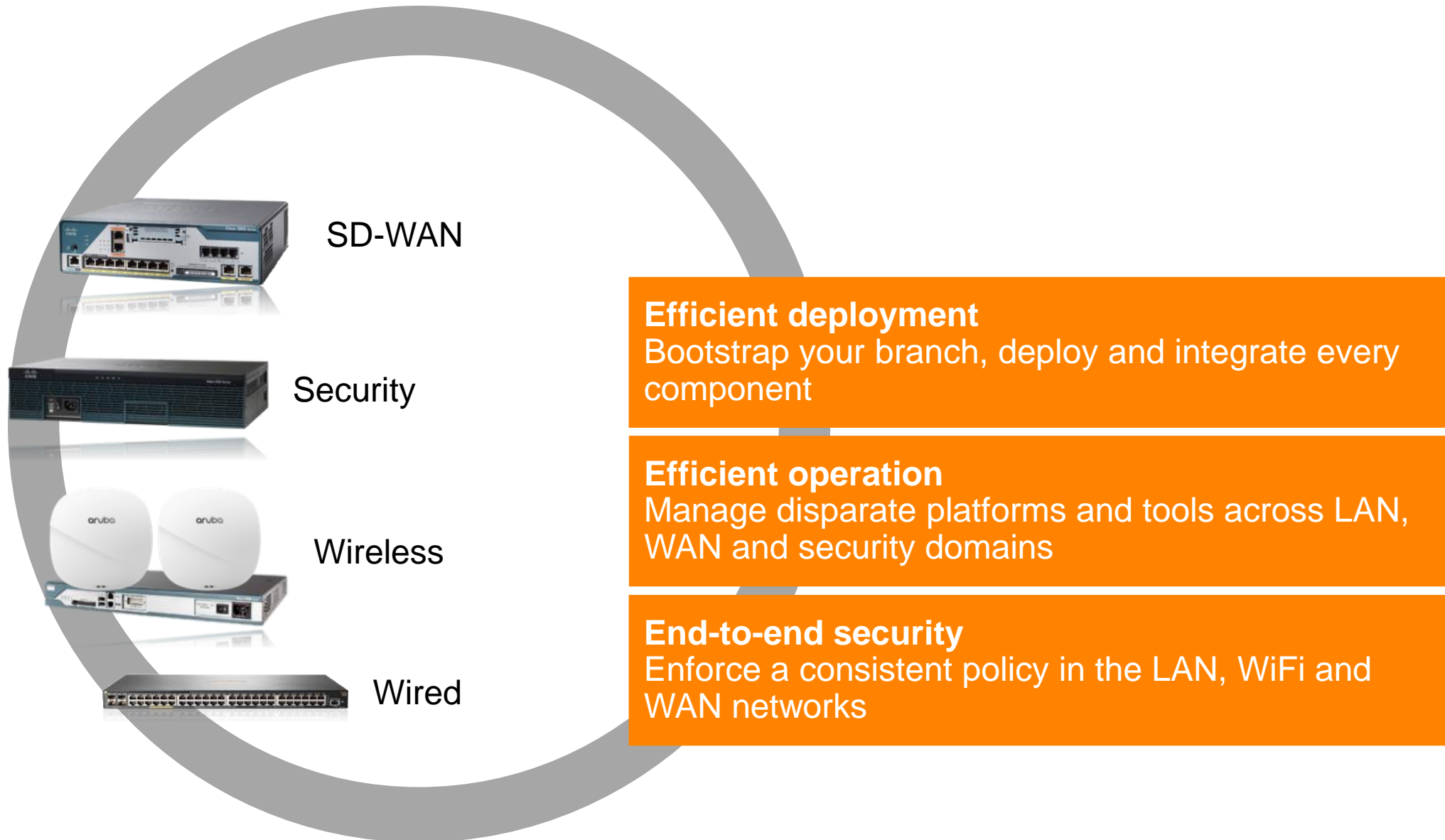
Several service providers

As secure as a private network

Direct connection from branch to SaaS providers

Single policy across all sites

Challenges in a mix-and-match solution



The Value of Convergence



Simplicity at Enterprise scale

Fewer boxes in the branch, simpler to deploy



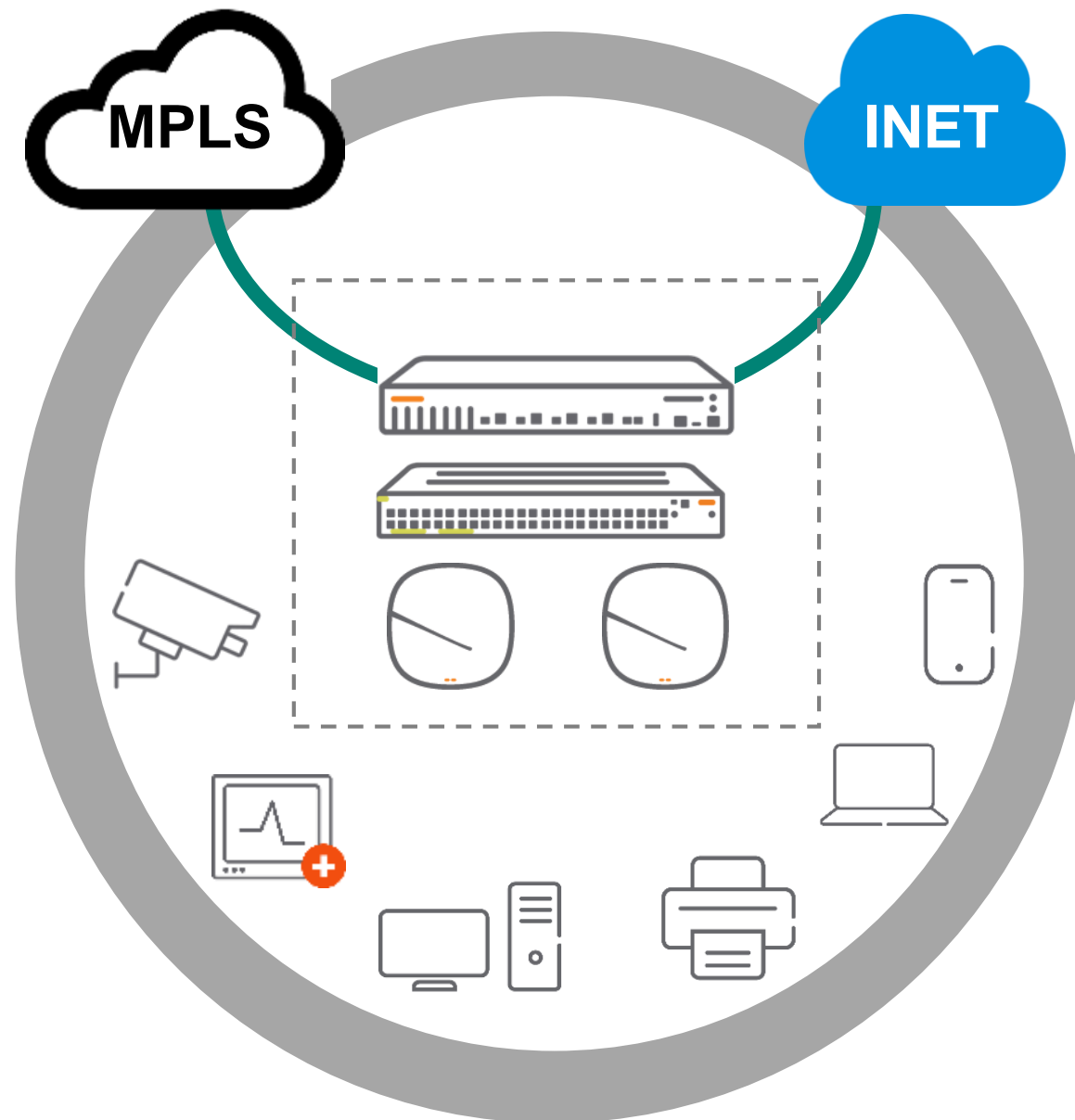
Unified policy

Common, end-to-end security policy for LAN, WiFi and WAN traffic



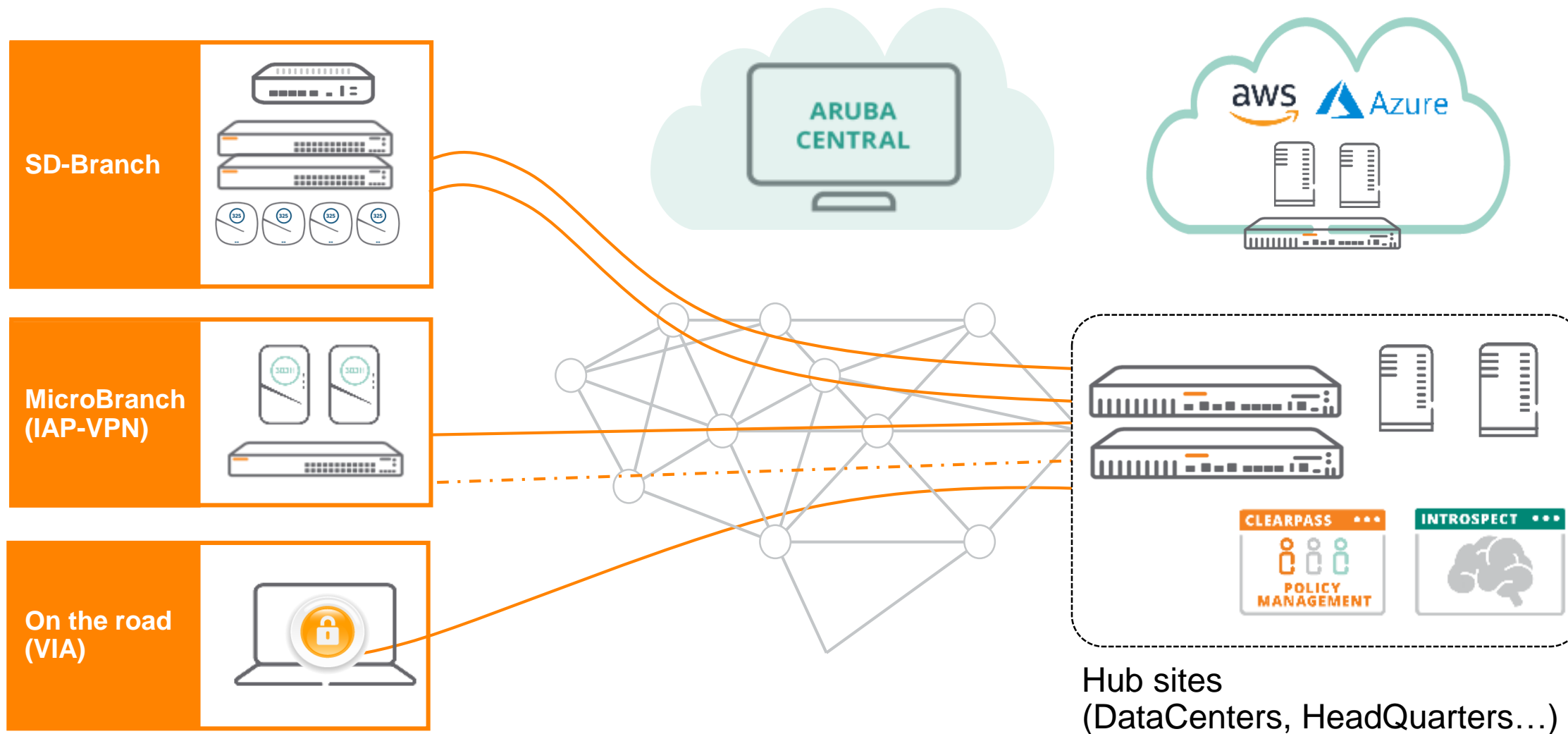
Smart and application-aware

Automate the network to deliver quality for your services



Simplicity at scale

Components of the Aruba SD-Branch solution



Aruba Central: Software Defined Branch networks

CLOUD MANAGEMENT



NETWORK INFRASTRUCTURE



INSTANT
ACCESS POINTS



ARUBA-OS
SWITCHES



BRANCH
GATEWAY

SERVICES

GUEST
WI-FI



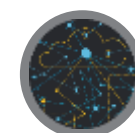
NETWORK
ANALYTICS



PRESENCE
ANALYTICS



