

# SD-Branch in THE **Wild**

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# THE EXPERIENCE EDGE

The places in a **mobile-first** world, **enabled by IoT**.

Where people work, stay, visit, and go.

Where experiences are becoming smart and digital.



WORKPLACES



HOTELS



STORES



SCHOOLS



CARE FACILITIES



FACTORIES



# Challenges with Current Branch Architectures

## LAN Challenges

- Complexity caused by increasing number of devices, VLAN proliferation
- End points going mobile
- Poor visibility into clients/devices
- Lack of authentication of clients/devices
- Lack of common policy for users connecting to network via wired or wireless



## WAN Challenges

- Limited capacity & long setup times for MPLS
  - Lack of control and visibility into WAN traffic
  - Complex management of the WAN and routing policy
  - More SaaS traffic (O365, Box, SFDC, ...) directed over Internet.
- Lack security measures and control to safeguard the network

## Operational Challenges

- Multiple management platforms, Multiple operating models, Multiple vendors, Policy is distributed



# Goal: Solve the Branch problem, not just the WAN



## Simple (at Enterprise scale)

Drive simplicity and fewer boxes in branch solution



## Transport Independency

Own your WAN policy



**Common Policy and Management** for Wired, WLAN and WAN





# Software driven branch networks

## CLOUD MANAGEMENT



## NETWORK INFRASTRUCTURE



## SERVICES





# SD-Branch Overview

## Cloud-based Services

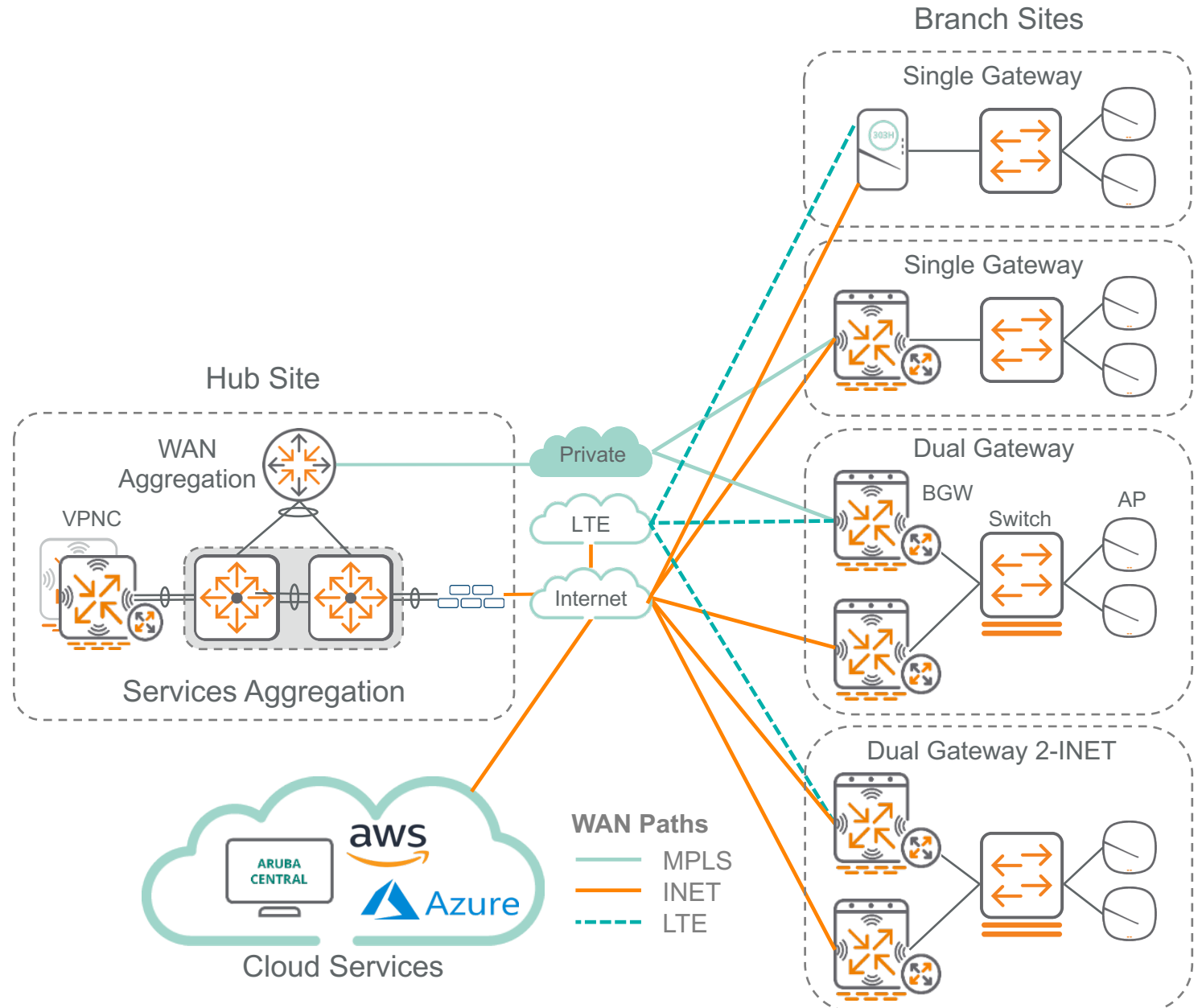
- Aruba Central for management
- VPNC's in AWS/Azure/GPC

## Hub Site

- Headend gateway (VPNC)
- WAN aggregation
- Internet firewall

## Branch Sites

- ZTP to deploy and configure
- Single or dual Micro-branch gateways
- Single or dual branch gateways (BGW)
- Single or dual WAN interfaces on BGW
- Single or stacked access switches
- Instant APs for employee and guest

