

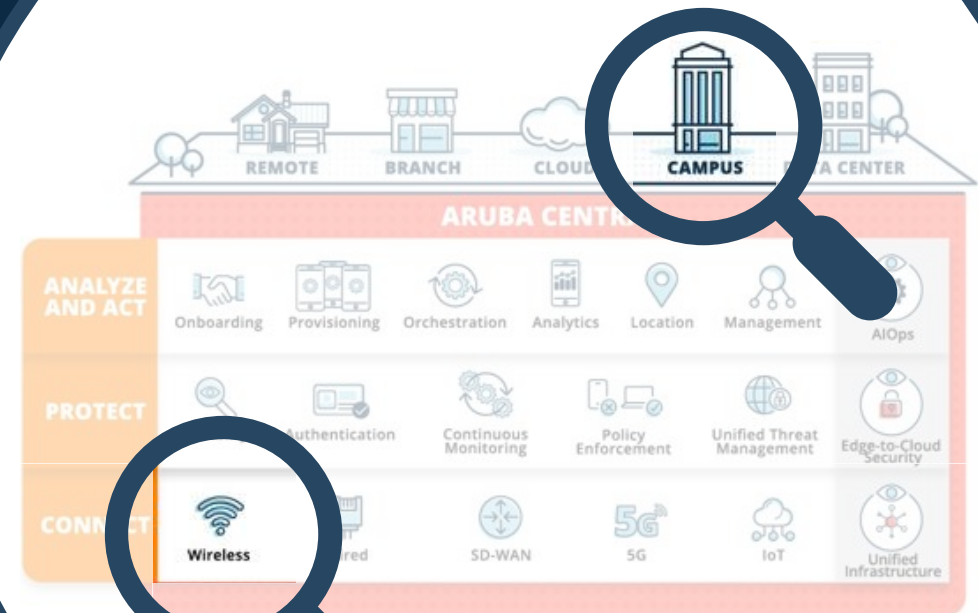
EXPLORING ARUBA SD-BRANCH WITH AOS10

Andreas Ranetbauer



Agenda

- Branch Challenges
- AOS10 and SD-Branch Convergence
- Key Features
- Topologies
- Demo
- Q&A
- Useful Resources



Branch Challenges

THE BRANCH IS WHERE IT ALL HAPPENS



Managing hundreds or thousands of branch locations is a challenge



LEGACY NETWORKS FOR A DIFFERENT ERA

The right fit at the time, but never designed for the cloud

Traditional security

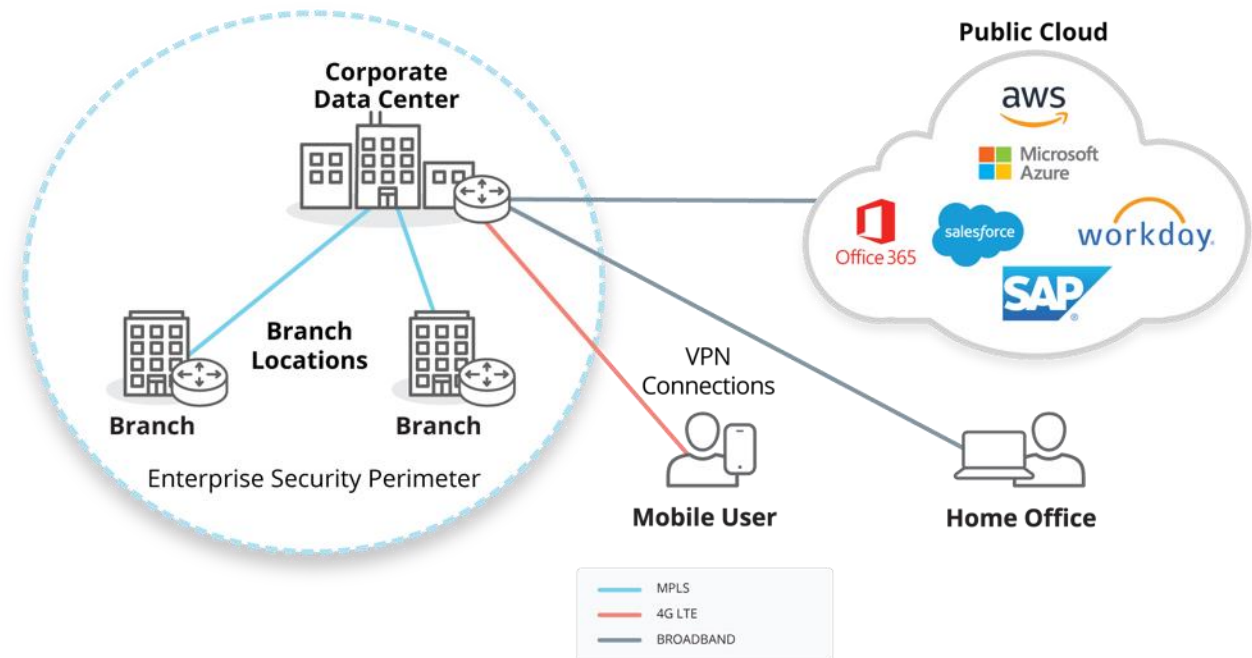
- All traffic backhauled to the data center
- Security implemented by data center firewall

Slow, unpredictable performance

- Backhaul impairs application performance
- Inability to consistently deliver SLAs
- VPNs impact remote access performance
- Inability to leverage distributed cloud delivery e.g., CDN services

Higher cost

- MPLS backhauling costs
- Administration overhead



Solving the challenges with a single solution!



Private WAN is complex and expensive



SaaS applications are backhauled to the data center



WAN Challenges



Increased security risk from the rise in IoT

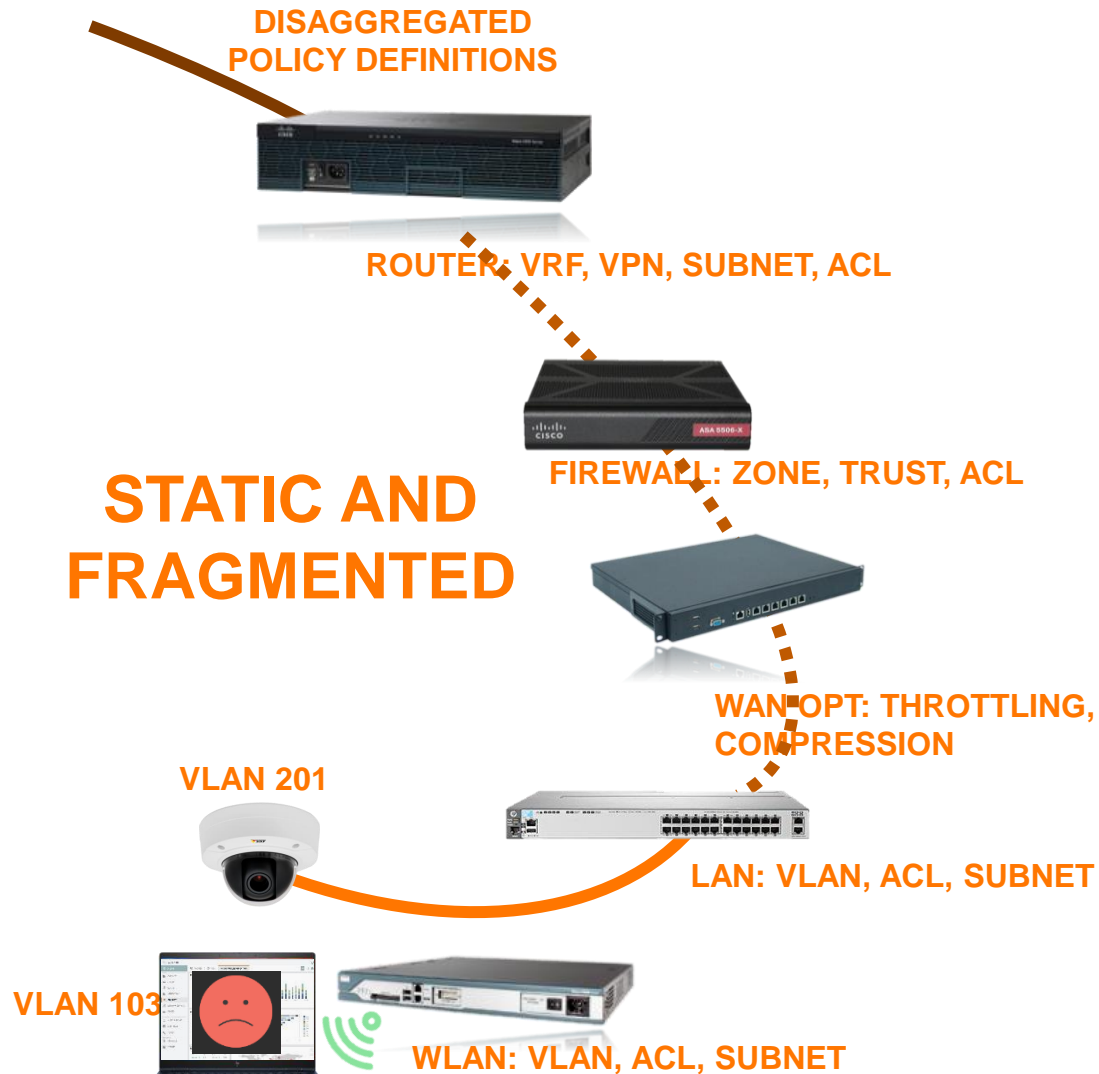


Device sprawl and static configurations



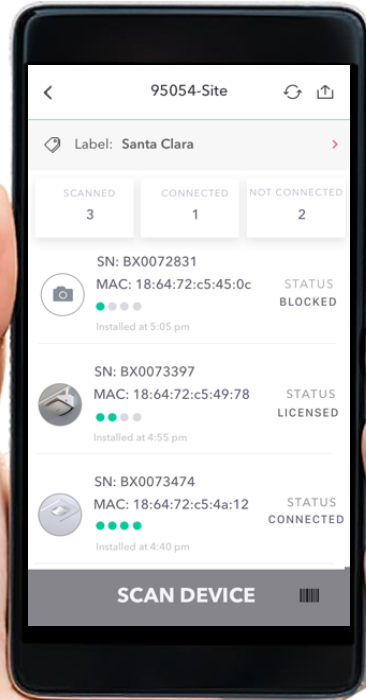
BRANCH Challenges

Evolution of Policy



Simplicity at Enterprise Scale

Installer App

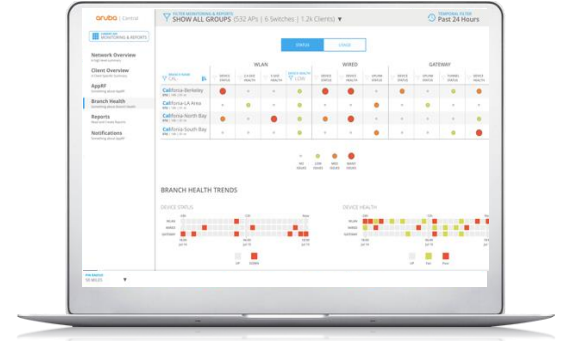


Zero-touch provisioning
Seamless onboarding with a mobile app

Single pane of glass

Central point for policy definition and branch enforcement

Aruba Central



Gateway



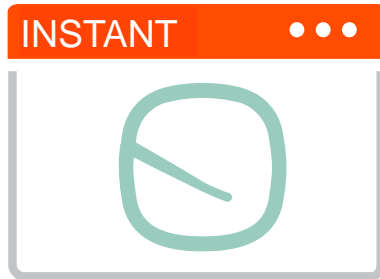
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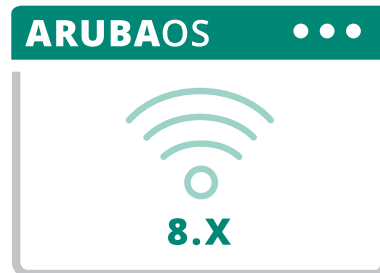