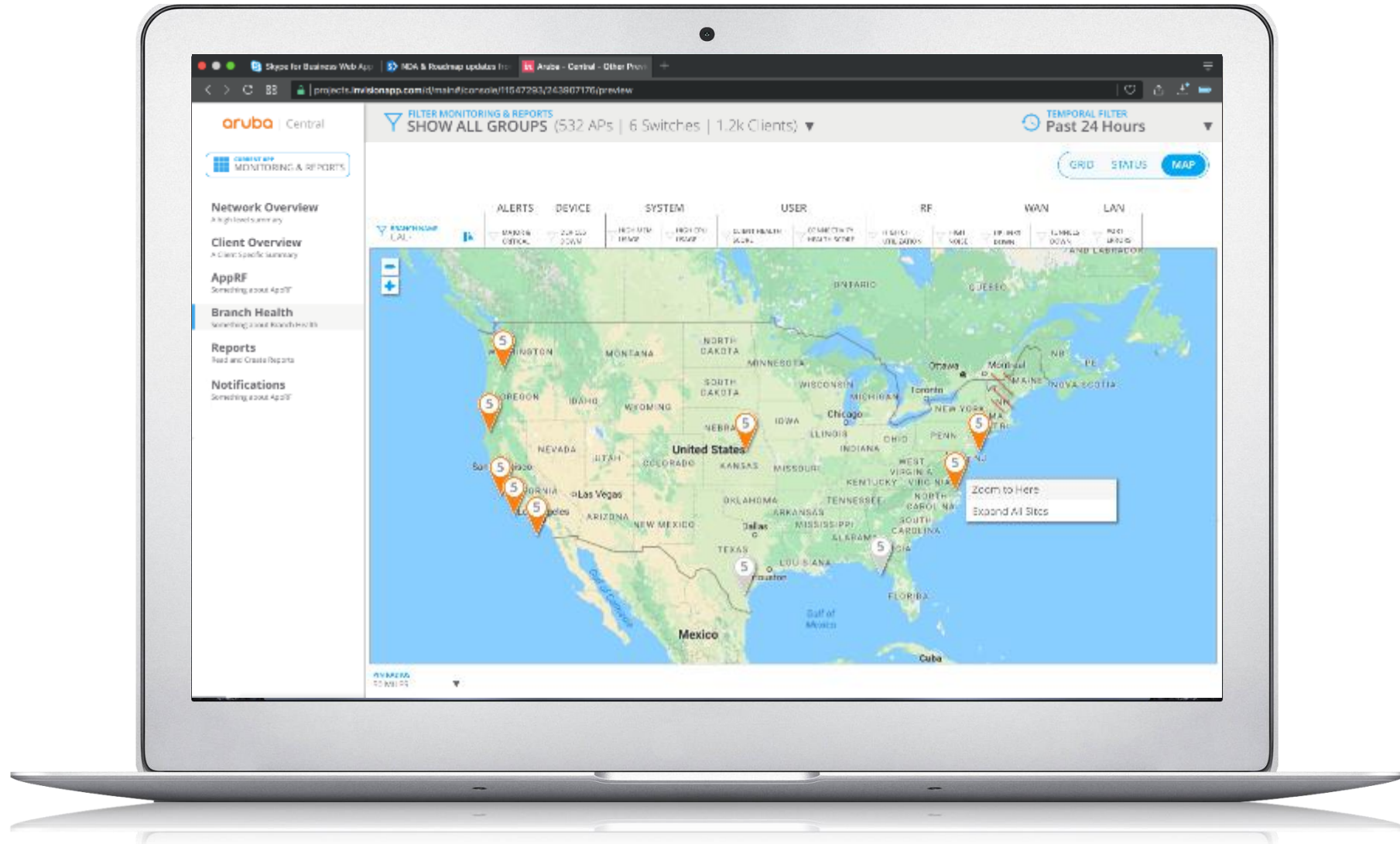
SD-WAN



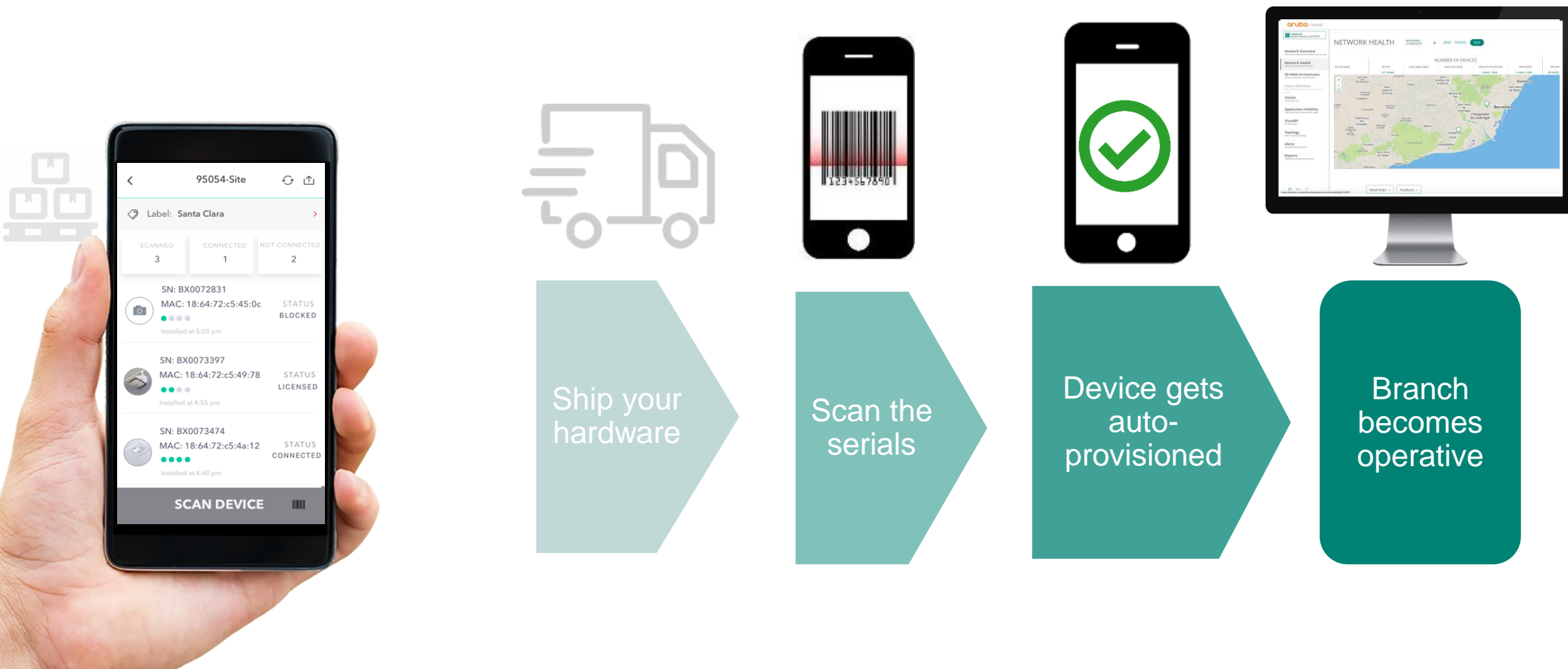
SECURITY



Scalable configuration, monitoring, reporting & services



Fully Automated Deployment Workflow



Aruba Central

https://internal-ui.central.arubanetworks.com/frontend/#/DASHBOARD

aruba Central

CURRENT APP: MONITORING & REPORTS

Search Current App

Find devices, clients and networks

Network Overview

View Aruba device performance and security

Network Health

View potential network issues

Label Health

View potential network issues

Client Overview

View detailed information on connected clients

AppRF™

View app usage and configure web policy enforcement

VisualRF

RF Heatmaps

Topology

View network topology

Alerts

Set, edit and view alerts

Reports

Schedule and generate reports

FILTER MONITORING & REPORTS

All Devices (11 Total Devices | 3 Offline APs | 0 Offline SWITCHES | 2 Offline GATEWAYS)