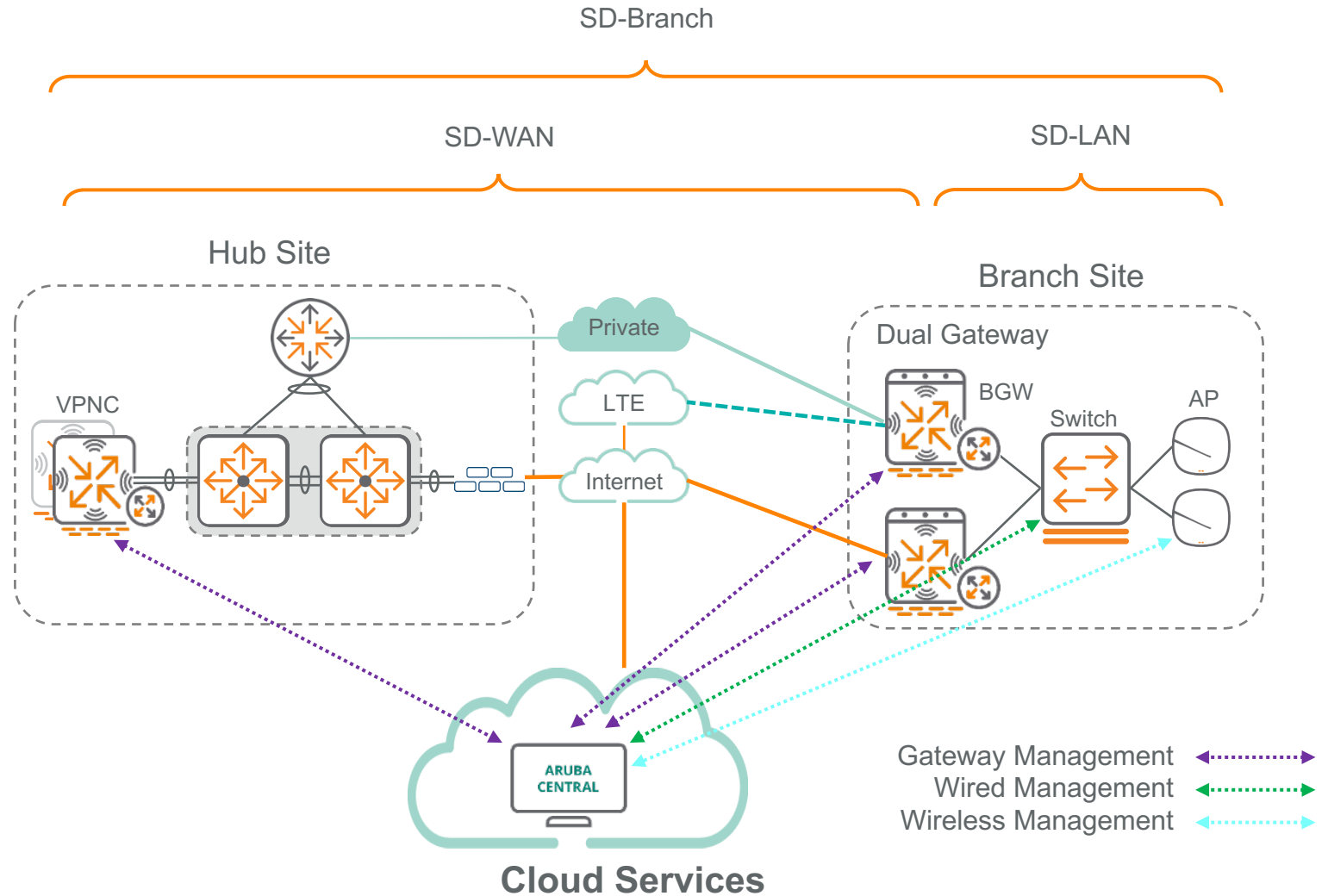




# Cloud-based Management

## Aruba Central

- Global Settings
  - Device inventory
  - Subscription key management
  - Group management
  - Site management
- **Gateway management**
- **Wired management**
- **Wireless management**
- Monitoring and reporting
- Maintenance



# Central Groups

Groups are the primary configuration container for all devices managed in Central