EVOLUTION TO A UNIFIED OPERATING SYSTEM

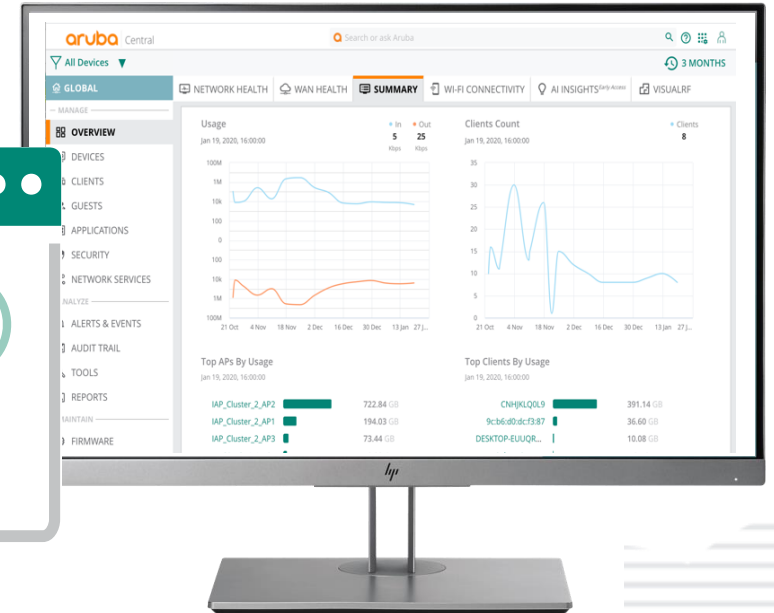
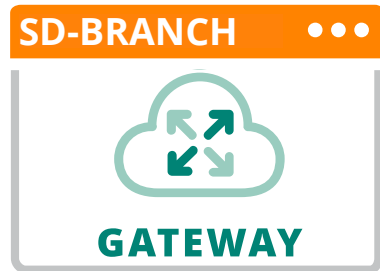
Aruba Instant
Controller-less WLANs



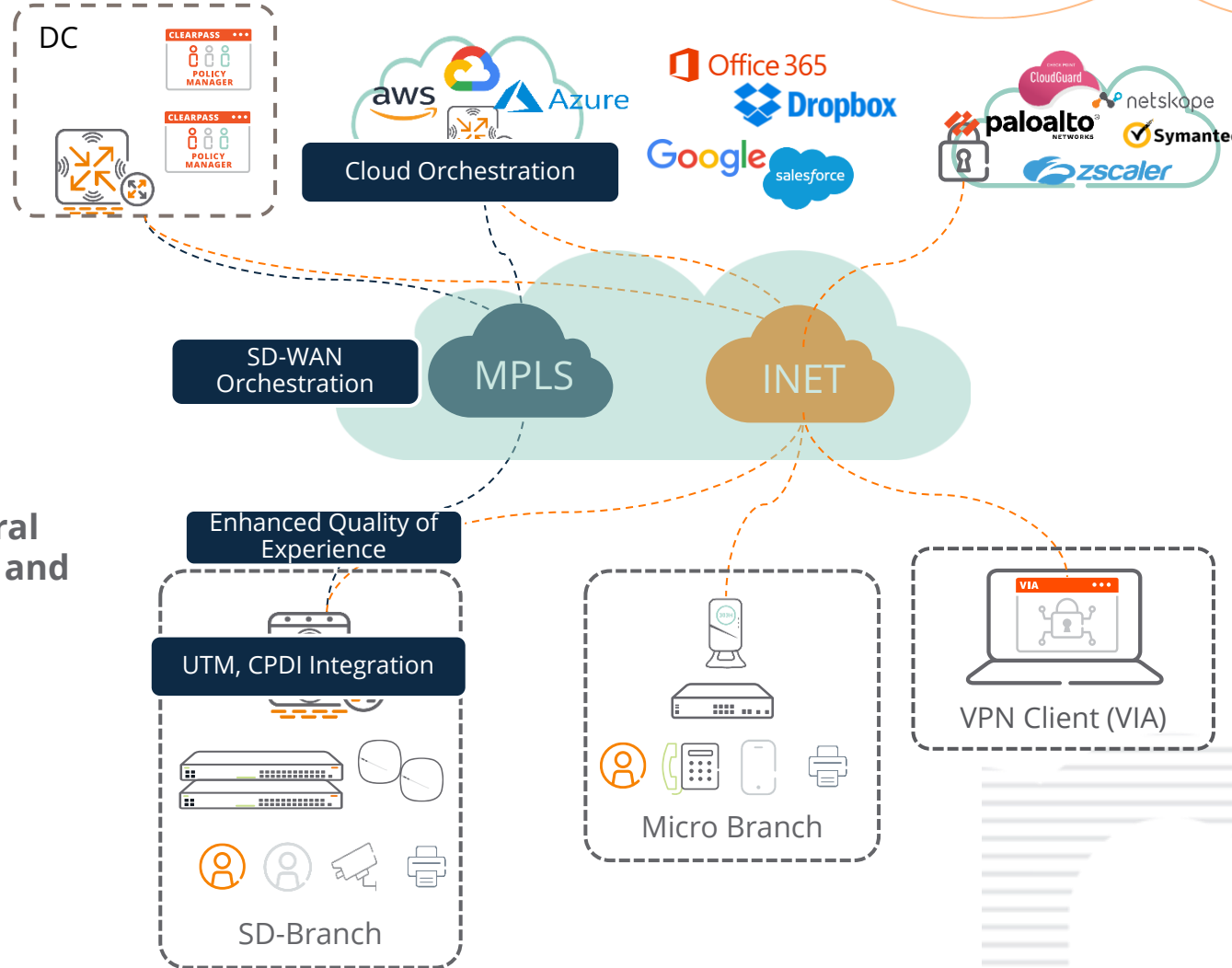
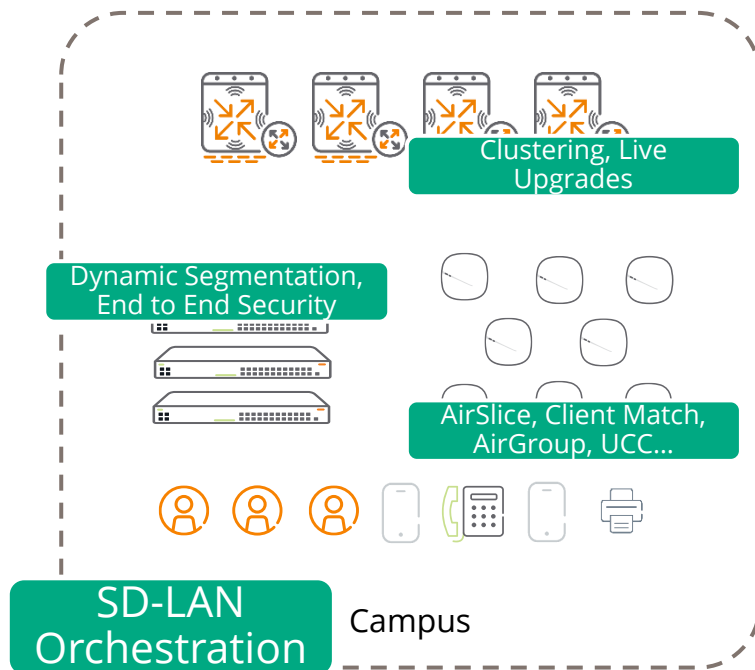
Mobility Conductor
and Controller-
based WLANs