TEMPORAL FILTER 3 HOURS

NETWORK OVERVIEW

APs

SWITCHES

GATEWAYS

SECURITY

Bandwidth Usage

2018-10-07 10:15:00

In 48 kbps

Out 49 kbps

Clients Count

2018-10-07 10:15:00

Clients 5

Top APs By Usage

2018-10-07 10:15

20:4c:03:0a:21:7c 635.04 MB

b4:5d:50:c3:58:fc 4 B

Top Clients By Usage

2018-10-07 10:15

b8:27:eb:58:91:05 1.38 GB

iPad-de-Rafael 490.16 MB

android-3de51c... 132.25 MB

Riveros-MBP 8.60 MB

20:4c:03:03:dc:18 5.48 MB

Top IAP Clusters By Usage

2018-10-07 10:15

Need Help?

Top IAP Clusters By Clients

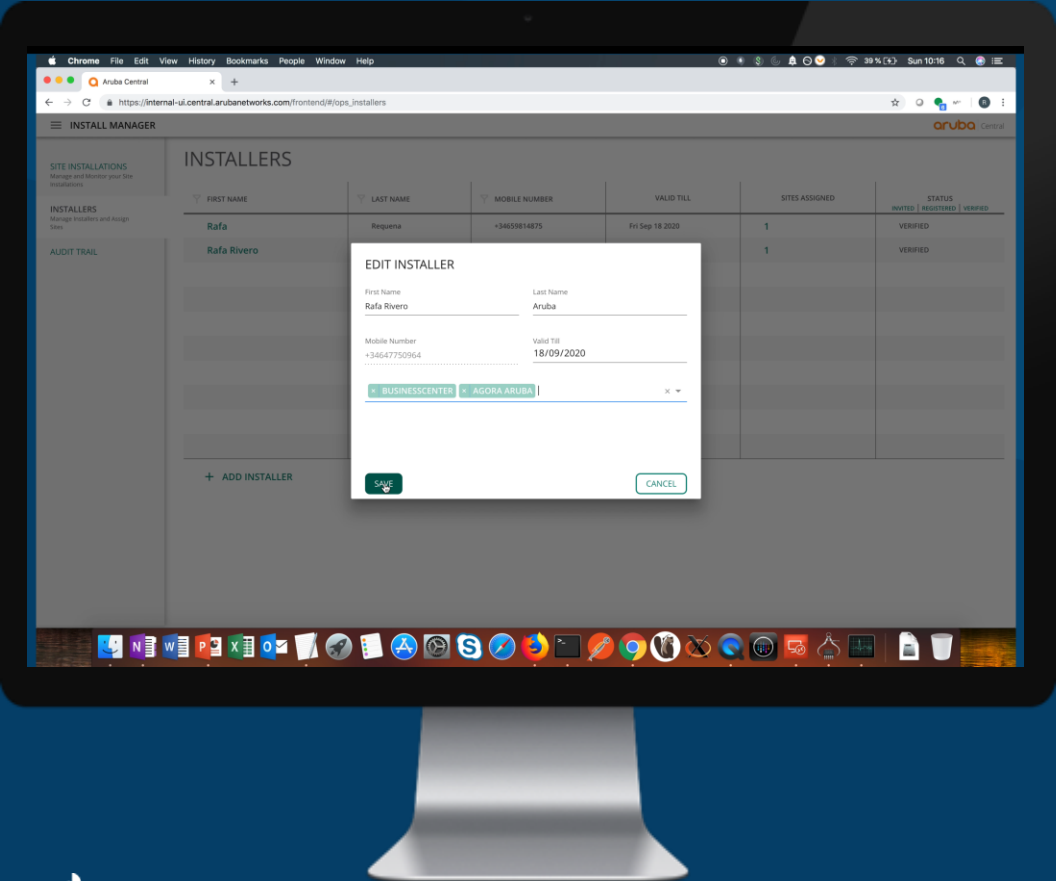
2018-10-07 10:15

By Average

[Demo]

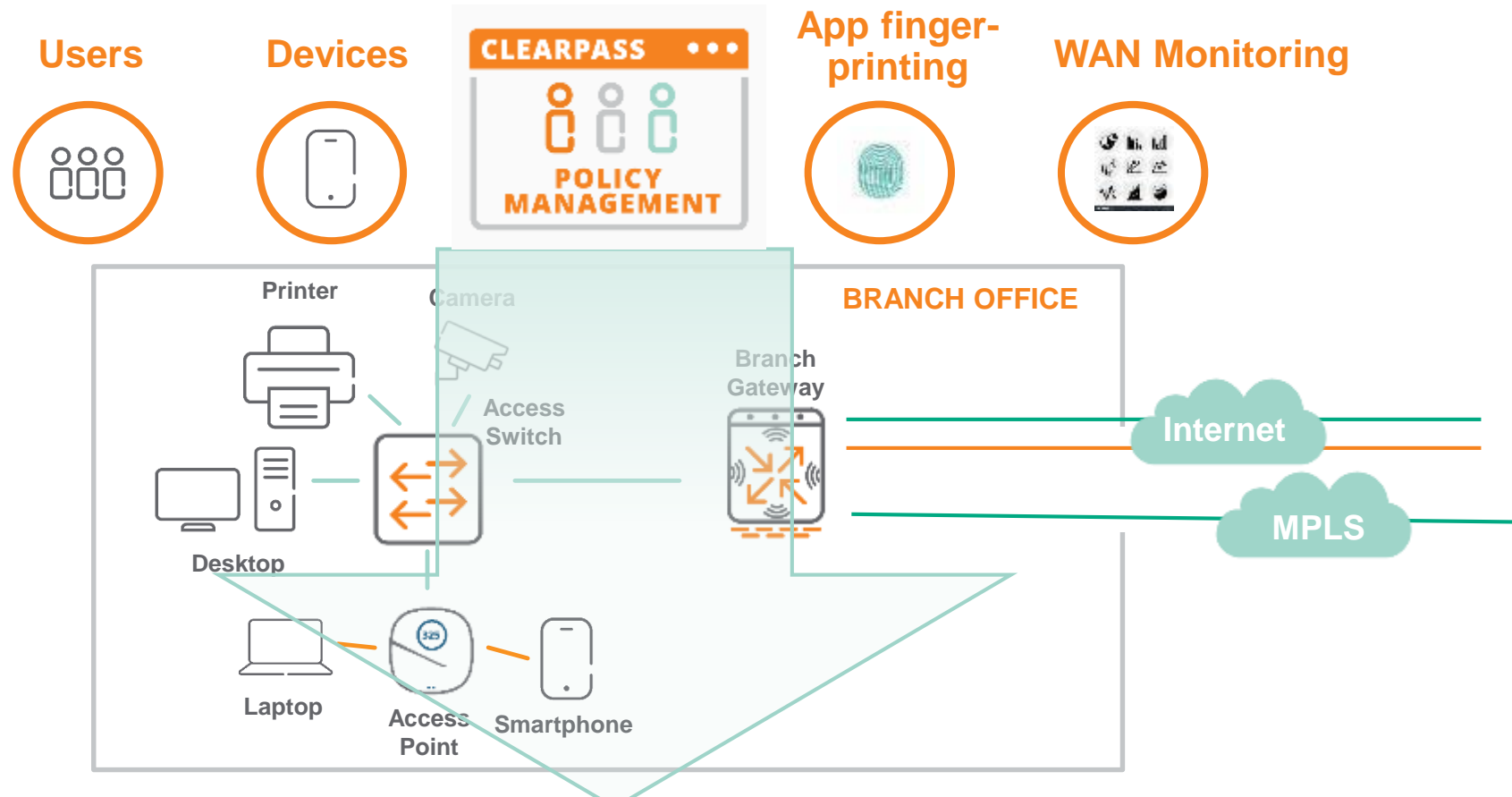


[Demo]



End-to-end Security

Clearpass: Centralized Policy Decision Point for the branch



LAN Policies

Role-based LAN and WLAN policies, e.g VLAN, Captive Portal, QoS, tunneling, etc.

Security policies

Role based firewall and content filtering policies, e.g. Layer3 - layer 7 traffic filtering, shaping, logging, etc.

WAN policies

Role and application-based WAN policies, e.g. pat election, load balancing, link pinning...

