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**UNIFIED INFRASTRUCTURE**

# Budhadya Mukherjee

APJ Category Manager – NW Management & Security

**Budhadya** has worked in HPE's networking business units from ProCurve through to Aruba as a Systems Engineer & SE Manager . In his recent role as Category Manager Asia Pacific Region his charter is to drive Central & Security portfolio across APJ.

Budha has 20 years of Industry experience in Networking . He has been a key contributor to many of the Key Wins for HPE Aruba India.







# Aruba Unified Infrastructure

A Single Pane of Glass for Campus,  
Branch, and Remote

Budhaditya Mukherjee

July 30<sup>th</sup> , 2020

# AGENDA

- Aruba Edge Services Platform
- Customer challenges and use cases
- What is Aruba Unified Infrastructure?
- Aruba Central – Demo
- Quiz



# INTRODUCING THE ARUBA EDGE SERVICES PLATFORM (ARUBA ESP)

## AIOPS

AI Insights | User Insights



## UNIFIED INFRASTRUCTURE

Wi-Fi | Switching | SD-WAN | 5G onramp | IoT



## ZERO TRUST SECURITY

Dynamic Segmentation | Device Insight



## Financial and Consumption Flexibility

HPEFS | Managed Connectivity Services



# How can Aruba ESP provide new value to customers?

We continue to help accelerate the customer's digital transformation



## Aruba ESP Key Benefits

- **Help adapt quickly to market conditions**
- **Deliver intelligent insights to the business**
- **Adapt to reimagined workplace\***
- **Improve and optimize user experience**
- **Maintain compliance with regulatory standards**
- **Validate service quality and guarantees**

# What does it mean to be cloud-native?

Applications and services are purpose-built using cloud principles

**Scalability**

**Resiliency**

**Elasticity**



**Micro-services-based**

**Container-based**

**Programmability**





# A range of issues are impacting the business

#1: Scale



#2: Continuity



#3: Troubleshooting



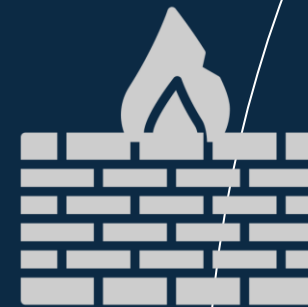
#4: Flexibility



#5: Management



#6: Security



# Use Unified Infrastructure to help solve real problems

## #1: Scale

- Higher performance with AOS8 and CX
- Extended feature availability
- Reduce onsite footprint

## #4: Flexibility

- Leverage a cloud-native network design
- Address both cloud-first and cloud-adverse requirements

## #2: Continuity

- Ease the shift to work from home networking
- Aruba RAP- Same policies , SSID , Wired Access , Visibility & Management

## #5: Management

- Move to a single pane of glass for better visibility
- Start with SD-Branch value
- Aruba Central expands to large campus networks

## #3: Troubleshooting

- Use AI Insight to improve network analytics
- Mimic end-user behavior to validate performance

## #6: Security

- Protect against external threats using Aruba Threat Defense (IPS)
- Enforce policies with ClearPass and Dynamic Segmentation