## VPNC Groups

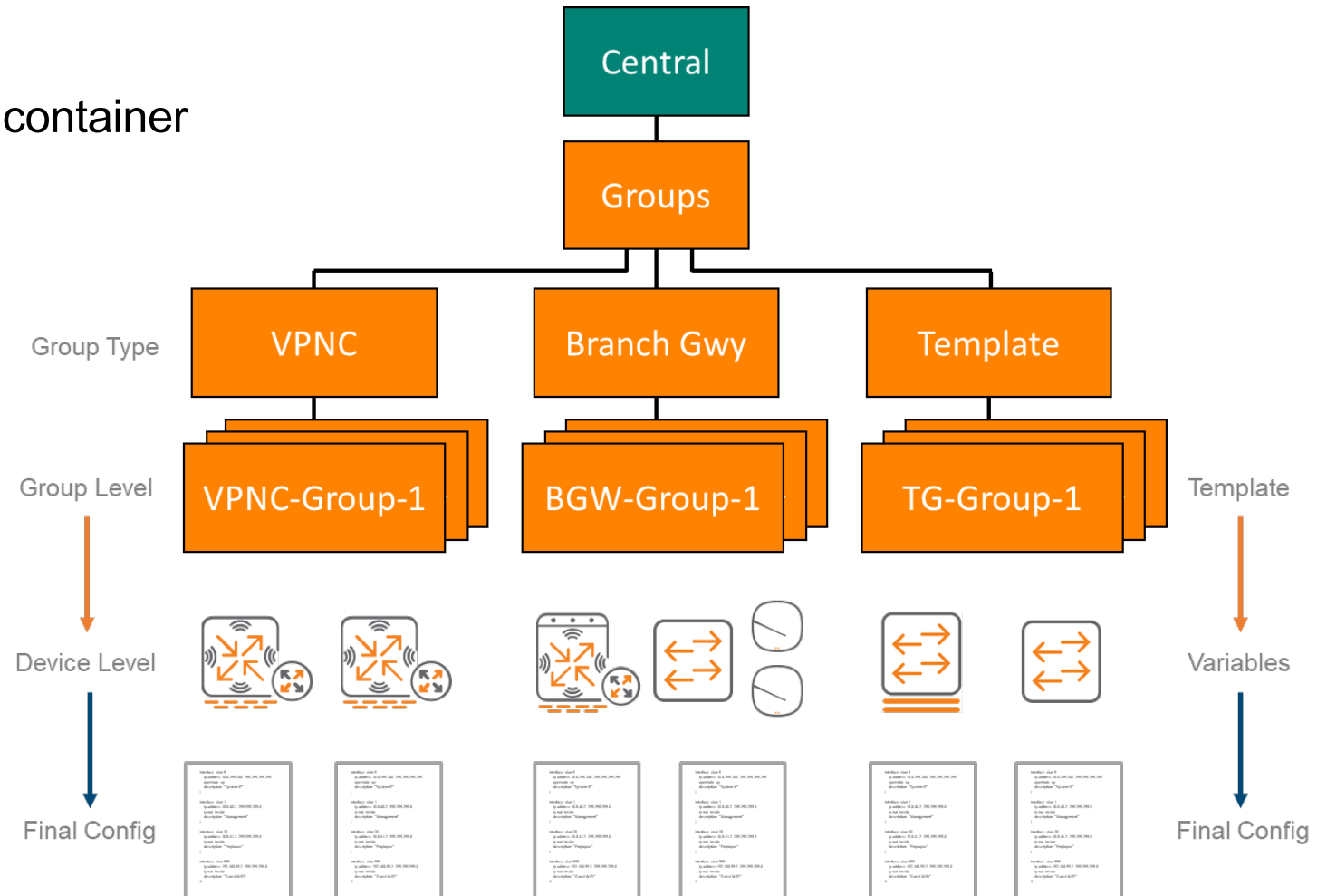
- VPNC Gateways

## Branch Gateway Groups

- Branch Gateways
- Switches
- IAP VCs

## Template Groups

- Switches
- Switch Stacks

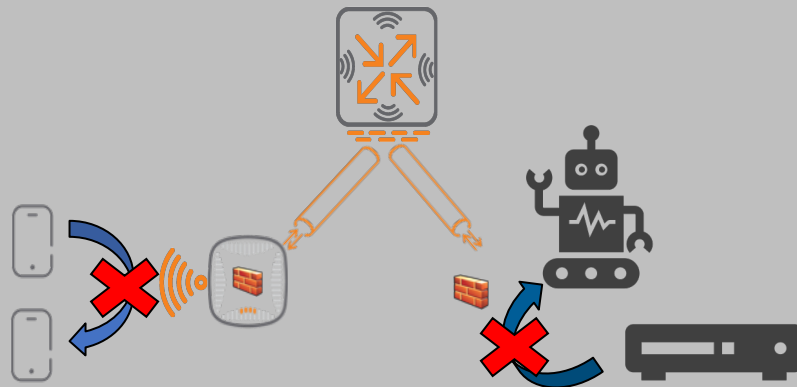




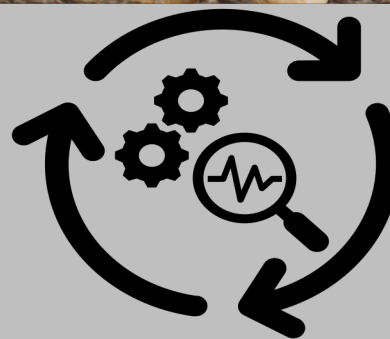
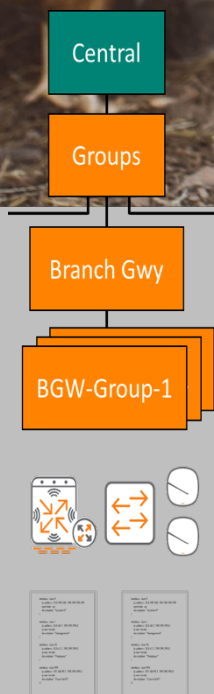
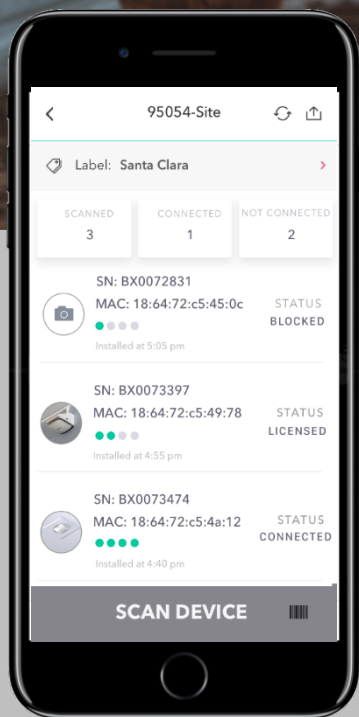
# Chicken to Cloud C2C



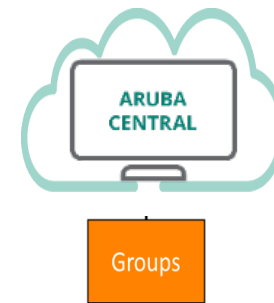
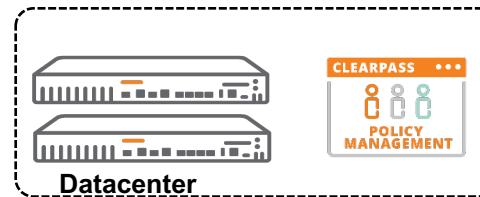




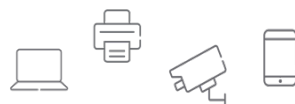




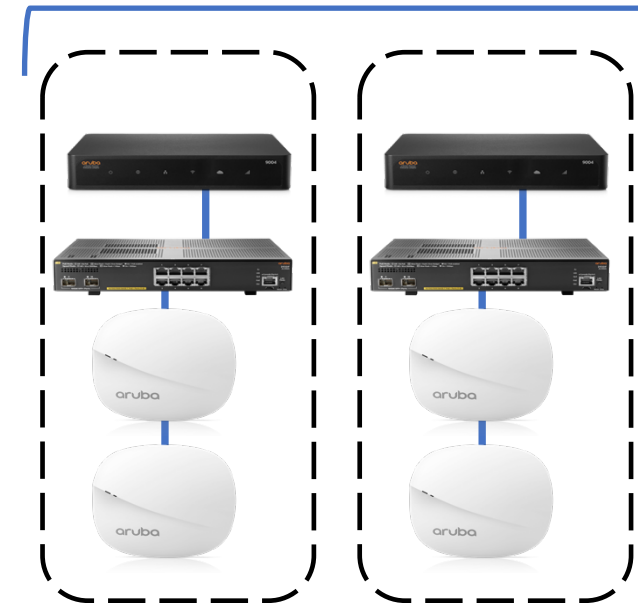
Zigbee  
WiFi 6  
MultiGig  
Piggyback Power  
Integrated  
directional antennas  
SFP / Ruggedized



**S** Small farms



**M** Medium / Large farms





# Branch Offices





300 Locations



ROUTER: VRF, VPN, SUBNET, ACL



FIREWALL: ZONE, TRUST, ACL



WAN OPT: THROTTLING,  
COMPRESSION



VLAN 201

LAN: VLAN, ACL, SUBNET



LAN: VLAN, ACL, SUBNET

VLAN 103



300 Locations



Role-Based



ELIMINATE  
VLAN SPRAWL



# SD-WAN Orchestrator

## What is it ?

Policy driven SD-WAN overlay management using Centralized Control plane

WAN links are auto-discovered and SD-WAN tunnels are orchestrated based on topology needs

No need for legacy routing protocols in overlay SD-WAN Fabric

Route distribution is orchestrated based on Policy

## Why?

Centralized Key Management for tunnels

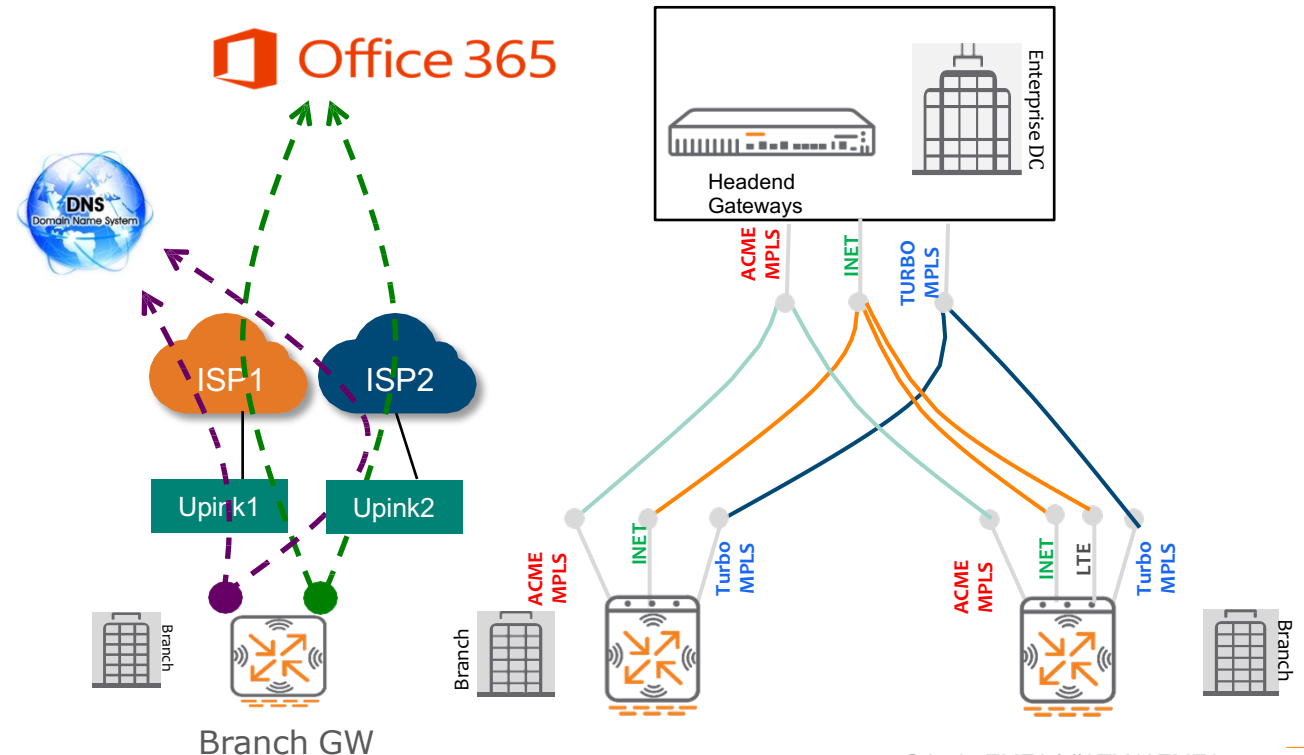
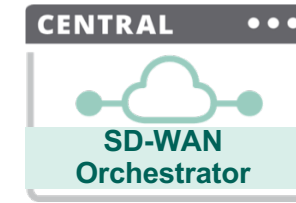
Centralized routing policies