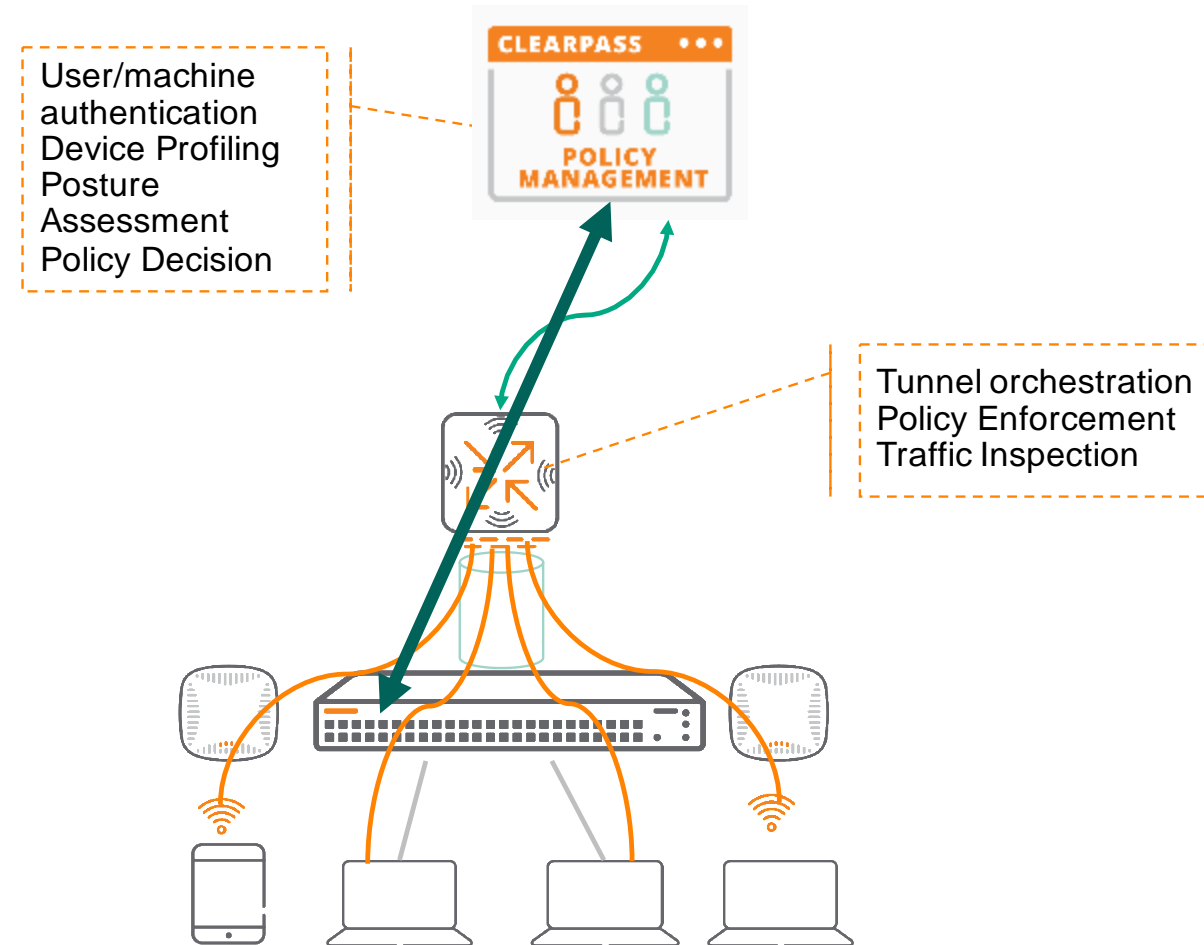
Gateway: Centralized Policy Enforcement Point for the branch

1

Every network access is policed by ClearPass



Security Core



Gateway: Centralized Policy Enforcement Point for the branch

1

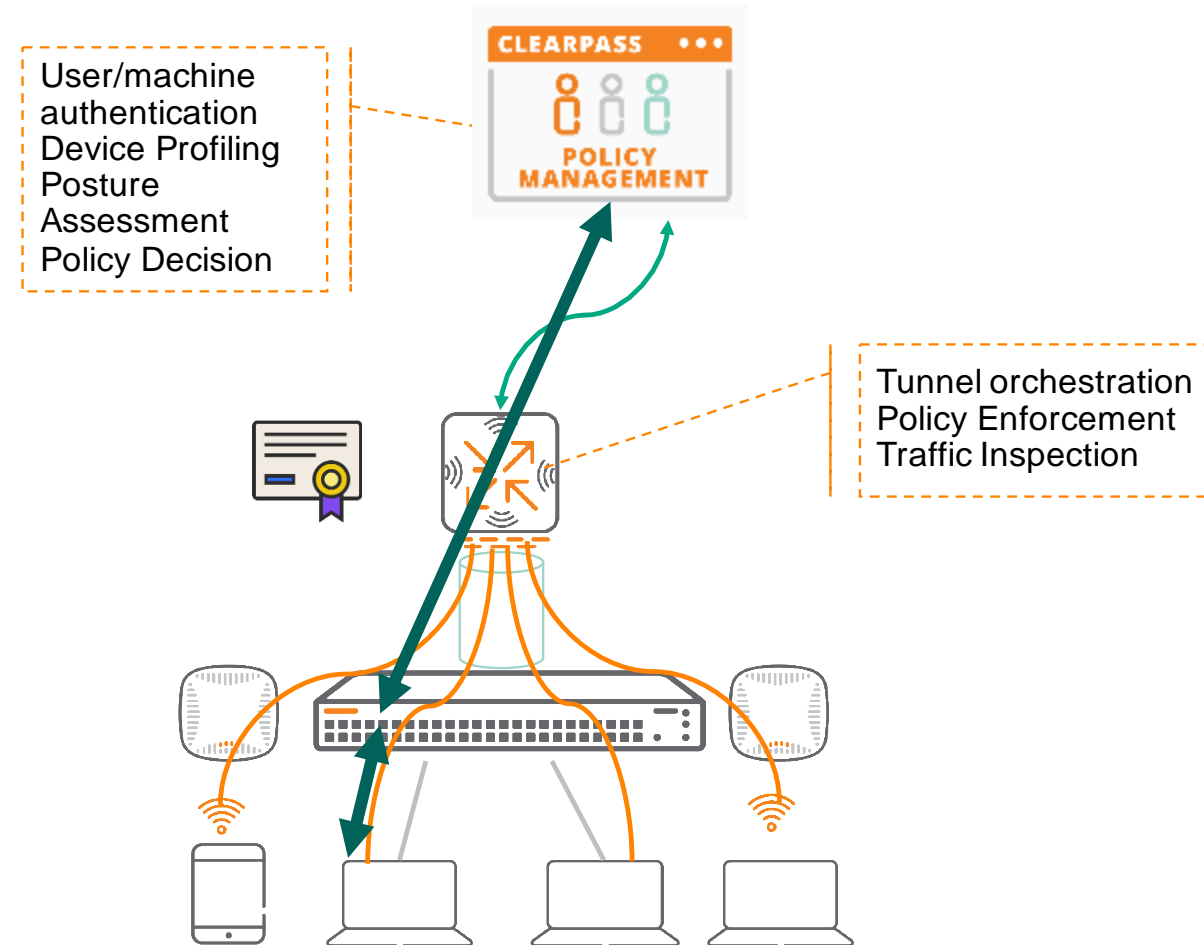
Every network access is policed by ClearPass

2

The gateway learns the role of every device in the branch



Security Core



Gateway: Centralized Policy Enforcement Point for the branch

1

Every network access is policed by ClearPass

2

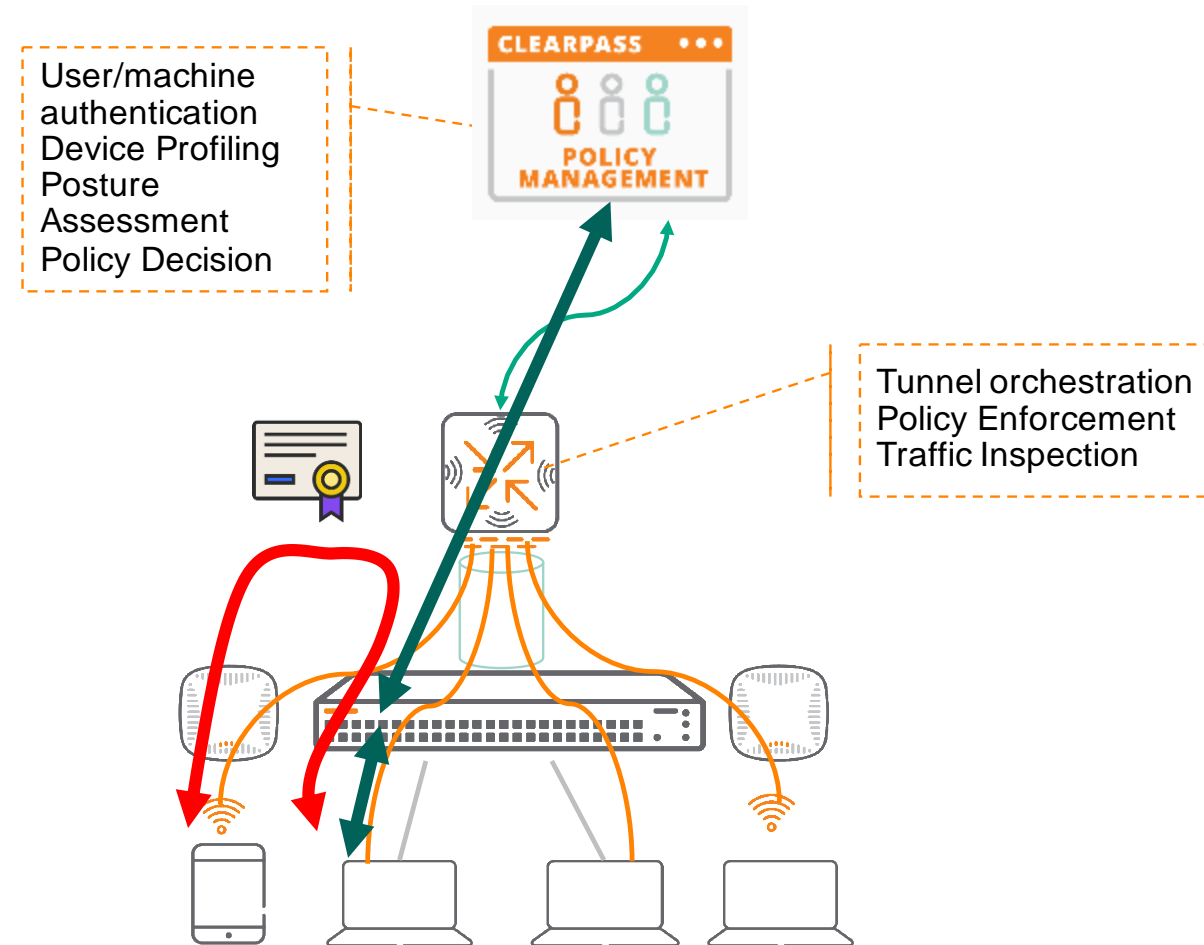
The gateway learns the role of every device in the branch