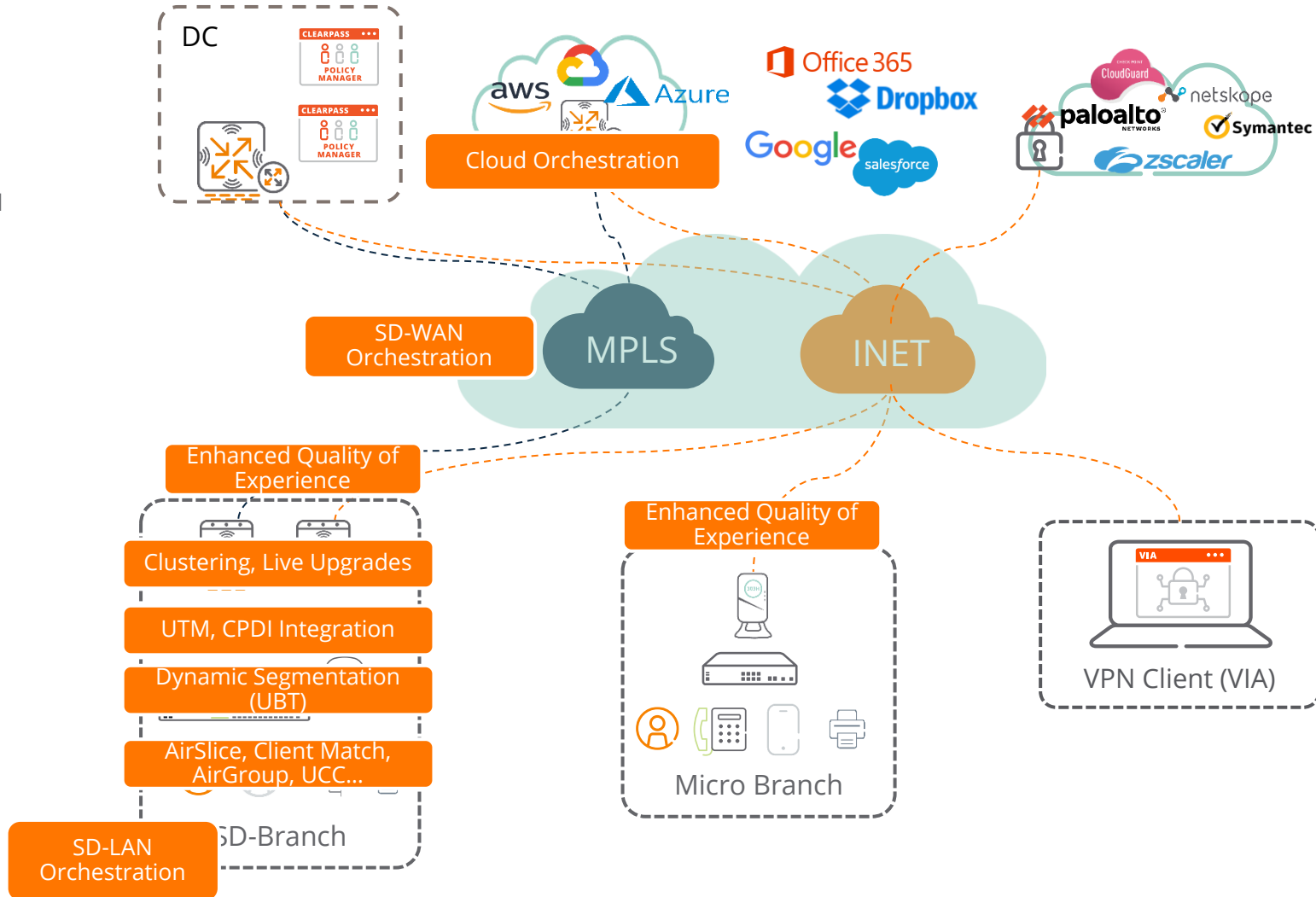
Branch and
Headend
Gateways



AOS 10 vs SD-Branch

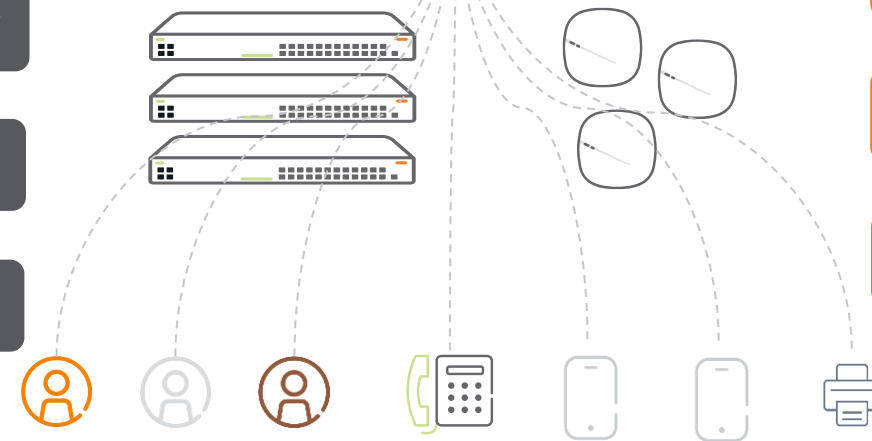
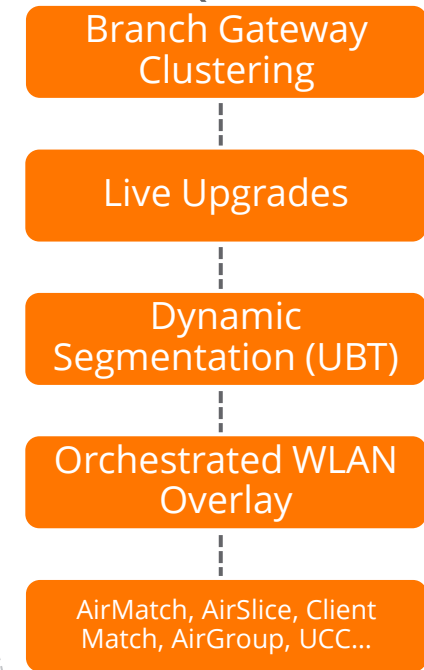
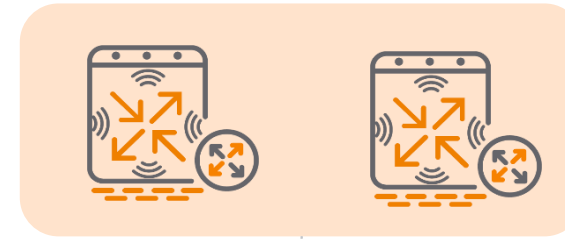
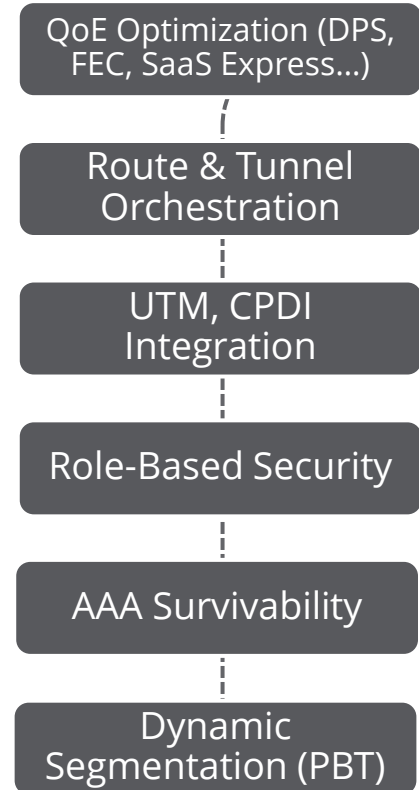


AOS 10 Convergence



AOS 10 SD-Branch

- SD-Branch, with SD-WAN and SD-LAN converging into the same gateway
- End-to-end role-based security with integrated UTM
- All operations (management, control, AI, etc) delivered as-a-Service from Aruba Central



SD-Branch Components

CONNECT

MICROBRANCH AP

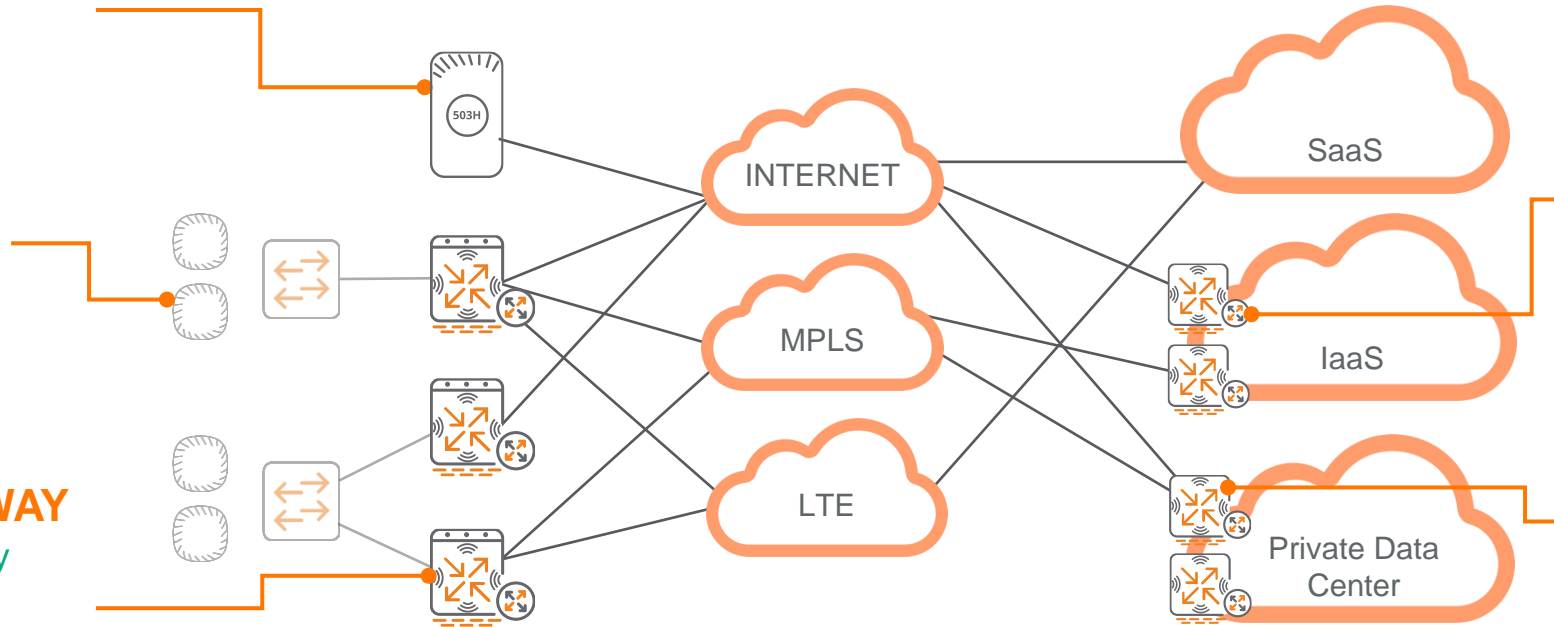
- Centralized L2/L3
- Home / Small Office
- Internet-based

AOS10 AP

- Tunnel / Bridged
- WIFI6

BRANCH GATEWAY

- Flexible Connectivity
- Form Factor Variety
- WAN/LAN Integration
- Orchestrated Tunnels
- Multiple Uplinks



VIRTUAL GATEWAY

- Scalable Performance
- AWS Transit VPC
- MS Azure Transit VNET
- Google Cloud

HEADEND GATEWAY (VPNC)

- Orchestrated Routing
- Hardware Resiliency
- High Speed Connectivity
- Automatic Clustering

FLEXIBILITY

HIGHLY AVAILABLE

RICH TELEMETRY



SD-Branch Policy

PROTECT

CORPORATE EXTENSION

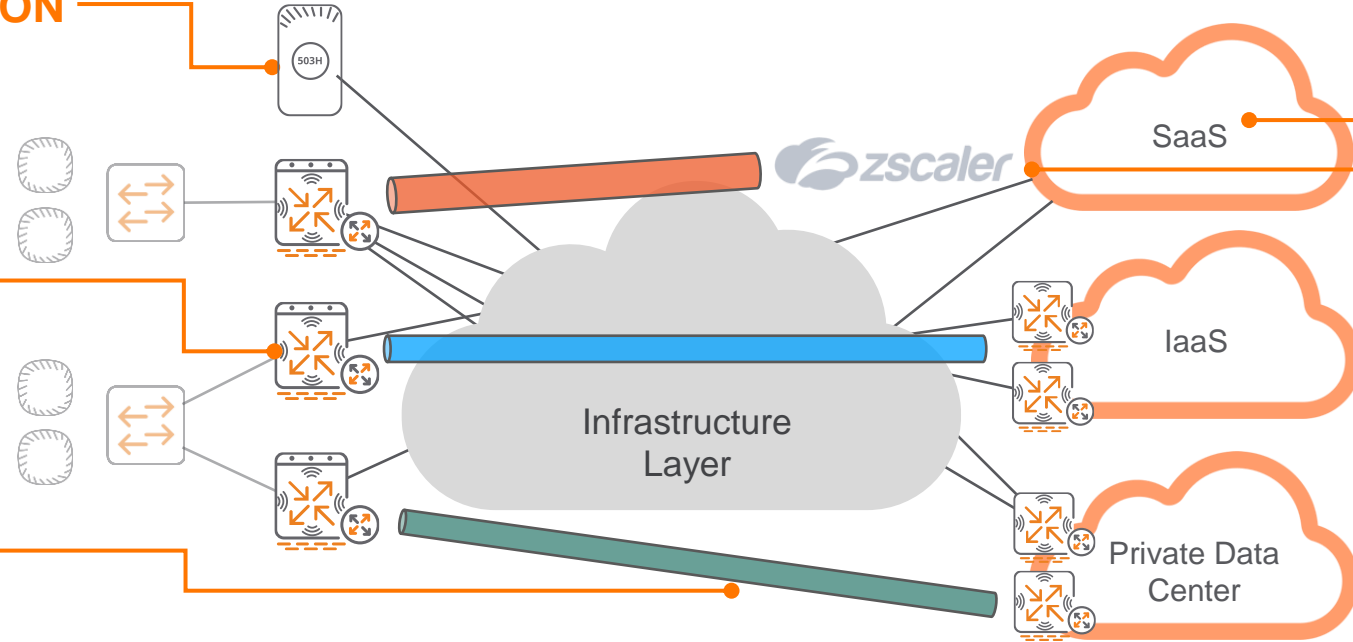
- Wired and Wireless
- Optional Split Tunnel