Scalable and Resilient

Support flexible overlay topologies

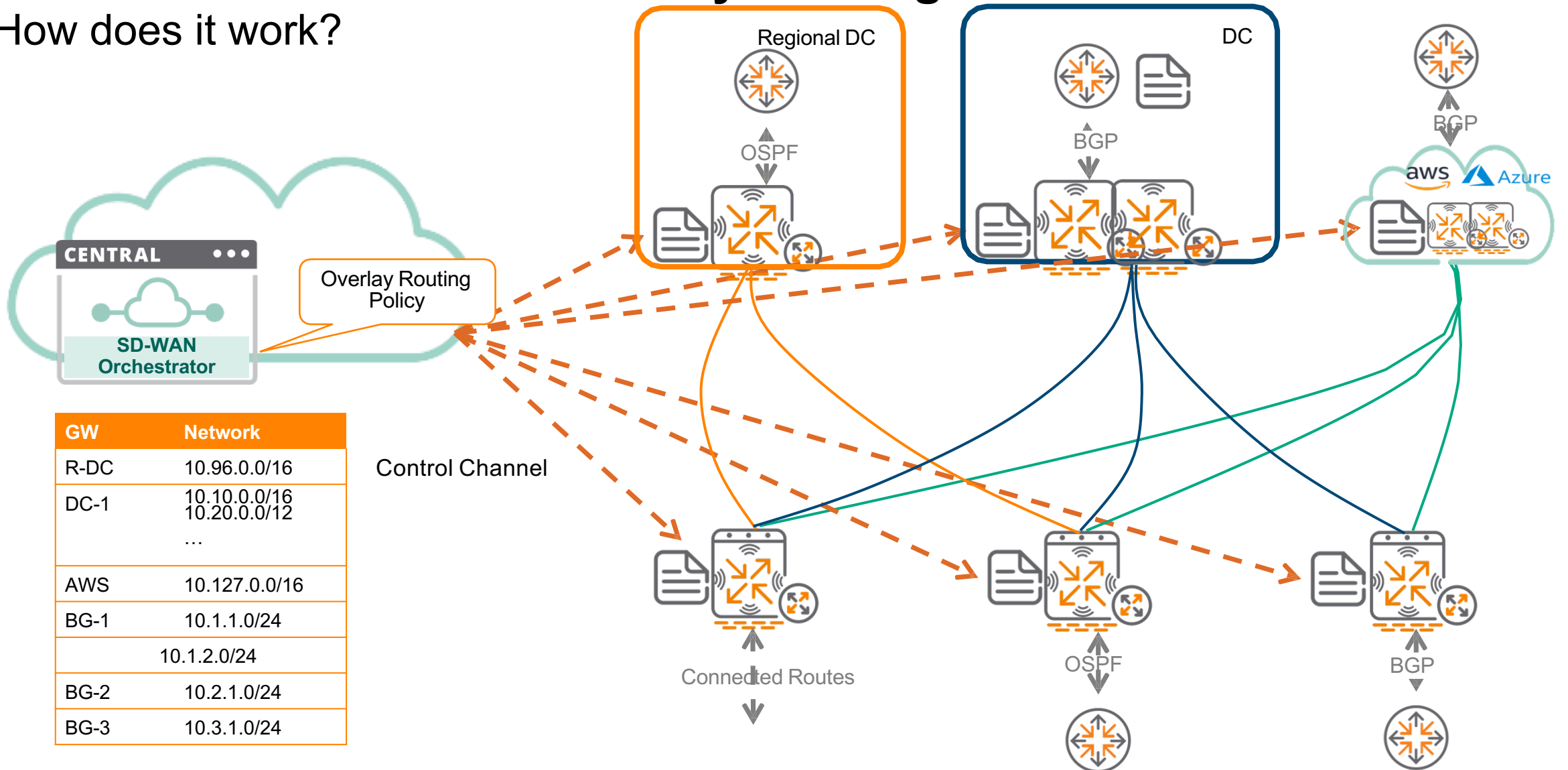
Ease of Management

Intent driven policies



# SD-WAN Orchestrator - Overlay Routing

How does it work?





# SD-WAN Orchestrator - Overlay Tunnels Configuration

## Headend Gateways – Configure WAN

arubaCentral

638 days left

CURRENT APP  
GATEWAY MANAGEMENT

Device level!

FILTER GATEWAY MANAGEMENT  
VPNC16-DC1 (1 Total Devices | 0 Offline APs | 0 Offline SWITCHES | 0 Offline GATEWAYS)

Interfaces  
Set interfaces, DHCP, NAT parameters

Wan  
Set uplink, path steering policies

Vpn  
Set IPsec encryption parameters

Routing  
Set routing parameters

Security  
Set advanced security parameters

Uplink

WAN Scheduler

Uplink VLANs

LINK	TYPE	ID	PUBLIC IP	PRIVATE IP
Verizon_inet	INET	1012	172.16.12.26	172.16.12.26
ATT_mpls	MPLS	1200	--	10.0.12.26

## Branch Gateways – Set DC Preference

arubaCentral

638 days left

CURRENT APP  
GATEWAY MANAGEMENT

FILTER GATEWAY MANAGEMENT  
BRANCH-CALIFO... (2 Total Devices | 0 Offline APs | 0 Offline SWITCHES | 2 Offline GATEWAYS)

Selected Group Type is BG

Interfaces  
Set interfaces, DHCP, NAT parameters

Wan  
Set uplink, path steering policies

Vpn  
Set IPsec encryption parameters

Routing  
Set routing parameters

Security  
Set advanced security parameters

System  
Manage advanced system settings

High Availability  
Set redundancy parameters

Configuration Audit  
Review Configuration status

SD-WAN Overlay

Cloud Security

Site to Site

DPD

IKEV1

IKEV2

General VPN

Shared Secrets

Orchestration mode:

Orchestrated

Overlay Orchestrator Peering

Disabled

Enable

DC Preference

Hubs

Drag rows to change preference

PREFERENCE	GROUP	PRIMARY VPNC	SECONDARY VPNC
1	VPNC-DC1-Group16	VPNC16-DC1	--
2	VPNC-DC2-Group16	VPNC2-DC2	--





HOTEL

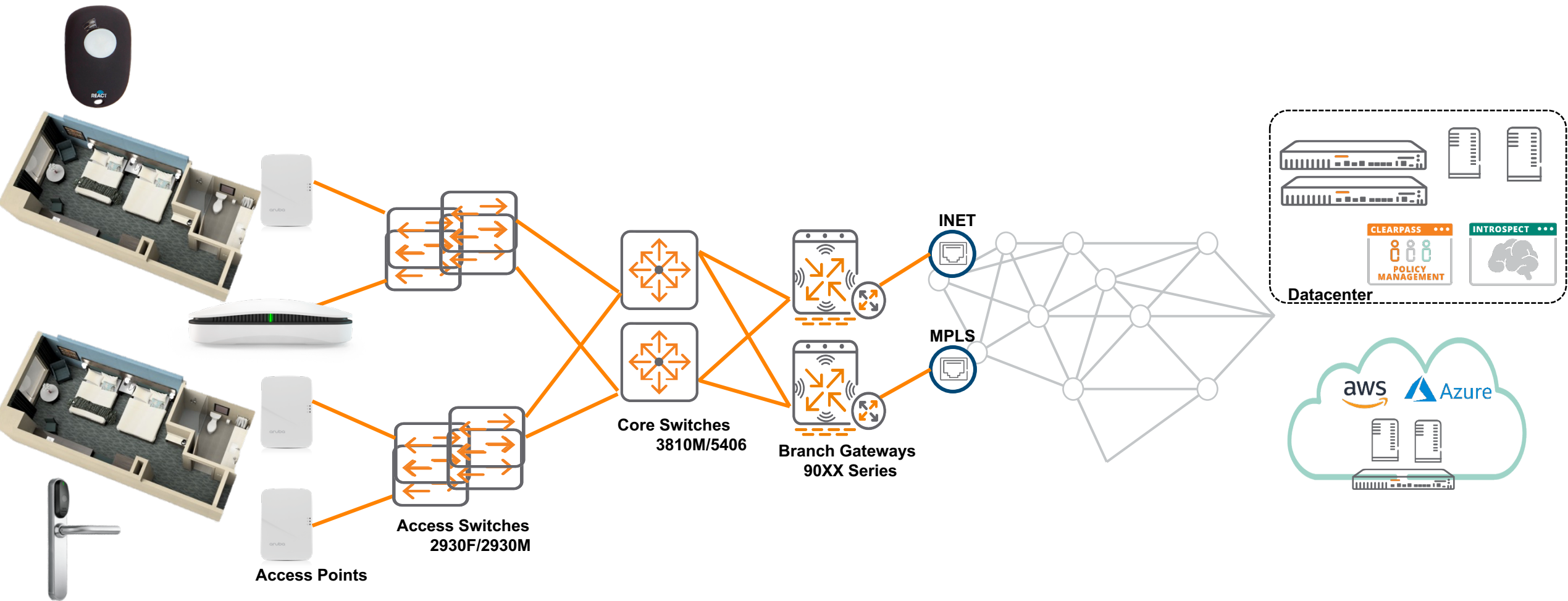




# Personalized Rooms

- Personal in-room experience
- Monitor the experience
- Differentiated hospitality cases
  - Hotel rooms
  - Multi-tenant area's
  - Housing
- Segmenting guest between corporate devices

# Architecture Overview



## LAN Policies

WLAN and wired switching policies applied per role.  
E.g.: Guest SSID, QoS for PCI traffic

## Security Policies

Firewall and WebCC policies applied per role.  
E.g.: WebCC for Guest, PCI traffic isolation

## WAN Policies

Path steering policies applied per role.  
E.g.: Guest to Internet, PCI traffic to MPLS



# Enabling private rooms

The places in a **mobile-first** world, **enabled by IoT**.  
Where guests work, stay, visit, and go – all connected and isolated to your room.  
Where experiences are becoming smart and digital.