3

As traffic traverses the gateway, policy for source and destination role is enforced.



Security Core



Gateway: Centralized Policy Enforcement Point for the branch

1

Every network access is policed by ClearPass

2

The gateway learns the role of every device in the branch

3

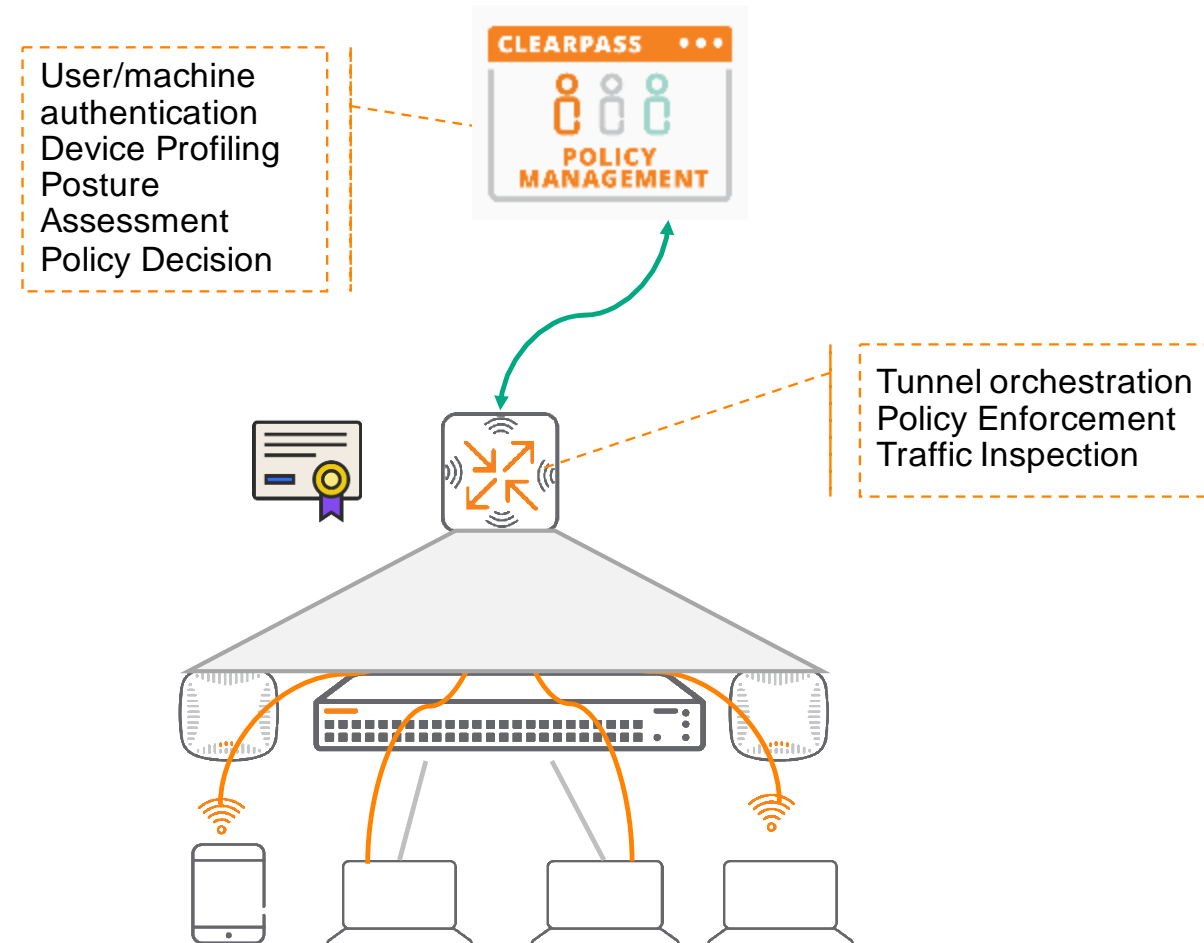
As traffic traverses the gateway, policy for source and destination role is enforced.

4

With tunnel-mode support, traffic can be forced to **always** traverse the gateway.



Security Core

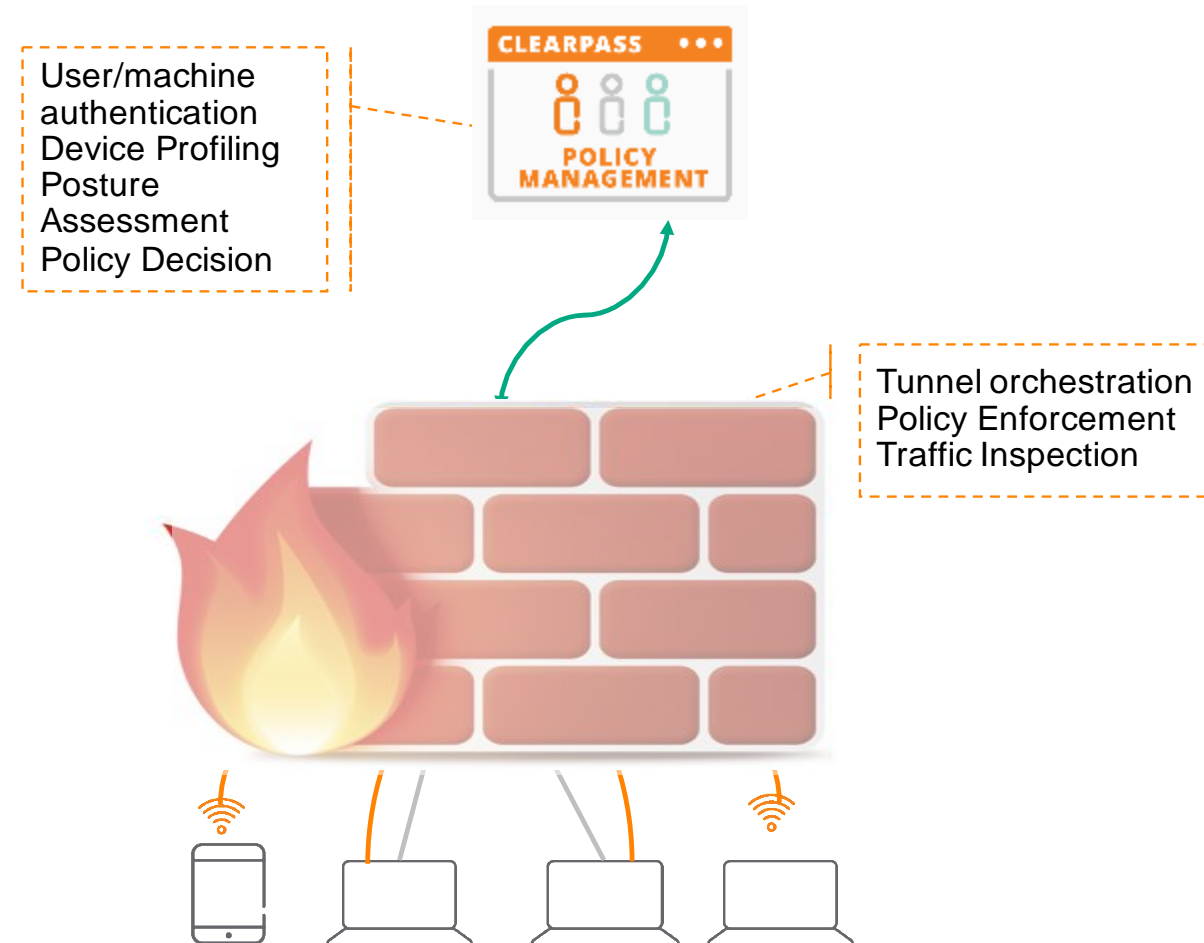


Gateway: Centralized Policy Enforcement Point for the branch

- 1 Every network access is policed by ClearPass
- 2 The gateway learns the role of every device in the branch
- 3 As traffic traverses the gateway, policy for source and destination role is enforced.
- 4 With tunnel-mode support, traffic can be forced to **always** traverse the gateway.
- 5 Dynamic segmentation => fully distributed firewall!