ON-BOARD UTM

- Direct Internet Access
- Dynamic Segmentation
- IPS/IDS
- North/South, East/West

IPSEC TUNNELING

- Transport Independence
- Secure Untrusted Networks
- Fully Orchestrated
- DPS Selects the Best WAN Path



SAAS OPTIMIZATION

- Optimal Routes
- Redirect DNS
- First Packet Classification

CLOUD CONNECT

- PBR Traffic Selection
- Flexibly Policy
- Any Device Security

SEGMENTATION

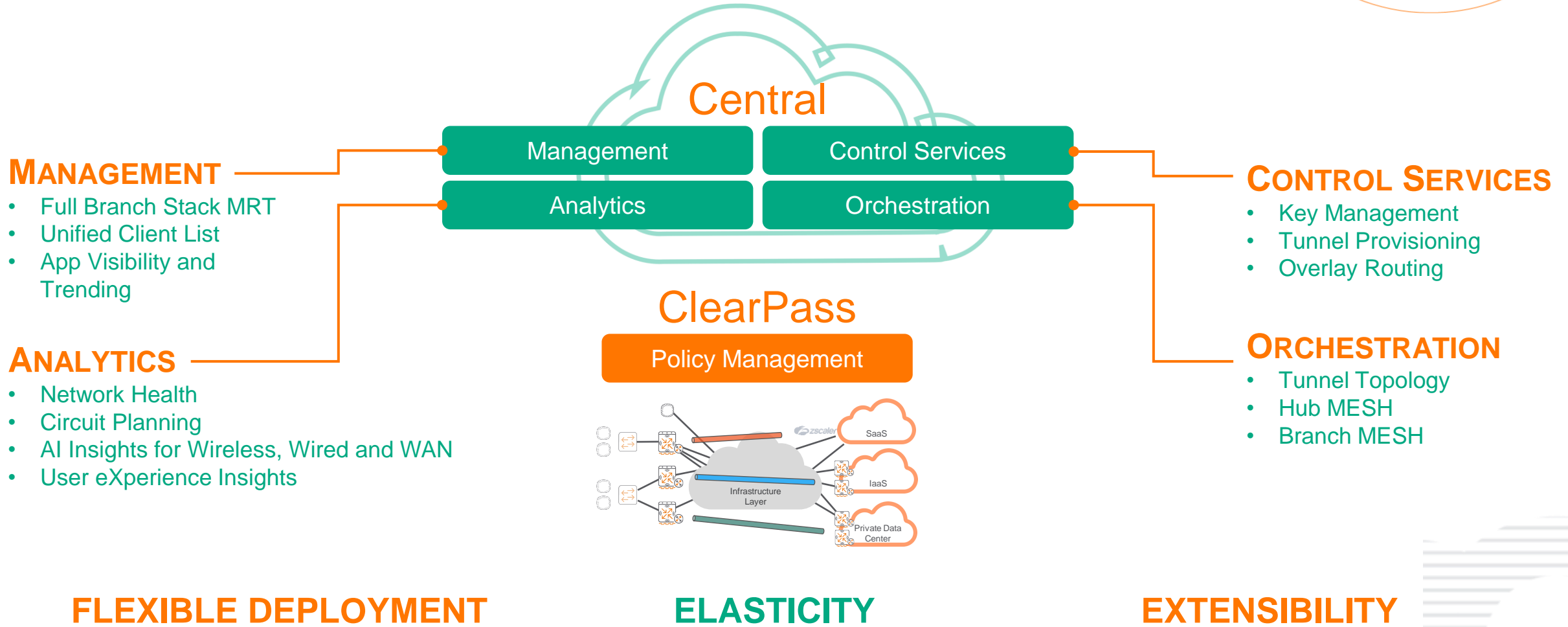
TRANSPORT
INDEPENDENCE

SERVICE INSERTION

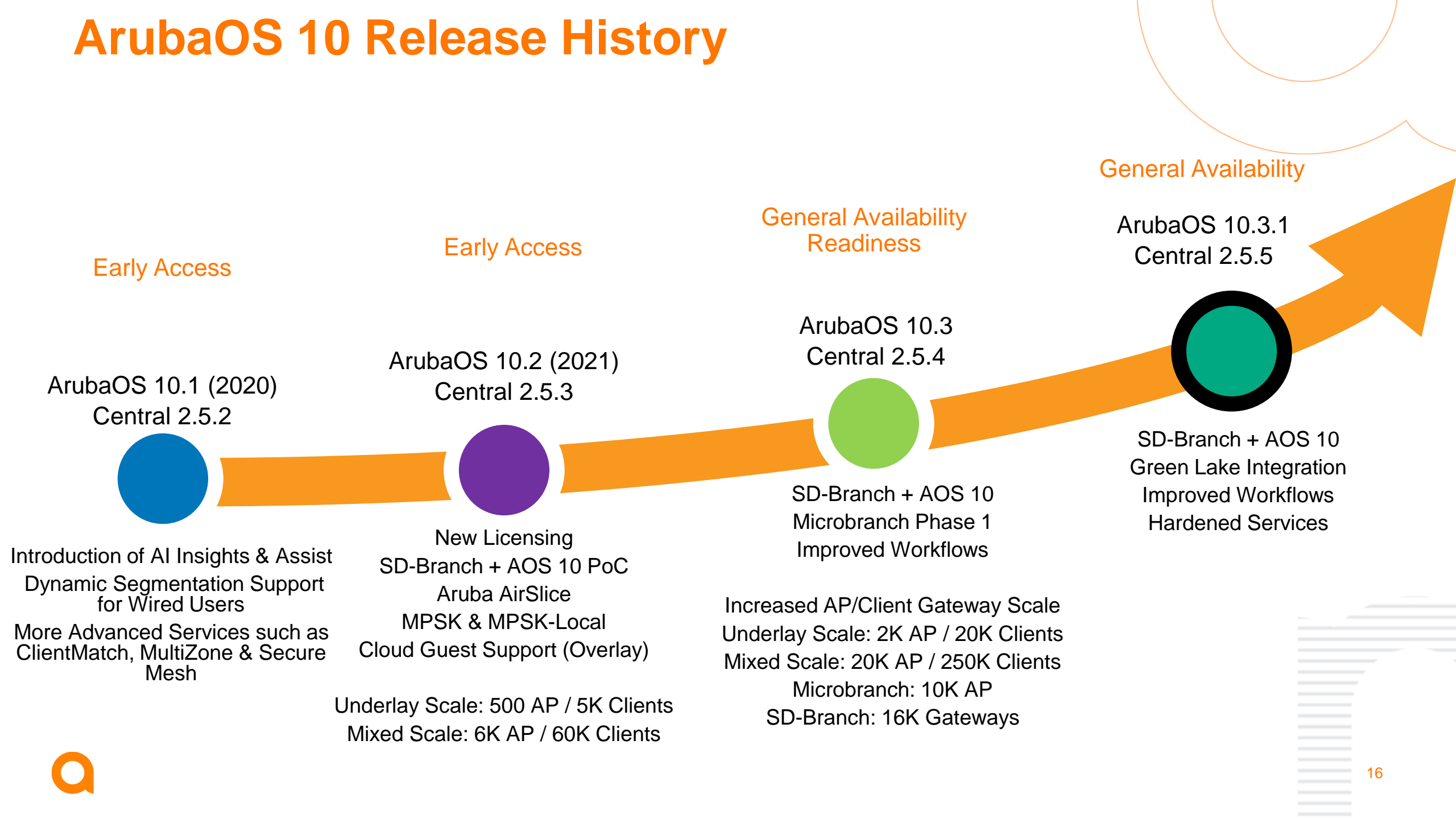


SD-Branch Services

**ANALYZE
& ACT**



ArubaOS 10 Release History



AOS 10.3.1 & Aruba Central

Cloud Native

Scalable

Unified
Architecture



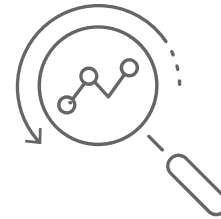
Analytics



Configuration
Management



Control Plane
Services



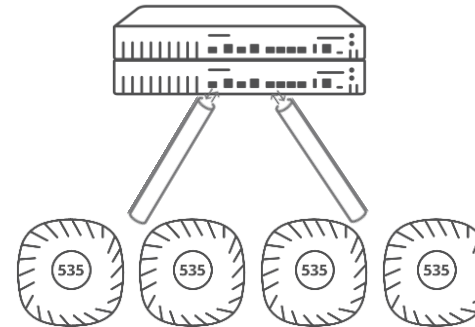
Monitoring and
Reporting



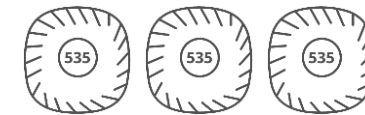
Security



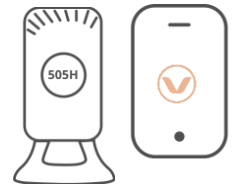
Location



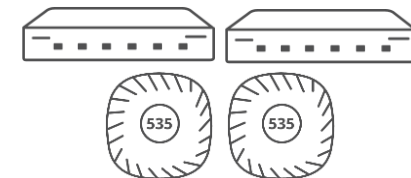
Large Campus



Small & Medium
Campus



Hybrid
Workplace



Branch









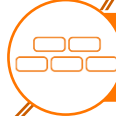
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SD-Branch Features



-  7xxx/90xx series devices can act as VPNC or Branch gateway. Orchestrated Virtual Gateways (vGW) for AWS, Azure, GCP
-  High Availability features for gateways, auto-clustering, and multiple WAN/Internet uplinks
-  Advanced, Orchestrated Routing and Route Redistribution with RIPv2/OSPF/BGP, Prefix-list/Route-map/adv. BGP Attribute Support
-  Orchestrated, High-performance, SD-WAN with support for large number of tunnels – aggregates traffic from hundreds-thousands of branches
-  PBR/DPS/FEC Policies to route traffic on multiple uplinks based on link performance (Loss/Latency/Jitter) and source (application/destination/user/device) as well as reconstitute lost / erroneous packets
-  SaaS Express to steer and monitor SaaS applications, provide enhanced Quality of Experience (QoE)
-  Unified Security Policy Framework based on user roles for WAN/LAN/WLAN, UTM, IDS/IPS, and advanced malware/antivirus protection with 3rd party integration (Checkpoint/Zscaler/Netskope/Palo Alto)