**HOTELS**  
Internet Access only with Hotel  
branding



**HOTELS**  
Internet Access with in-room  
Experience



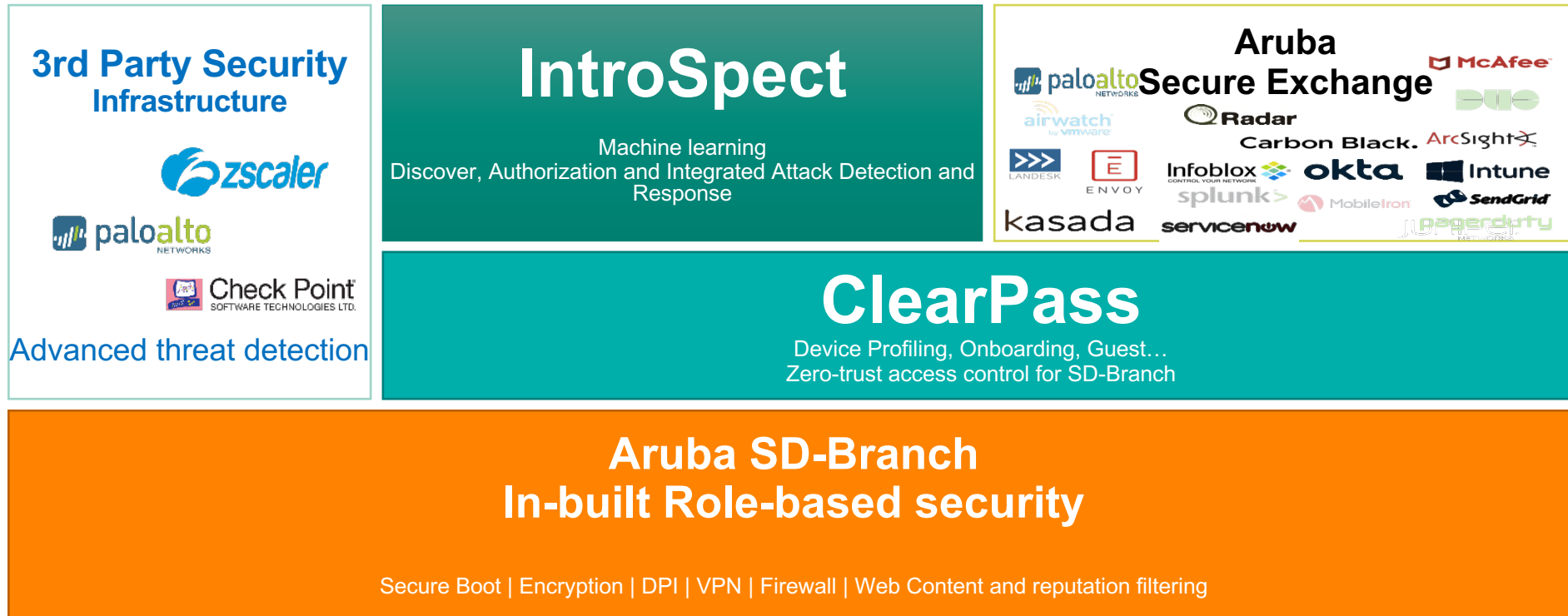


# Secure Enterprise

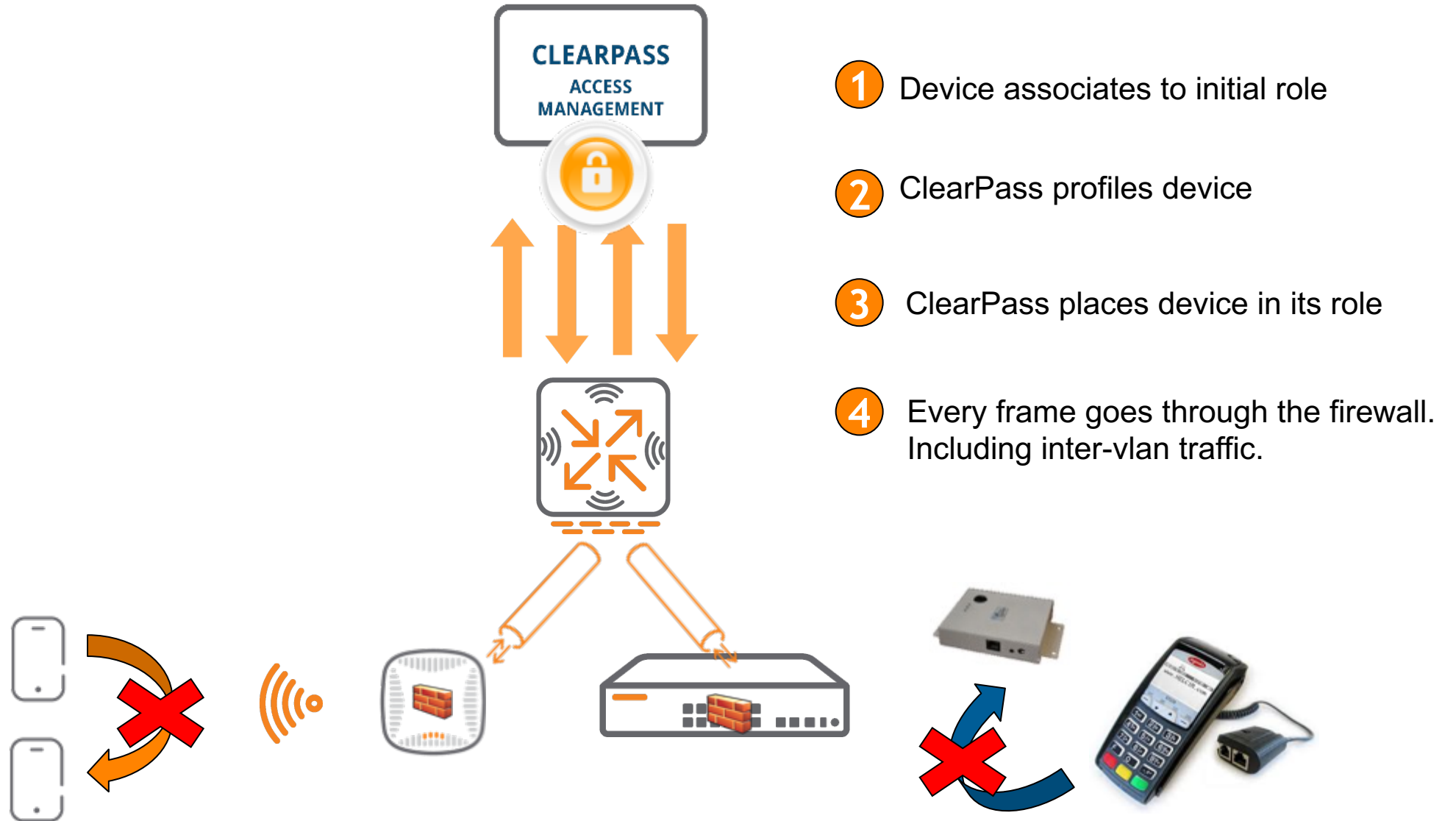




# Integrating with existing Security Layers

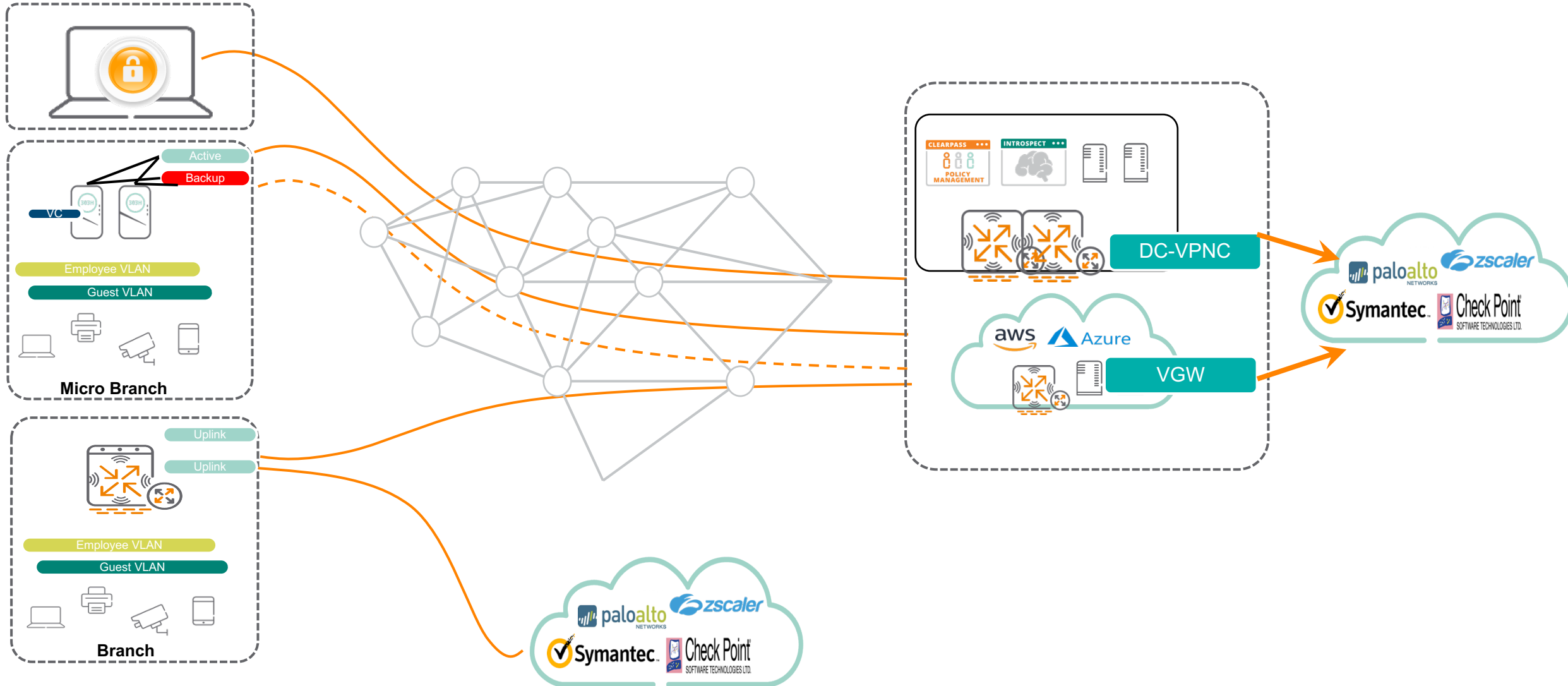


# Classify User and Devices into Roles





# Integrating from different locations



# Flexible Branch Deployment Options

## Micro Branch

Basic WAN