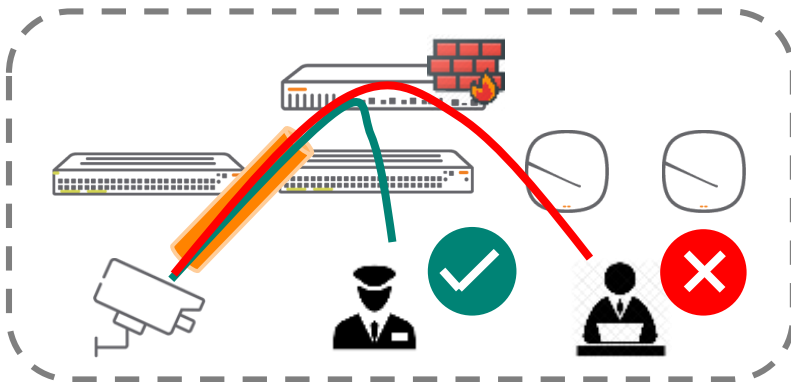
Security Core



Fully policy-driven connectivity

1 The use case

- You plan to deploy new CCTV cameras
- Simple solution: no more VLANs, plug & play
- Security contractors can use the cameras
- Regular employees, don't



2 The solution



- Camera role tunnels all traffic to the gateway
- Contractor role is granted access to cameras
- Employee role is not.

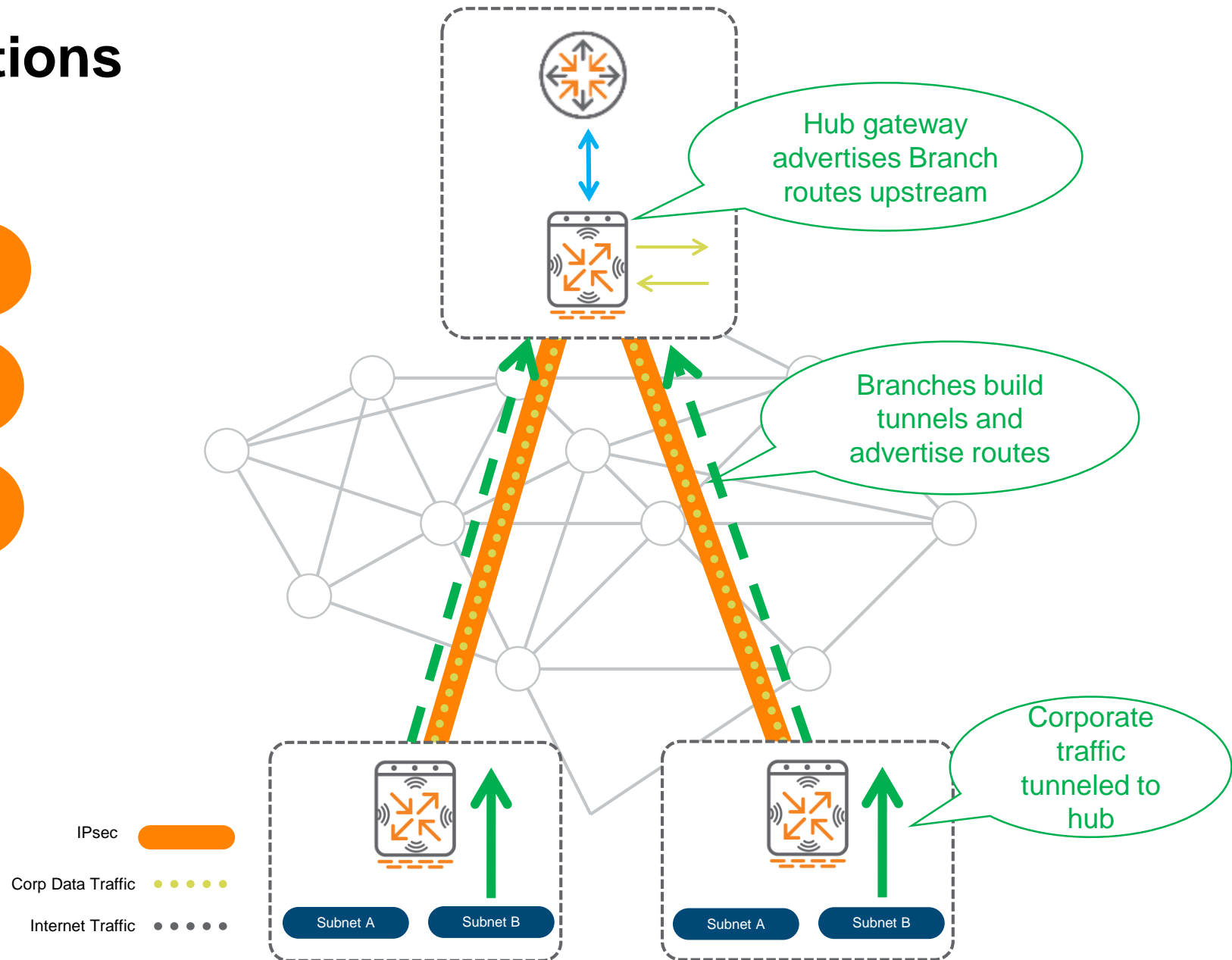
Policy drives all the branch

- Don't care for wired or wireless
- Don't care for VLAN, subnet
- Don't care for port, trunk config
- Just state your policy in terms of your business roles

Role- and application- aware networking

Overlay network solutions

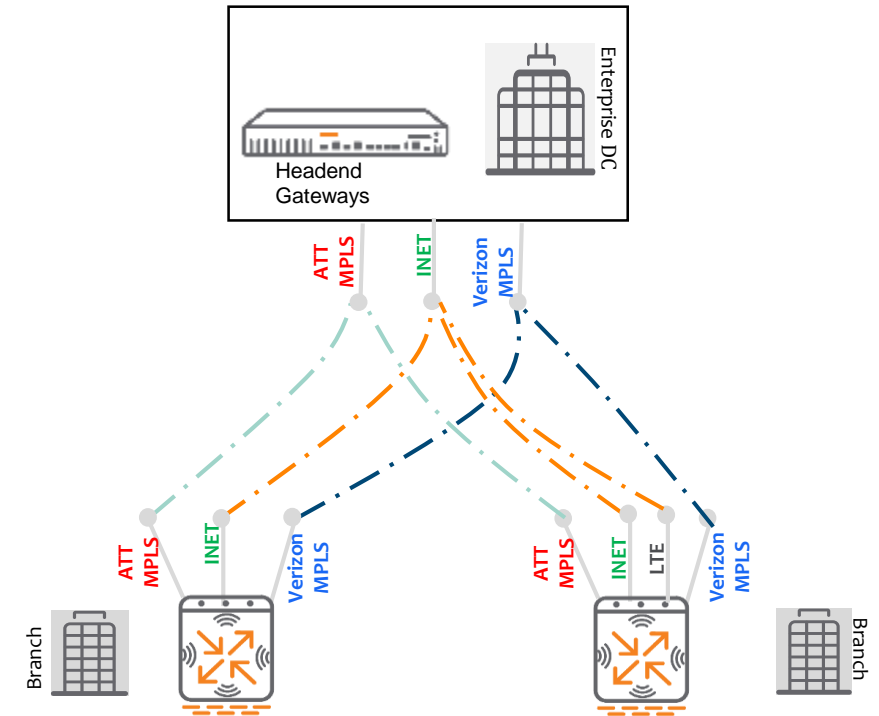
- 1 Build IPSEC overlay
- 2 Set up routes
- 3 Start forwarding traffic



SD-WAN automation

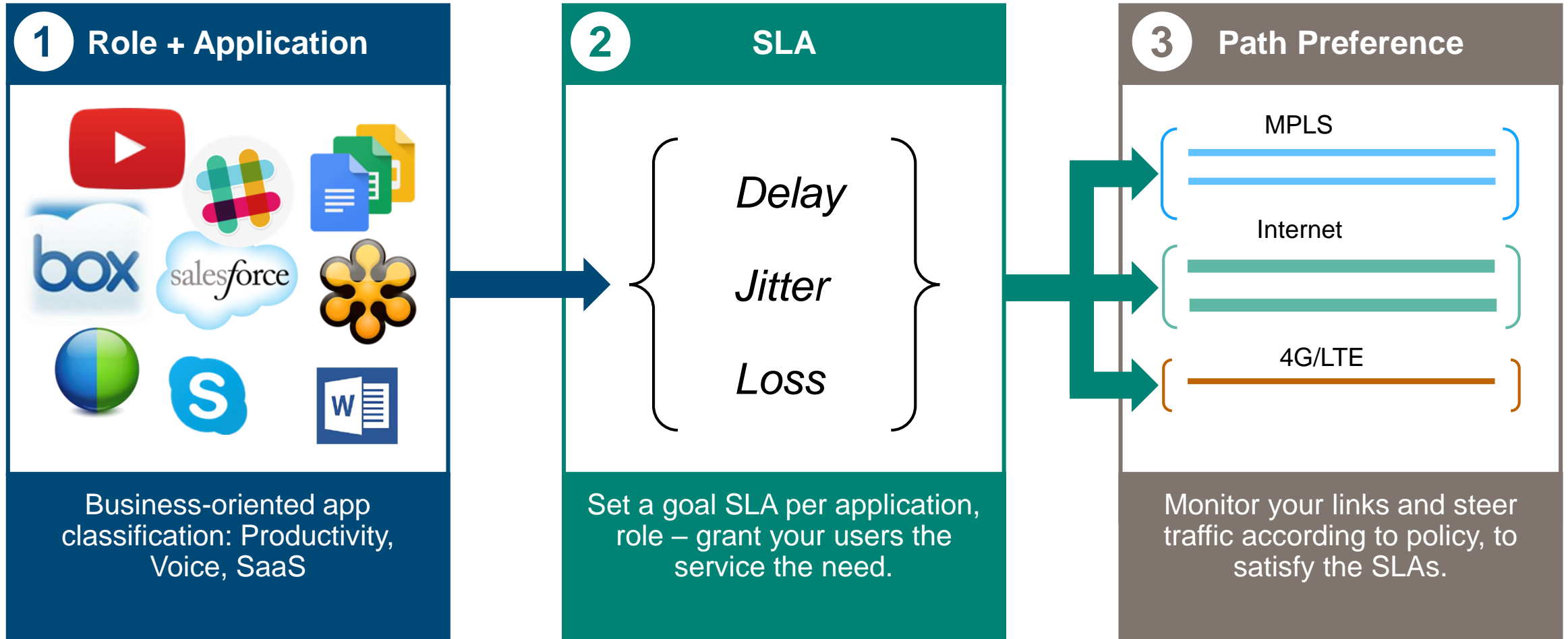
Policy-based site connectivity

- Define hub sites and site preferences. Everything else will be set for you!
- User's burden is removed, no need to worry about:
 - Proper link matching
 - Tunnel set-up
 - Overlay routing protocols
- Advantage
 - Simple
 - Error proof
 - Scalable