Tunnel and Route Orchestration

WAN Links auto-discovered and overlay tunnels orchestrated

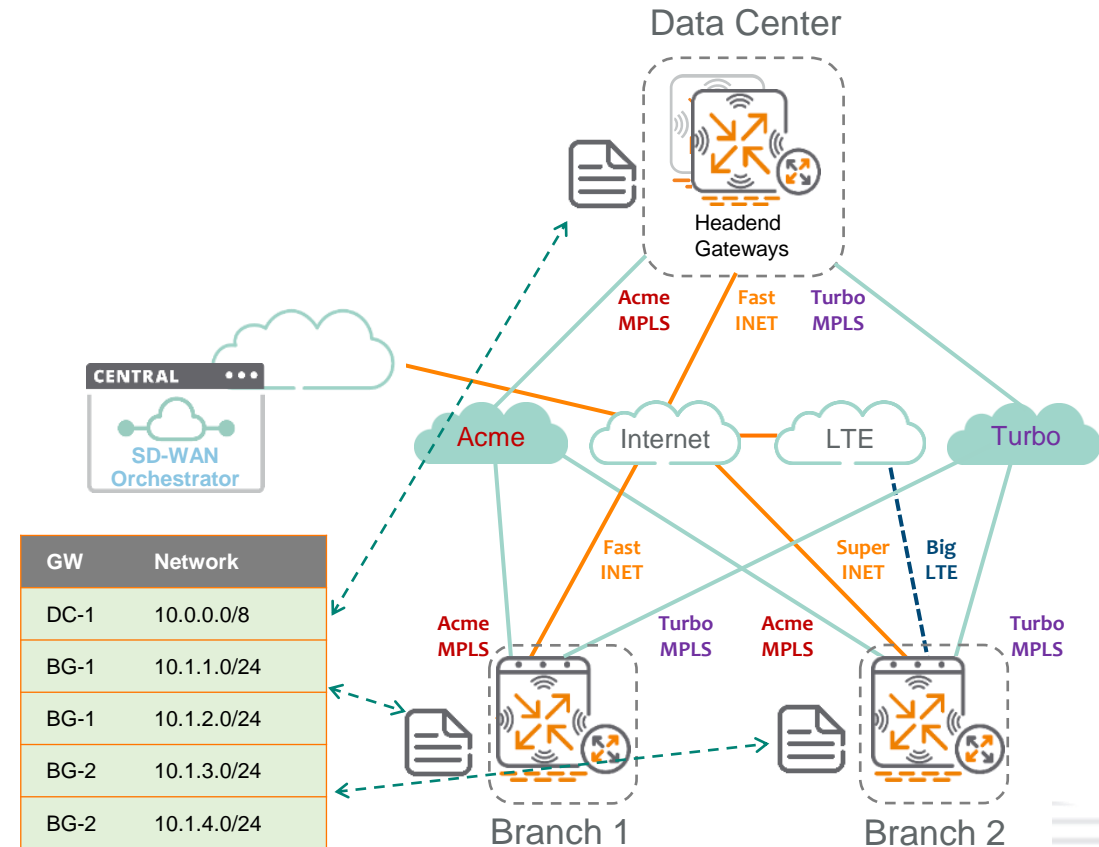
SD-WAN overlay mgmt. uses centralized control plan

Centralized Key Management for Tunnels

Route Distribution Orchestrated by Centralized Policy

Scalable and Resilient and Based on Topology

Tunnel and Route Survivability if Orchestrator Unreachable



Dynamic Path Steering

Role and Application

Per User Role (employee, guest, IoT) by VLAN or CPPM

Classify important Applications (Office, SFDC, etc)

Service Level Agreement

Use Active Monitoring for Delay, Jitter, and Loss

Optional SLA parameters per User and Application category

Path Preference

If no SLA, DPS steers only when uplink/tunnel unreachable

MPLS, INET, LTE with Fallback Options per WAN policy

Load Balance if multiple "primary" paths exist



SaaS Optimization

Dynamically Identify Optimal Routes for high priority SaaS solutions

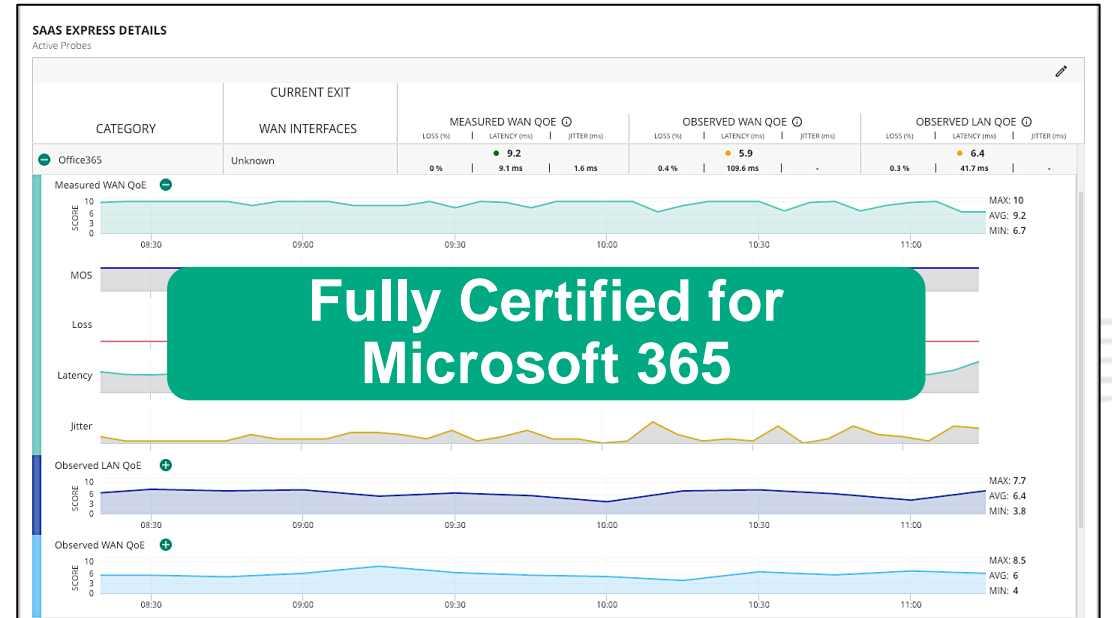
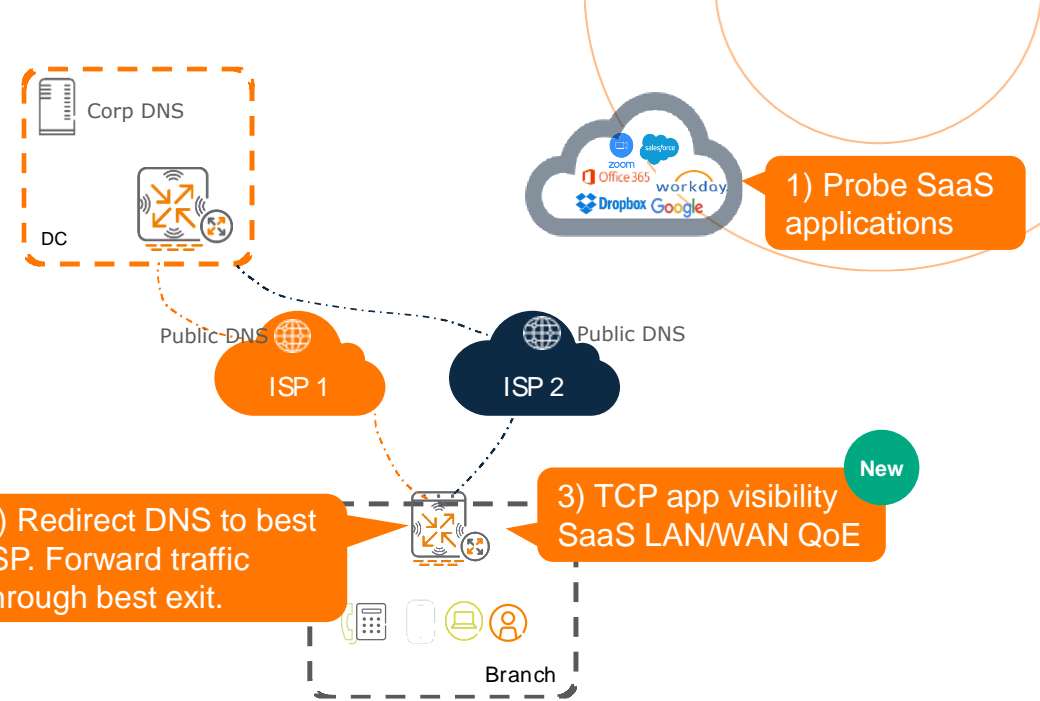
Measure the SaaS with HTTP probes to enhance the end to end Quality of Experience from each branch

Redirect DNS requests through selected ISP

Inline TCP QoE Visibility

Gateways act as DNS proxy for all FQDNs classified by Microsoft

“_saas” office applications use the IP addresses learnt from the API for traffic classification



Unified Branch Security



App-User Aware Firewall



Deep Packet Inspection



Web content & URL filtering



App & URL reputation



Cloud Security integrations



IDS / IPS



Device Profiling



Branch to Cloud Security

North-South and East-West IDS/IPS

Signature and Pattern based detection

DDoS Detection

Correlation and Incident Management



Threat intel - Command and Control, Ransomware, Phishing, Malware, Spyware, Crypto Mining

Seamless Integration with 3rd Party (Zscaler, CheckPoint, Palo Alto)



Cloud Security Integration to Orchestrate SASE

One-Click Cloud Security Integration

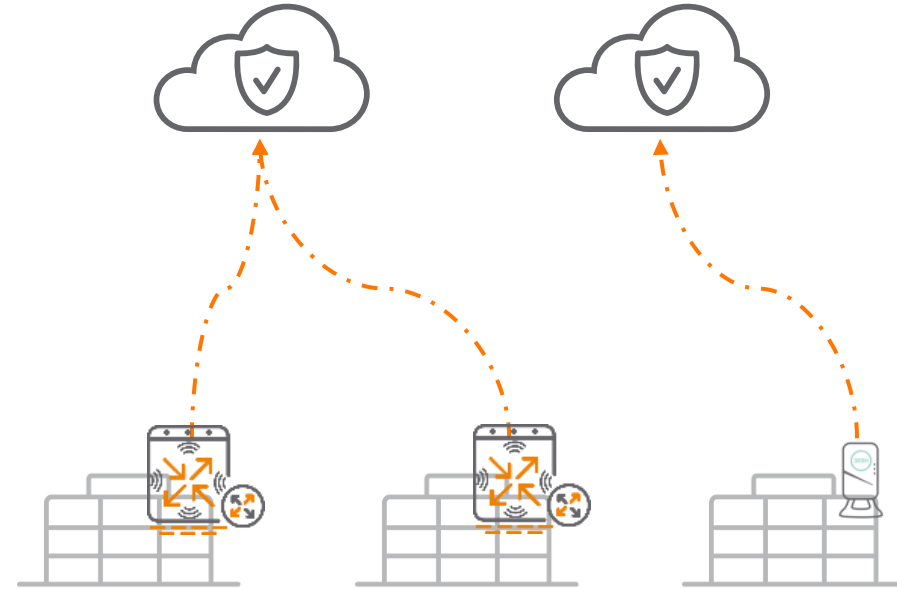
Orchestration to create and define locations in the cloud security provider

Find the nearest Cloud Security Edge

Geo-location of nearest cloud security edge to optimize traffic path

Policy-based enforcement

Role/application-aware routing policies enable more granular integration



Reduce deployment time

Cloud Security integration deployed from a central point. No manual overrides needed.