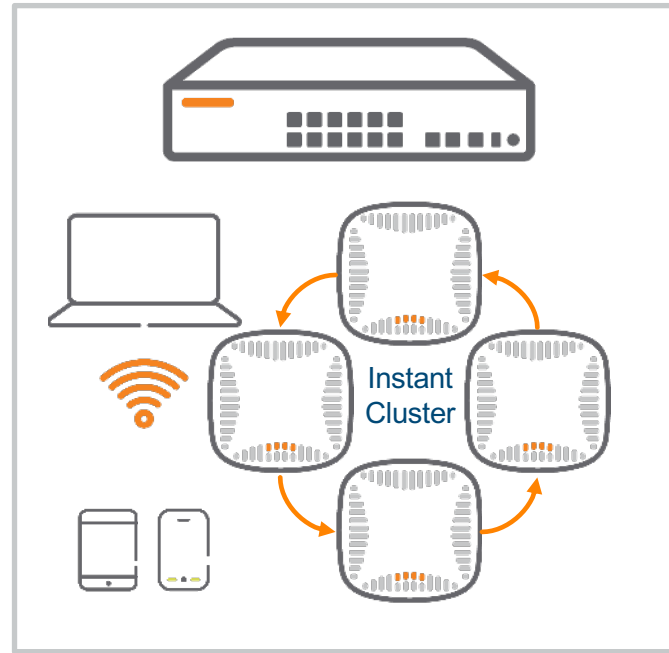


**Verticals:** Healthcare, Retail (MSP), Enterprise

**Use Cases:** Satellite Clinics, Mom-Pop Retail, Teleworker

## Small-Mid Branch

Basic WAN

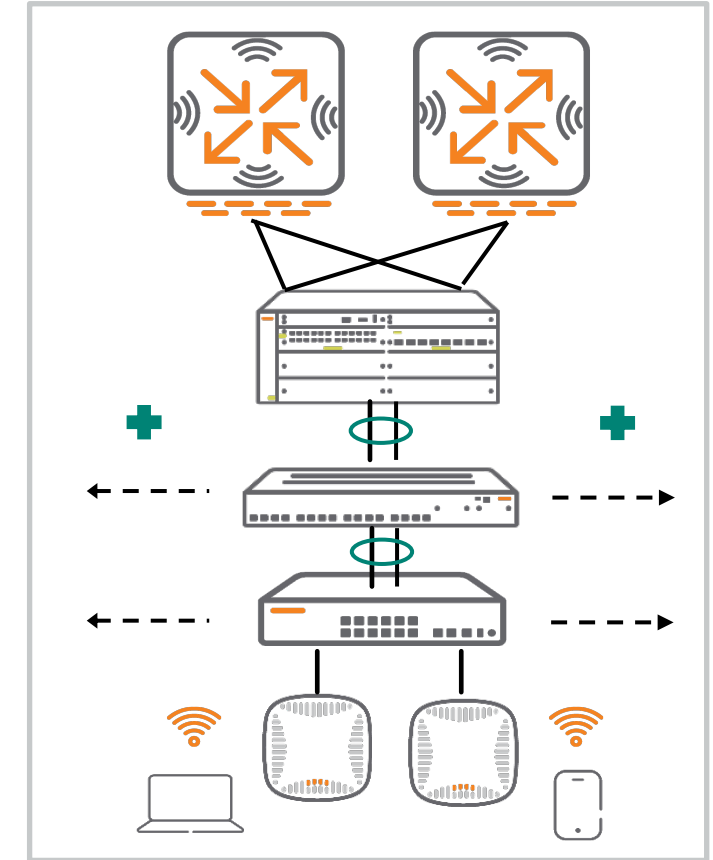


**Verticals:** Healthcare, Retail, Hospitality, Enterprise

**Use Cases:** Guest Access, Outdoor

## Mid-Large Branch

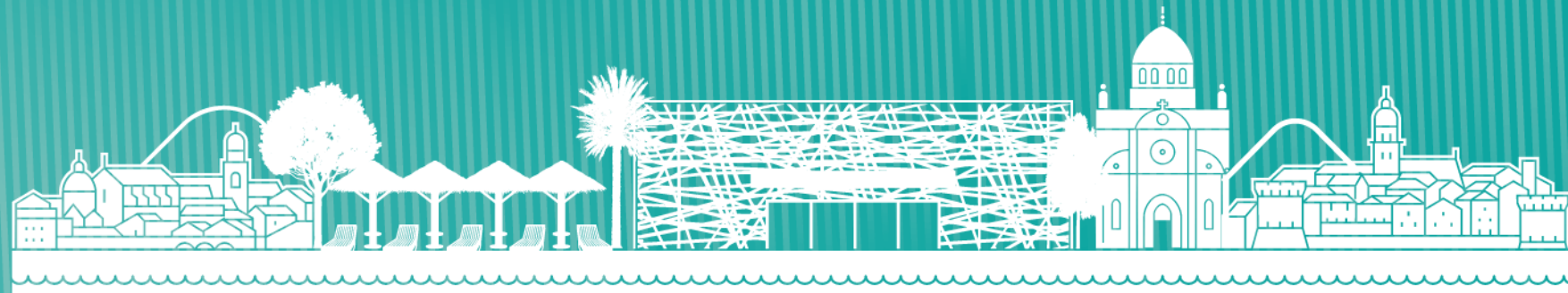
Advanced WAN (SD)