FILTER GATEWAY MANAGEMENT			
Branch-DC1-gro... (1 Total Devices 0 Offline APs 0 Offline SWITCHES 0 Offline GATEWAYS) ▼			
Hub And Spoke DC Preference Cloud Security Site to Site DPD IKEV1 IKEV2 General			
Hubs			
PREFERENCE	GROUP	ACTIVE VPNC	BACKUP VPNC
1	VPNC-DC1-Group-Pod16	vpnc-dc1-pod16-7008	--
2	VPNC-DC2-Group-Pod16	VPNC-DC2-pod16	--

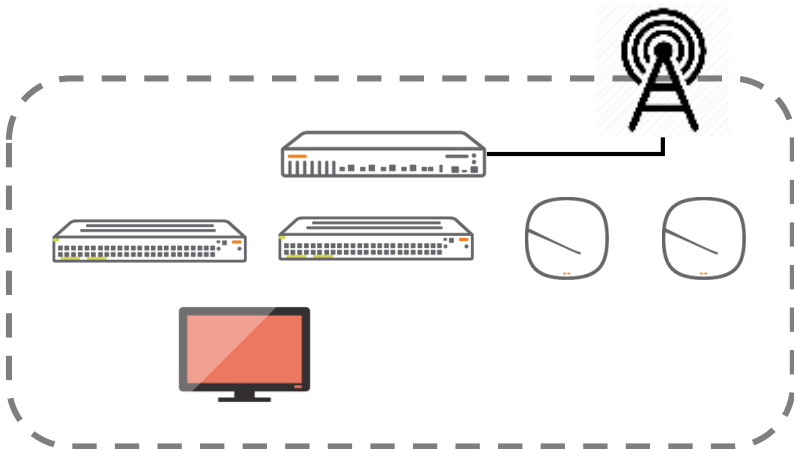
SD-WAN: Automated Path Steering



App and user aware path steering

1 The use case

- You have marketing screens running android
- They can be quite bw-intensive
- You want to make sure that screens don't upgrade software while the branch is running on the cellular backup link



2 The solution



Traffic Specification Rules

Application Category mobile-app-store from User Role marketing-device to Any

WAN Path Selection for marketing-policy Policy

Primary path: ALL_INET

Secondary path: ALL_MPLS

Tertiary path:

SLA: Best Effort

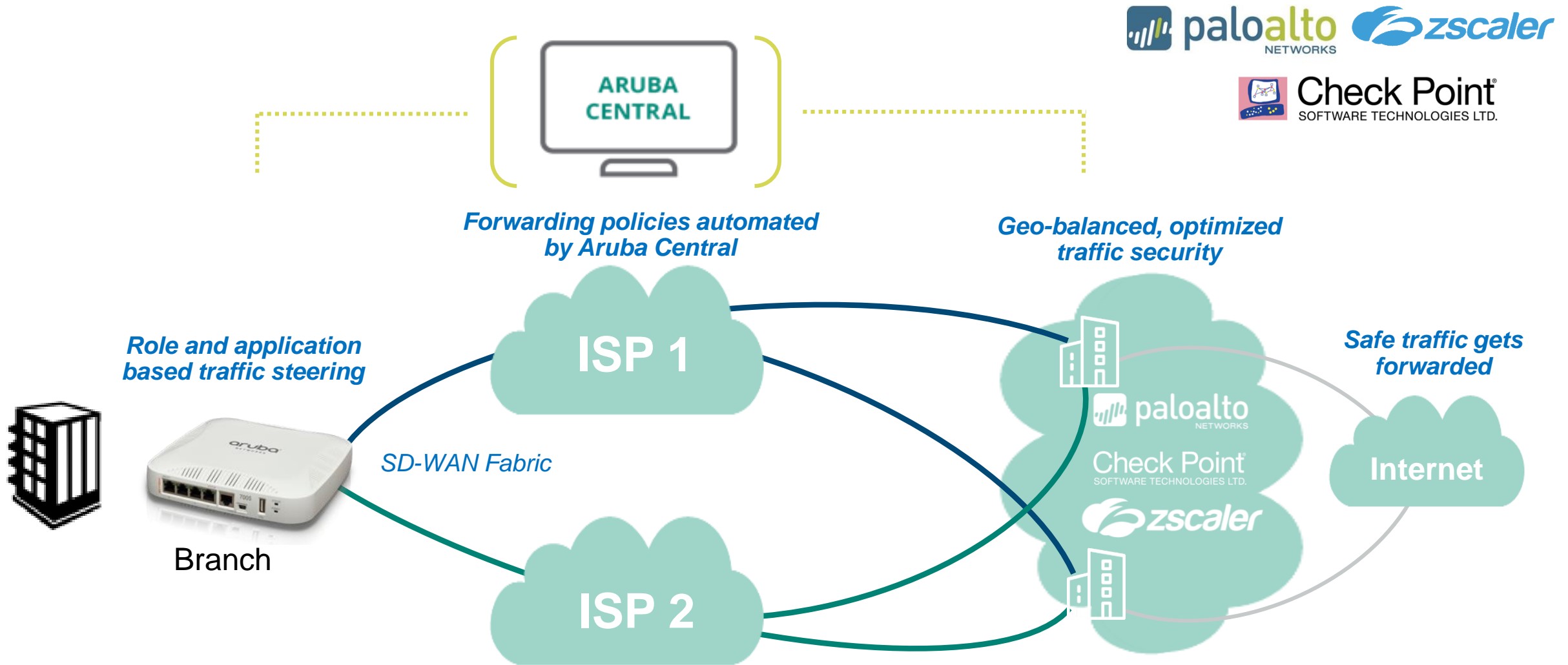
Latency: < 400 ms.

Jitter: -

Loss: < 1%

Utilization: < 80%

Steer the WAN traffic to security partners



Integrate with Aruba Machine Learning

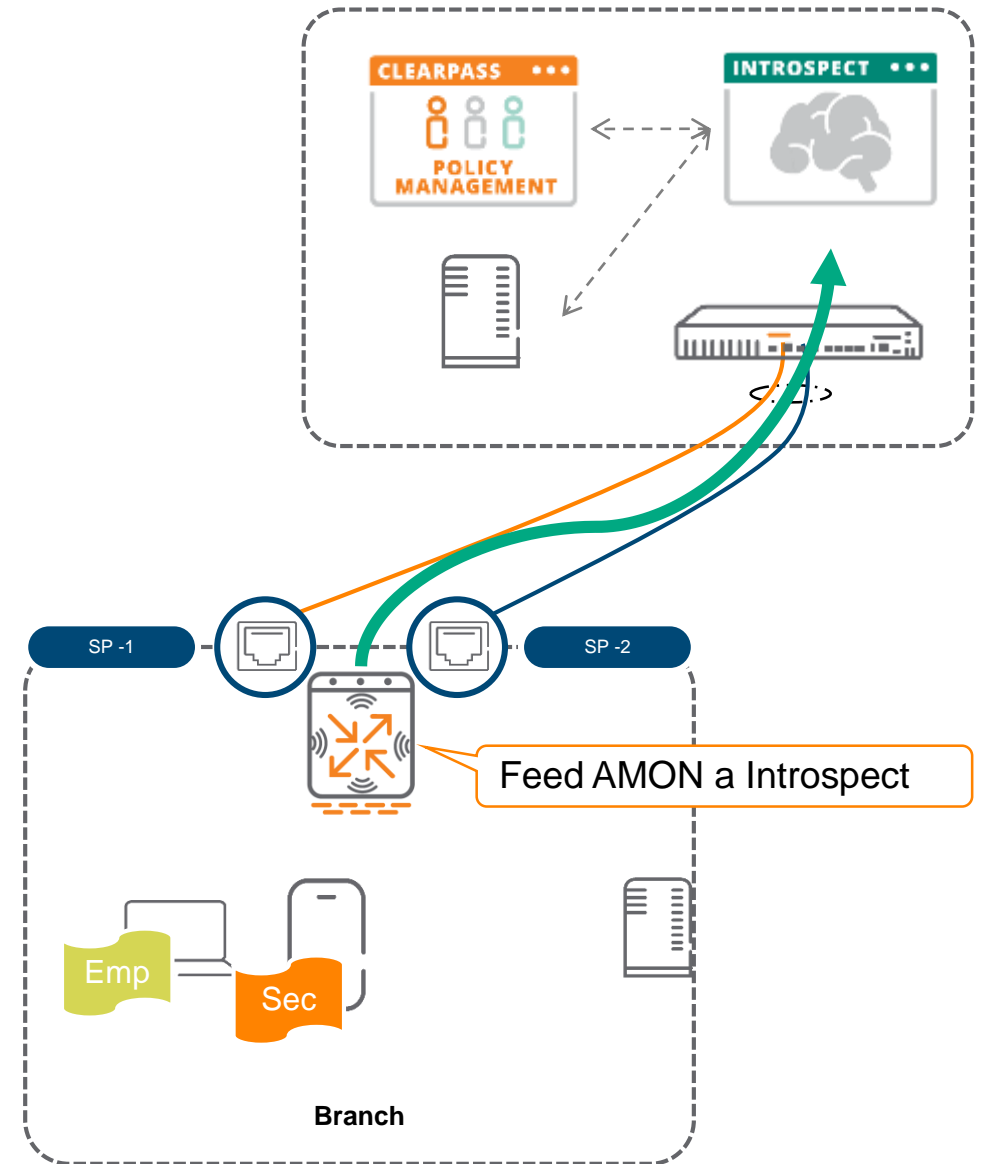
- 1 ClearPass asigna el rol de usuario
- 2 Introspect se integra con ClearPass y el gateway
- 3 El GW envía metadatos (flujo AMON) de sesiones de FW a Introspect