Optimize traffic flow

Send traffic through the nearest node.

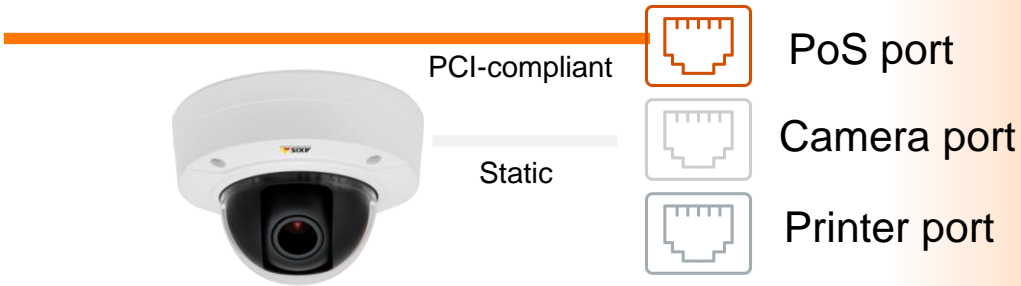
Only send the necessary traffic

Real-time traffic or traffic from non-critical users (guest) can selectively be routed through the local-breakout

Dynamic Segmentation, Branch-Wide

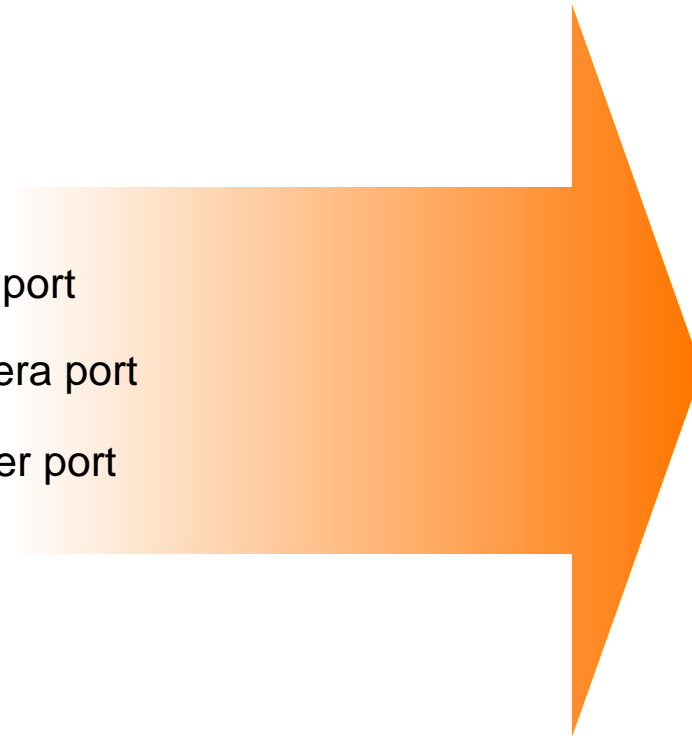
PORT-BASED

Manual configuration of ACLs, VLANs, QoS



Hard to scale for device type and quantity across multiple sites

Role-assignment based on AAA and device Profiling
through DPI-based discovery and profiling of devices



ROLE-BASED

Automate configurations with context



Flatten configurations at high scale based on user, device, app

Secure all traffic
role-based security policies can be applied to east-west traffic and north—south traffic

Simplify the network
as you no longer need VLANs to segment devices

AOS 10 Microbranch



Aruba Central
Management and
Control

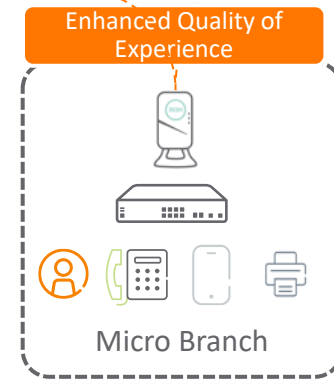
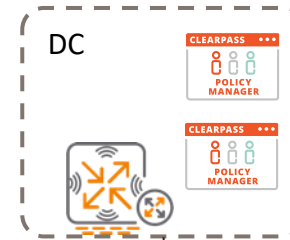
AP behaves like mini
Branch Gateway

Orchestrated Tunnels
and Routes

Local Breakout with
Policy Based Routing

Cloud Security
Orchestration (Zscaler)

Gateway-like WAN
Monitoring



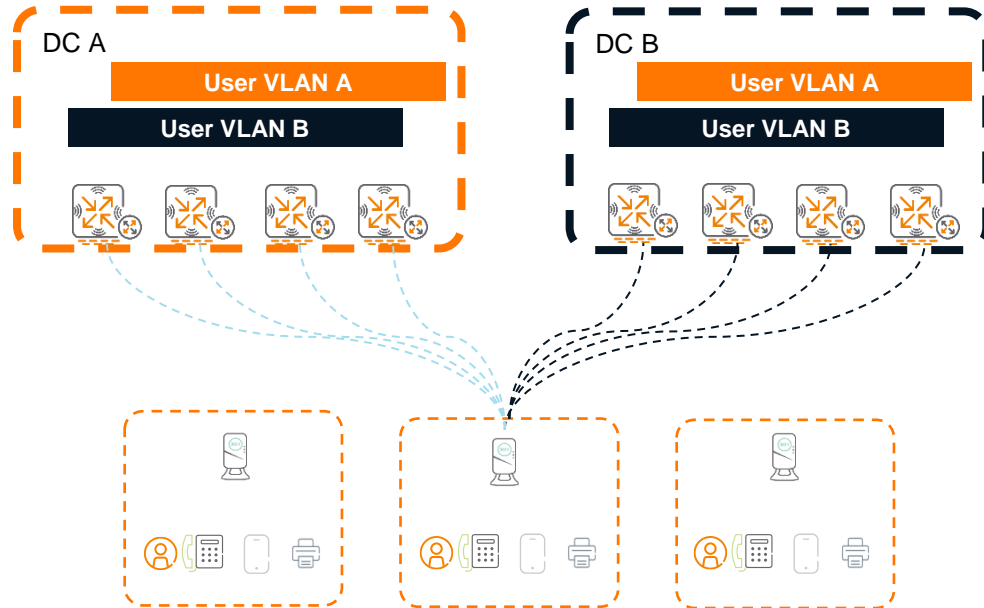
Choose Your Mode

Centralized L2 Mode

Behaves like modern Remote AP

Orchestrated Tunnels to all cluster members

Traffic is tunneled or SNAT based on PBR



Distributed L3 Mode

AP acts as mini SD-Branch Gateway

Up to 5 Active DCs

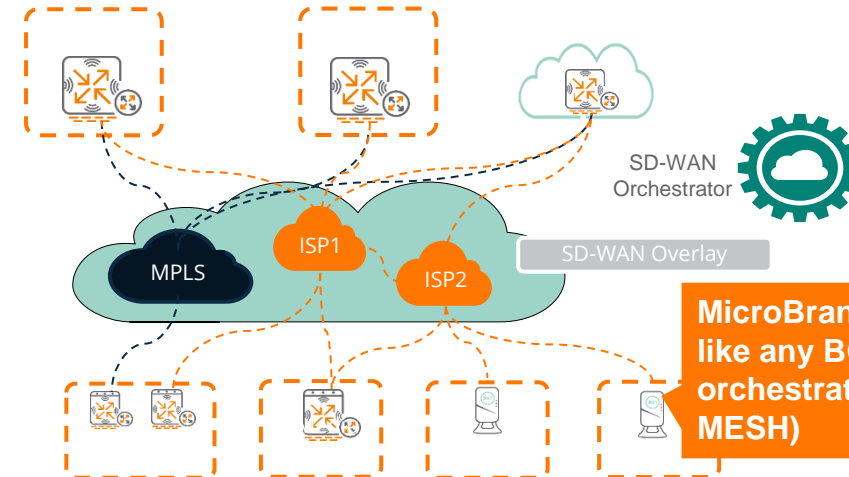
AP Supports up to 500 routes

All Tunnels are active

Orchestrated Tunnels and Routing

Traffic forwarded on Orchestrated Routing cost

Policy Based Routing

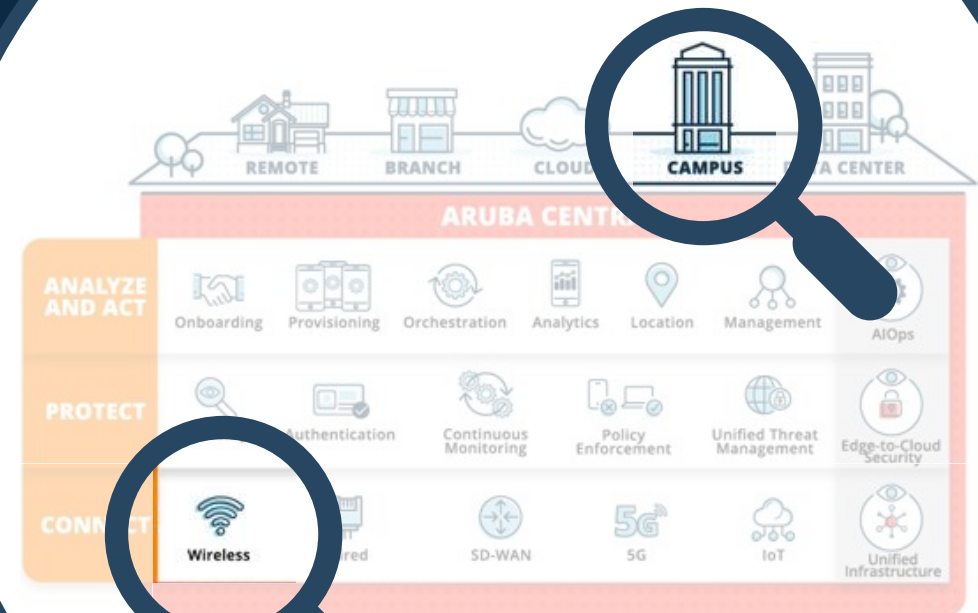


MicroBranch behaves exactly like any BGW in terms of orchestration (except branch MESH)