**Enterprise Class, Unified Network and Policy Management Platform**



# Designing the solution



# Migratiepaden



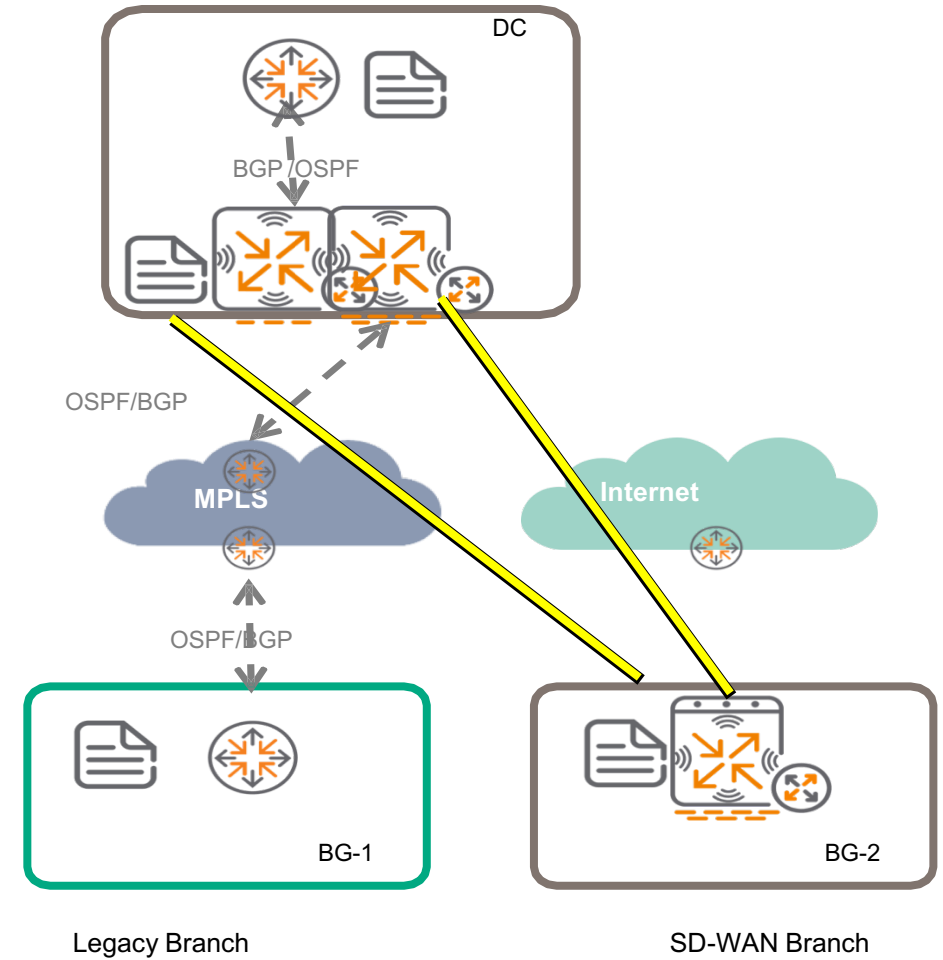
INSTANT  
ACCESS POINTS



ARUBA-OS  
SWITCHES



BRANCH  
GATEWAY





# Branch

Features	7005	7008	9004	7010	7024	7030
Firewall throughput	2Gbps	2Gbps	2Gbps	4Gbps	4Gbps	8Gbps
Encryption throughput	1.2Gbps	1.2Gbps	2Gbps	2.4Gbps	2.4Gbps	2.4Gbps
GE ports	4	8	4	16	24	8
PoE support	Can be PoE powered	8 Ports can provide POE	No	12 ports can provide PoE	24 ports can provide PoE	No
Concurrent IPSec Tunnels	512	512	2048	1024	1024	1024
Active Firewall sessions	16K	16K	32K	32K	32K	64K

# Datacenter VPNC

Features	7210	7220	7240
IPSec Tunnels	16384	24576	32768
Encryption throughput	5.9Gbps	20Gbps	30Gbps
Firewall throughput	20Gbps	40Gbps	40Gbps
GE ports	2 (1G Combo)	2 (1G Combo)	2 (1G Combo)
SFP/SFP+	4 10G SFP+	4 10G SFP+	4 10G SFP+
Redundant Power Supply/Fan	Yes	Yes	Yes



# Ordering the SD-Branch

## Central

- Aruba Central Device mgmt. Sub.
- Aruba Central Services Subscriptions

## SDWAN:

- Gateway Foundation 7X00
- Gateway Foundation 72xx
- Gateway Foundation Base 7X00

The screenshot displays the Aruba Catalog and Properties windows. The Catalog window shows a tree view of products, including Aruba 7000 Series Mobility Controller, ArubaOS, and various services. The Properties window shows the SD-WAN Licenses tab, listing various license options and their prices.

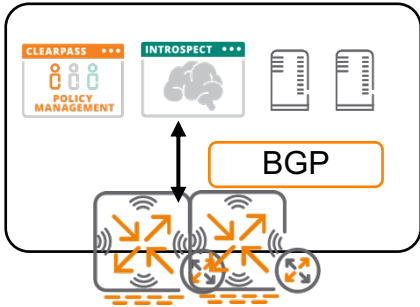
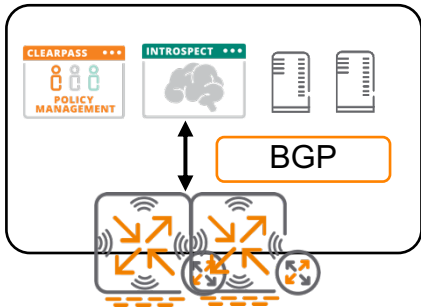
License	SKU	Price
None		
70xx Gateway Foundation Base E-STU		
Aruba 70xx Gateway Foundation Base 1y Sub E-STU	[JZ124AAE	€405]
Aruba 70xx Gateway Foundation Base 3y Sub E-STU	[JZ125AAE	€811]
Aruba 70xx Gateway Foundation Base 5y Sub E-STU	[JZ126AAE	€1,216]
Aruba 70xx Gateway Foundation Base 7y Sub E-STU	[R0G56AAE	€1,550]
Aruba 70xx Gateway Foundation Base 10y Sub E-STU	[R0G57AAE	€2,215]
70xx Gateway Foundation E-STU		
Aruba 70xx Gateway Foundation 1y Sub E-STU	[JZ118AAE	€1,081]
Aruba 70xx Gateway Foundation 3y Sub E-STU	[JZ119AAE	€2,162]

Below the catalog, there are five network diagrams illustrating different SD-Branch configurations. Each diagram shows a 2930F Stack connected to IAP-305-RW devices. The first three diagrams show a 2930F Stack connected to two IAP-305-RW devices (labeled 'IAP-305-RW X 20'). The fourth diagram shows a 7005 controller connected to a 2930F Stack, which is then connected to two IAP-305-RW devices. The fifth diagram shows a 7008 controller connected to a 2930F Stack, which is then connected to two IAP-305-RW devices.

## Support

- 90 Days -> Foundation / HW SKU

# SD-Branch Architectures (1.5)



Multiple active hubs

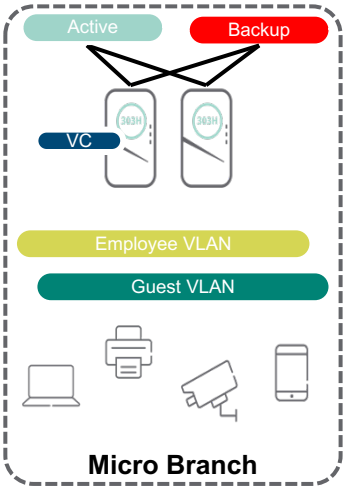


SD-WAN Orchestrator

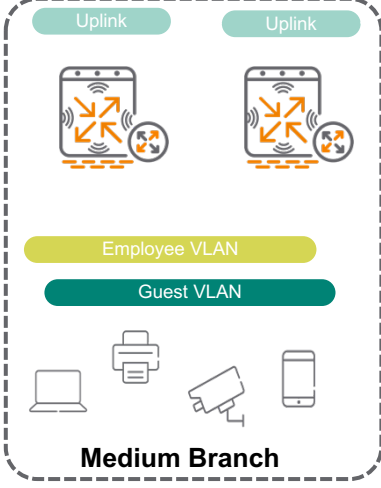


Transport-Independent WAN Overlay

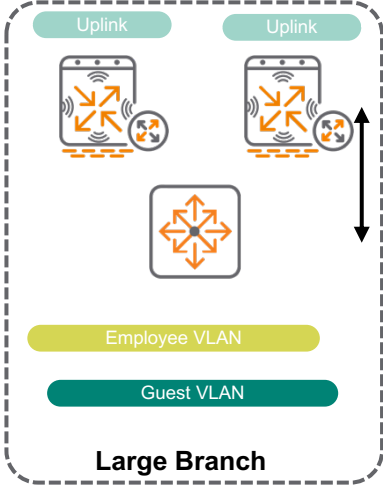
Manual



Manual/Orch



Orch



Dynamic Routing





# Vragen