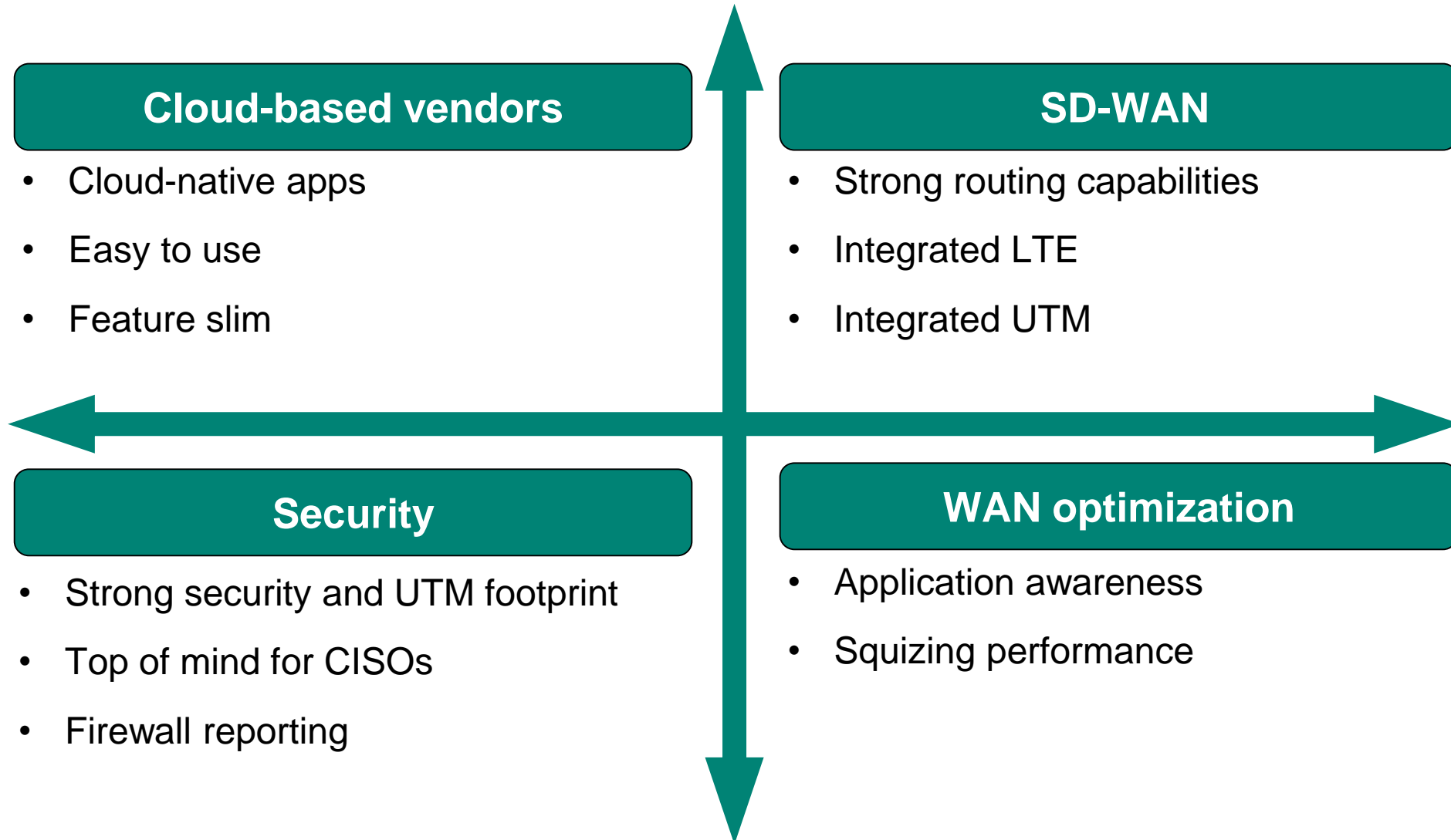
Security Core



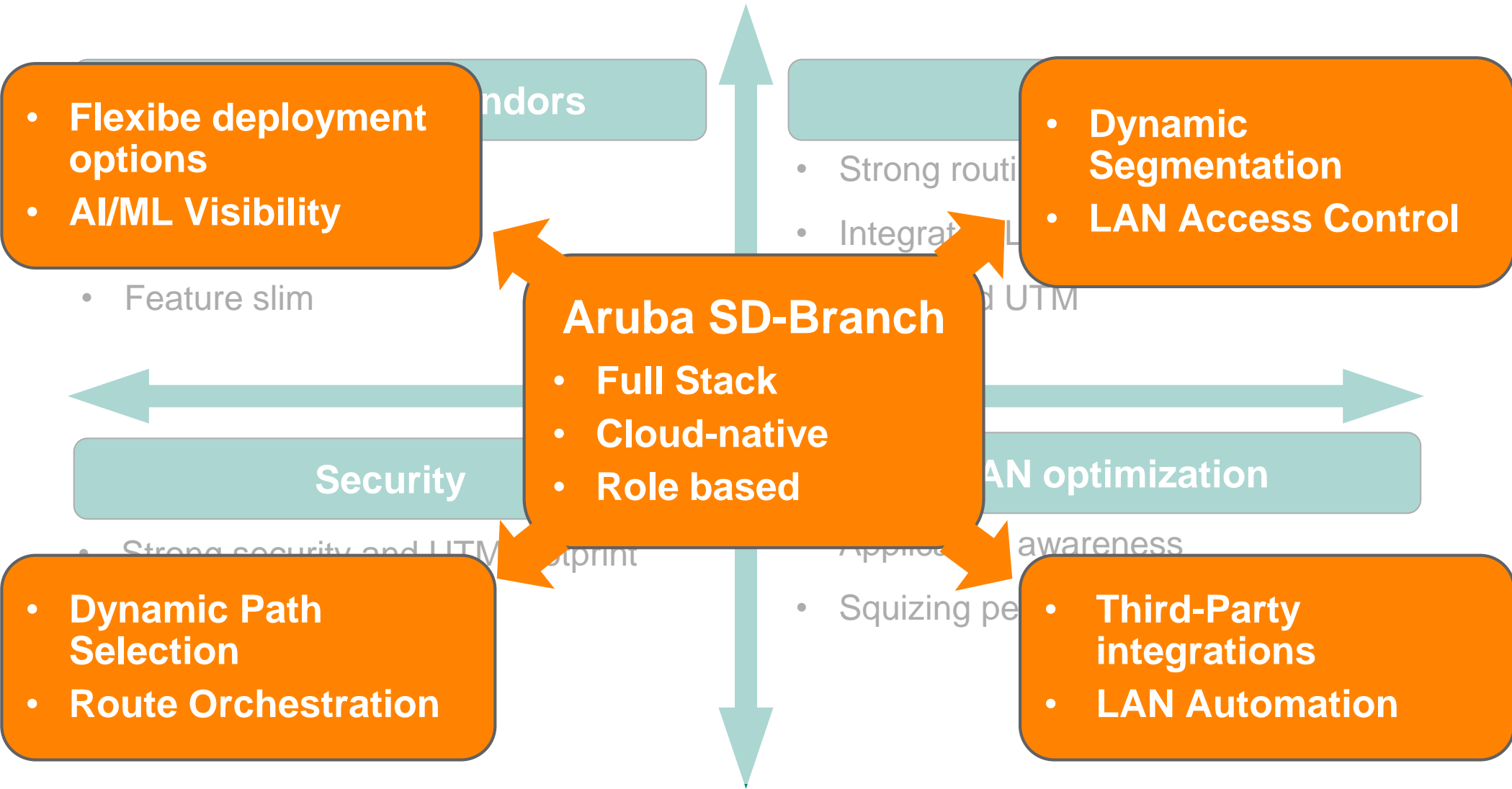
360 Security
Exchange Program




Aruba's Unique Solution Features



Aruba's Unique Solution Features



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- ✓ Innovative, flexible solutions for every use case.
 - ✓ End-to-end, software defined architecture easy to deploy, operate and scale
 - ✓ Full-stack solution, do more with less hardware, licenses and operation overhead
 - ✓ Safe and simple secure access that works, role and app aware, focused on user experience and dynamic segmentation.



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