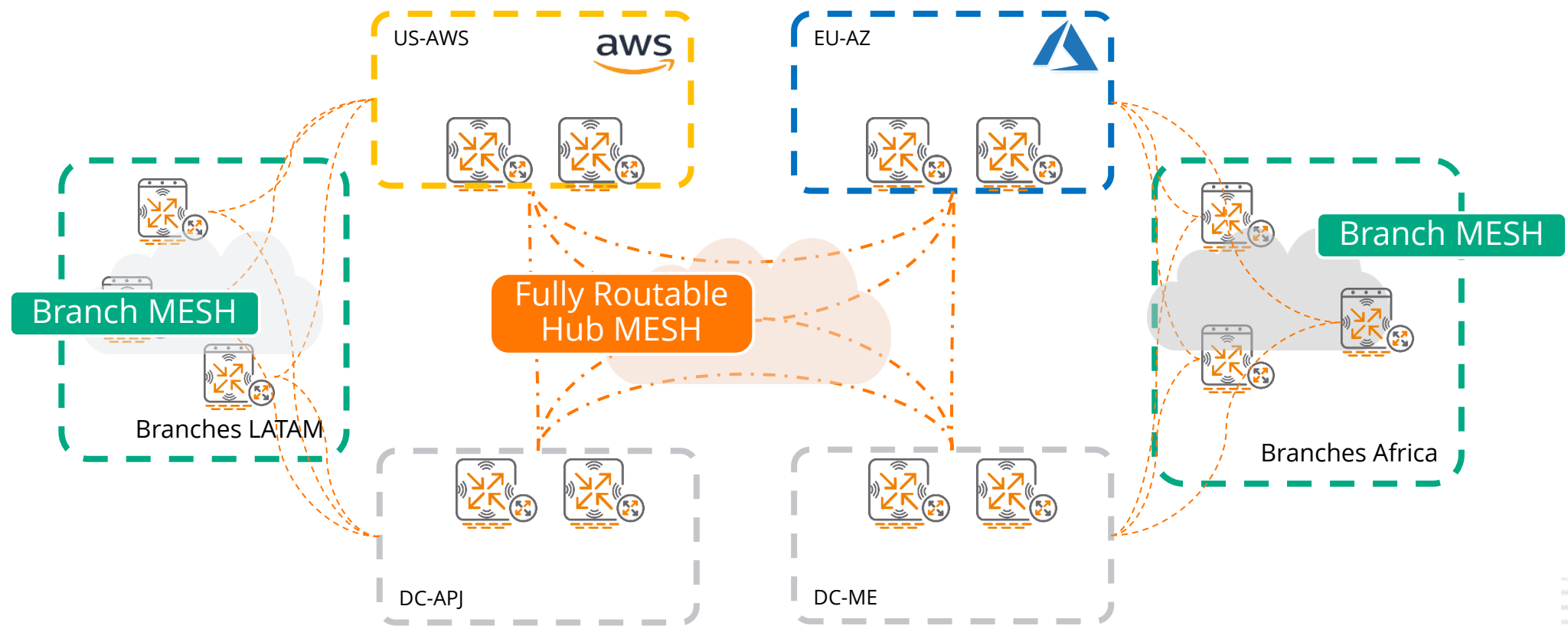


Agenda

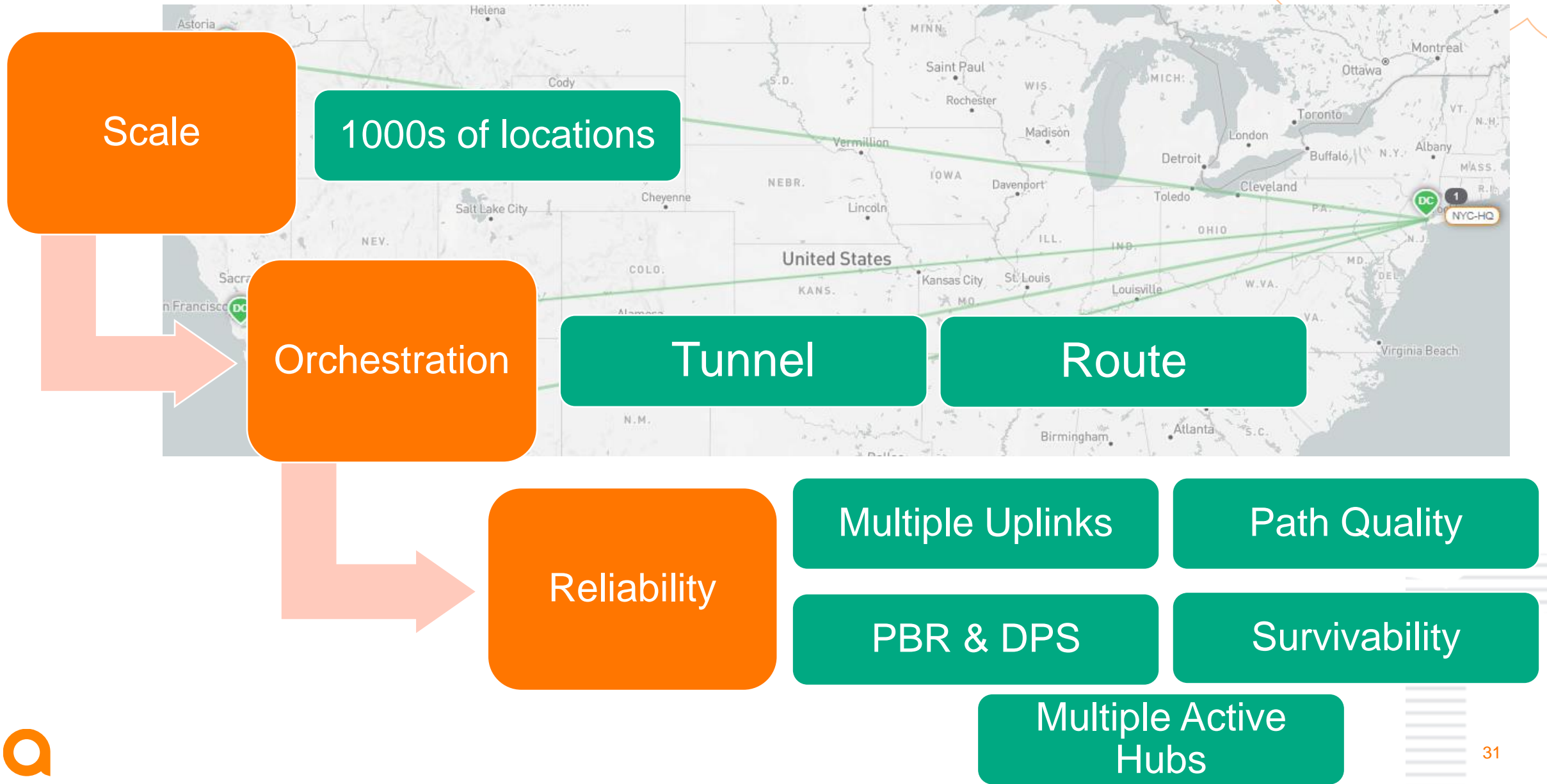
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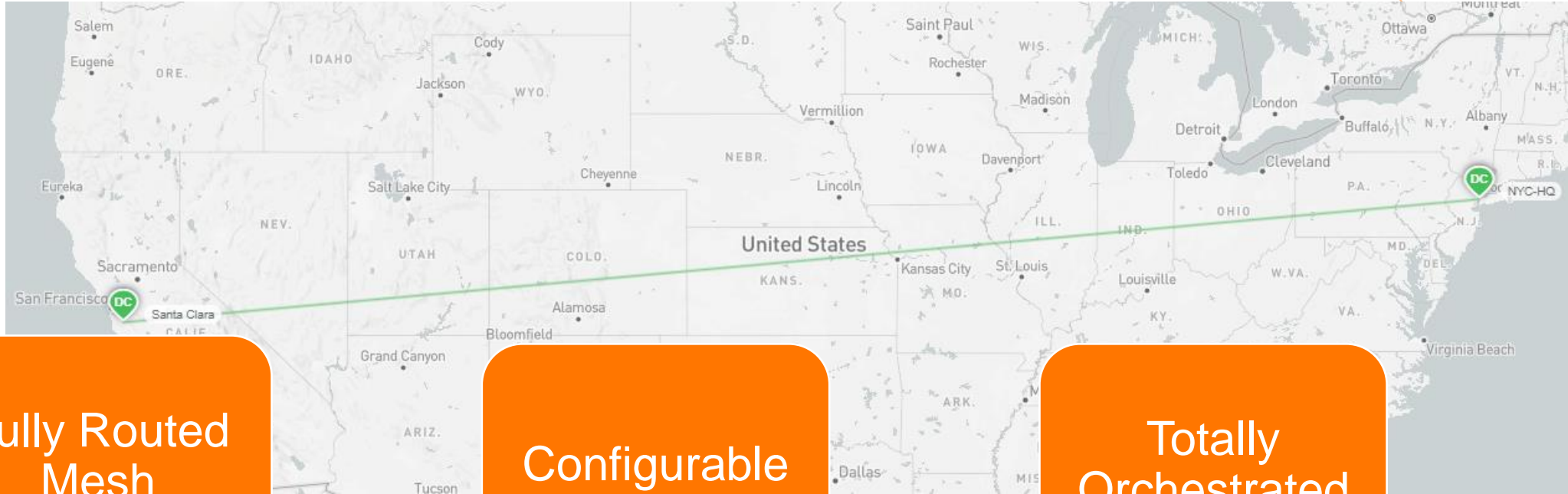
SD-WAN Topologies



Hub and Spoke



Hub Mesh



Fully Routed Mesh

Configurable

Totally Orchestrated

SPF

Multi-Hop

Automatic Re-Routing

Routing Policies

Network Segmentation

Multiple Mesh Networks

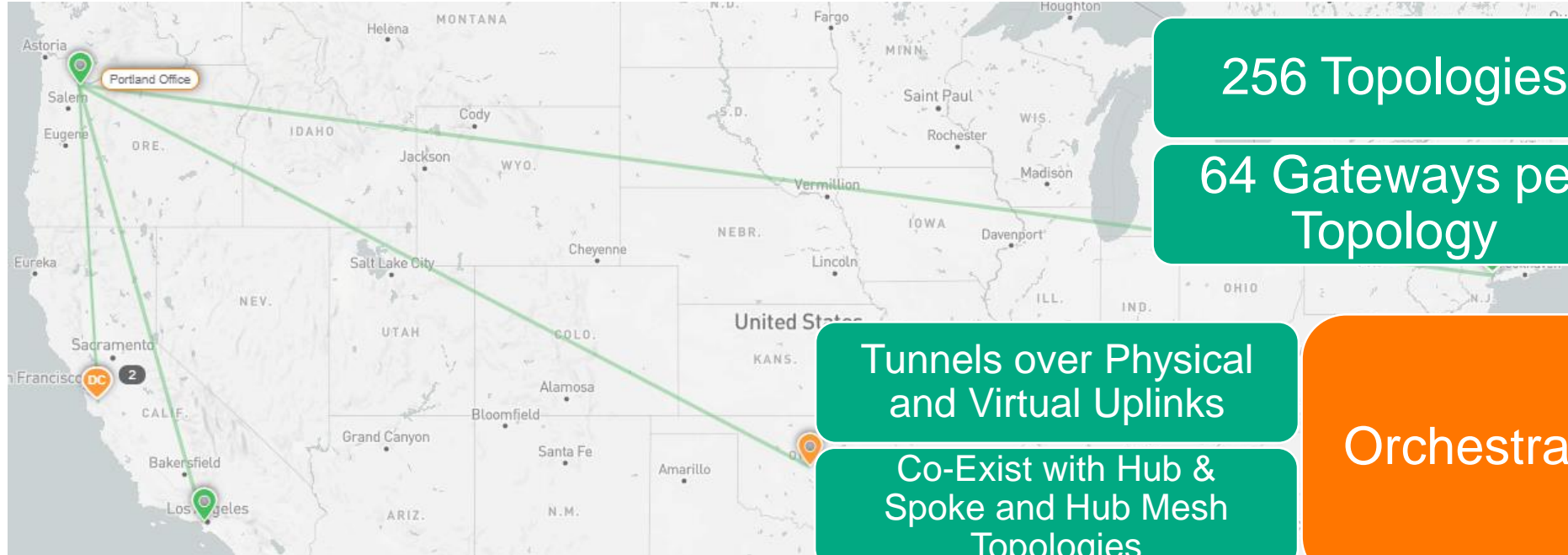
Tunnel

Route

Physical or Virtual



Branch Mesh



256 Topologies

64 Gateways per Topology

Scale

Tunnels over Physical and Virtual Uplinks

Co-Exist with Hub & Spoke and Hub Mesh Topologies

Orchestrated

Non-Transitive Routing

Regional Branch Mesh

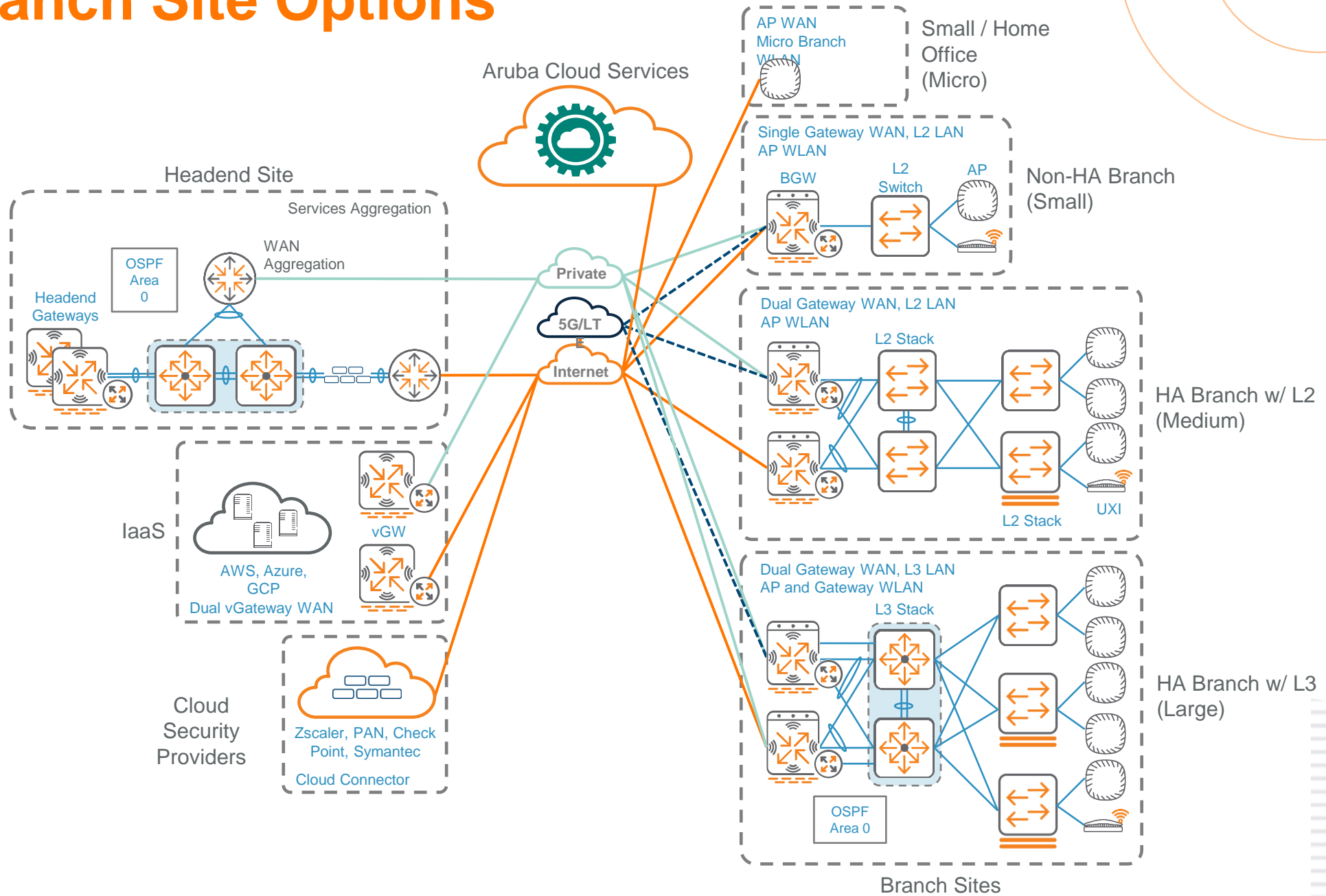
Dynamic Path Steering

STUN & TURN for NAT/PAT Boundaries

Configurable



SD-Branch Site Options



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Questions



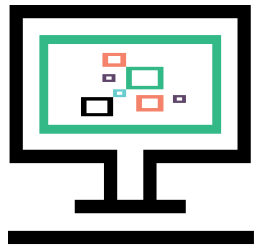
Partner Resources

Portals



Airheads Community

[\(Click Here\)](#)



Arubapedia for Partners

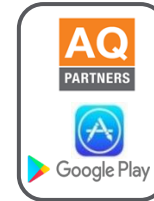
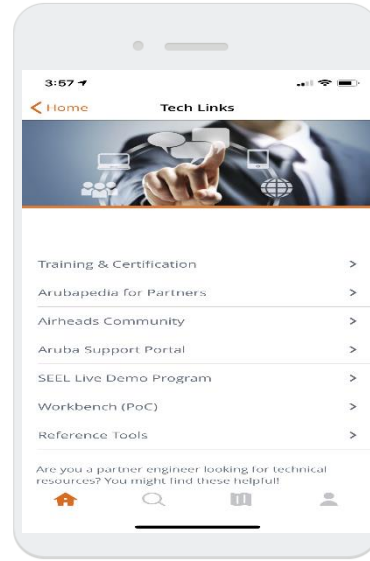
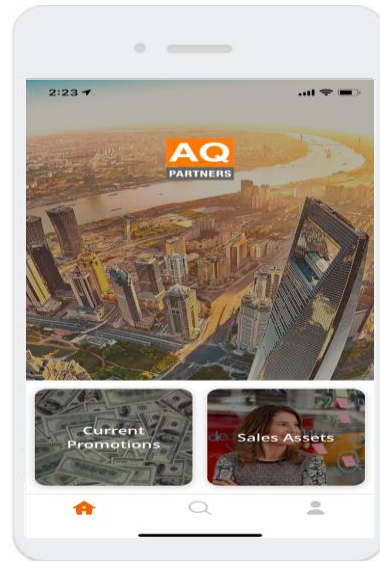
[\(Click Here\)](#)



Partner Ready for Networking portal

[\(Click Here\)](#)

Mobile App



Aruba Quotient for Partners (mobile app)
Navigate to Tech Links

[Apple Store \(Click Here\)](#)
[Google Play \(Click Here\)](#)

Live Support

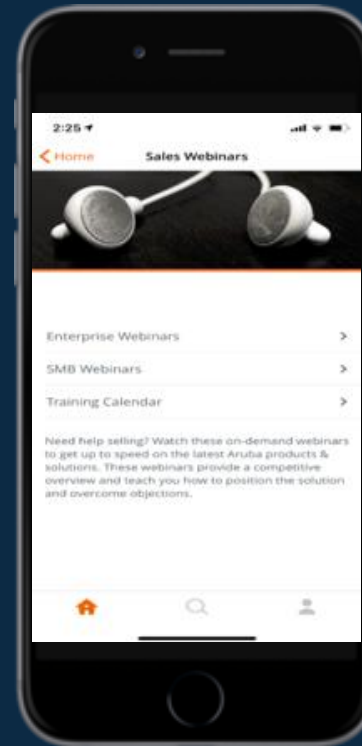
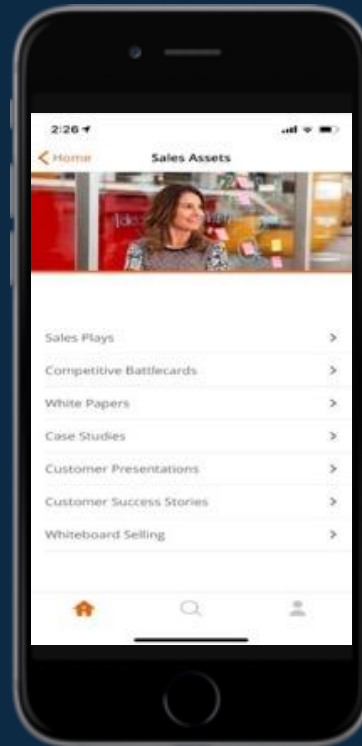
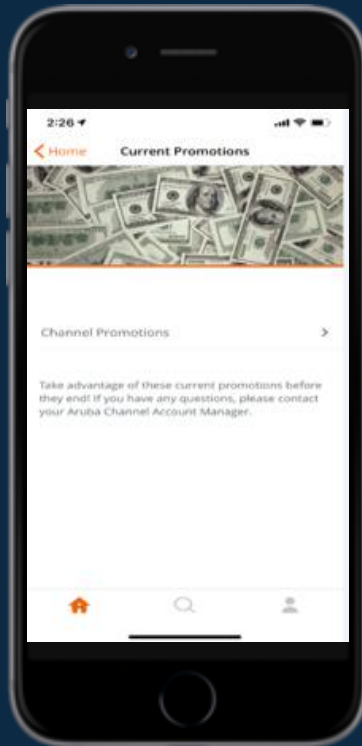


Channel SEs (CSEs)
Regional channel support

Aruba Quotient for Partners Mobile App



1. Download the free “Aruba Quotient for Partners”
2. Login with Partner Login information
3. Browse content by scrolling left and right at bottom of screen



Thank You