# And then continue to solve top-of-mind problems

## #7: Business Recovery



**Help enable business intelligence to transition to the new normal**

Customers should upgrade campus networks before offices reopen

## #8: Resiliency



**Deliver 24/7 connectivity and reduced maintenance windows**

Upgrade to AOS 8 and Aruba CX today for Live Upgrades and clustering

## #9: Deployment



**Reduce IT overhead and provision modern cloud services efficiently**

SD-Branch and use Of Aruba Central for ZERO Touch Deployment

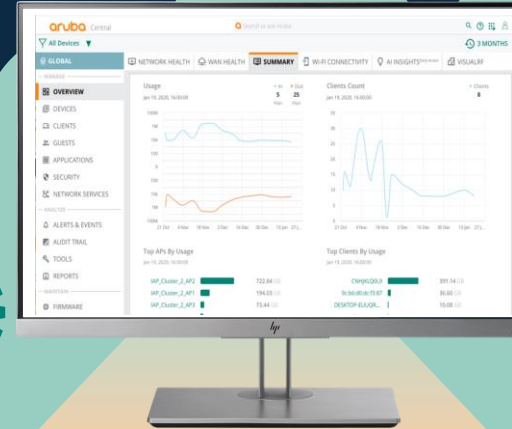
1: <https://blogs.arubanetworks.com/solutions/addressing-cloud-security-challenges-in-aruba-central-secure-by-design/>



# SIMPLIFY DAILY OPERATIONS WITH A UNIFIED INFRASTRUCTURE

Aruba Central as the single pane of glass for Aruba ESP infrastructure  
Single architecture across campus, branch, remote and data center  
Controller-less cloud-native operations with massive scale

Aruba Central



UNIFIED INFRASTRUCTURE

aws  
Microsoft Azure  
On Premises



# ARUBA CENTRAL – CLOUD NATIVE NETWORK OPERATIONS & ASSURANCE



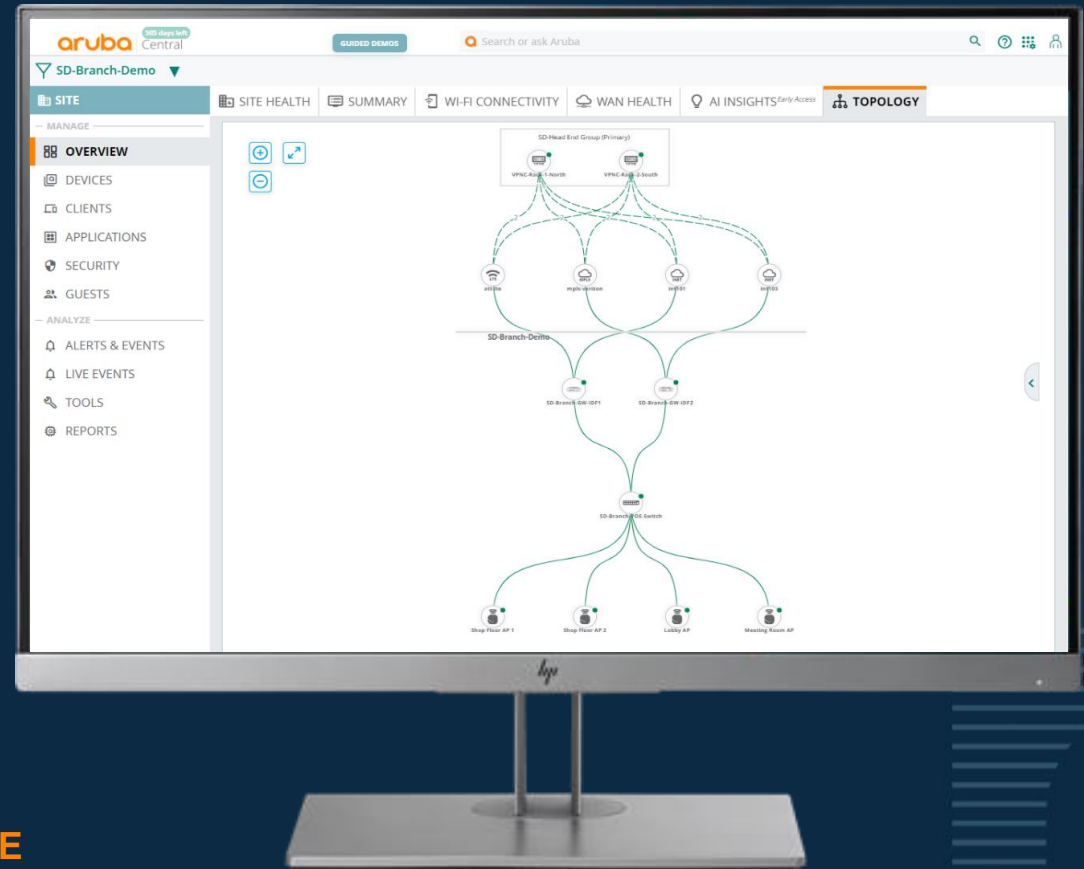
## Aruba Central

Cloud-native single-pane-of-glass for management, reporting and troubleshooting

Common infrastructure across campus, branch, WAN and data center

Key capabilities:

- Common wireless architecture
- Support for Enterprise class switches
- Network and user-based sensors
- Enterprise wide AI Operations
- Air Pass to unify 5G / Wi-Fi 6



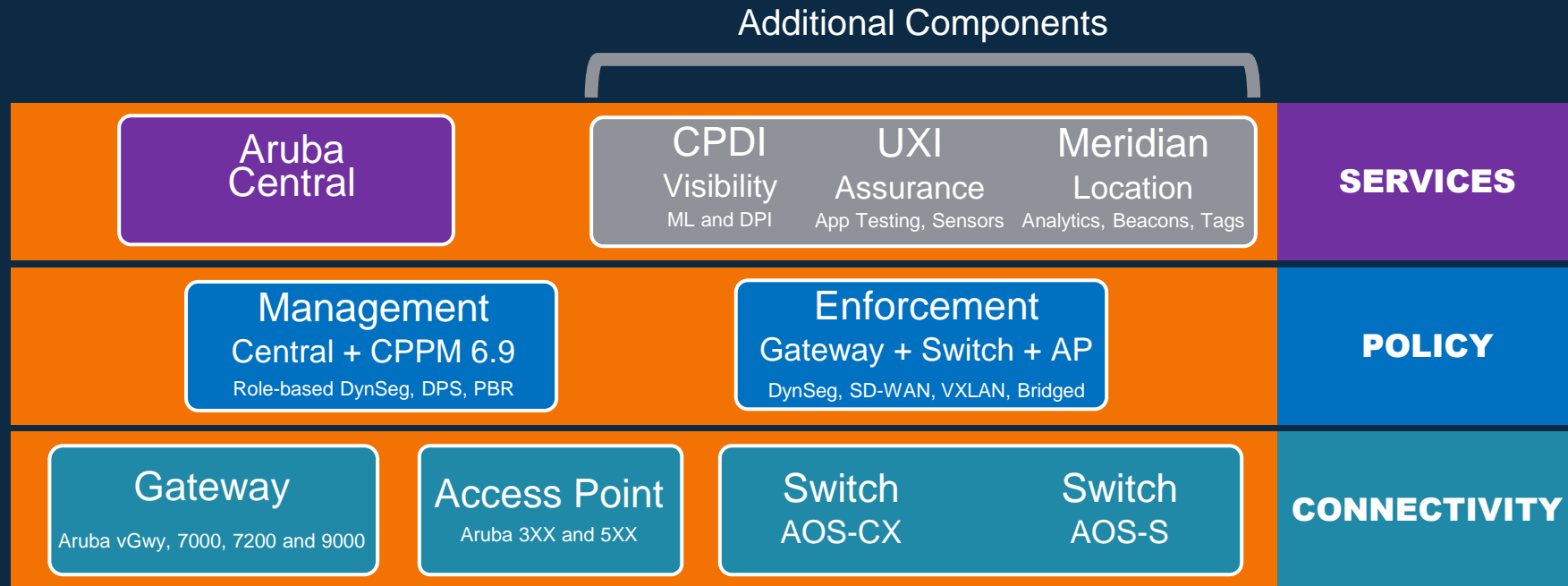
**SIMPLE**  
Best-in-class, unified platform  
for amazing experiences

**SMART**  
Intelligent assistance to  
optimize performance

**SECURE**  
Dynamic micro policy  
and embedded security



# Unified Infrastructure Components



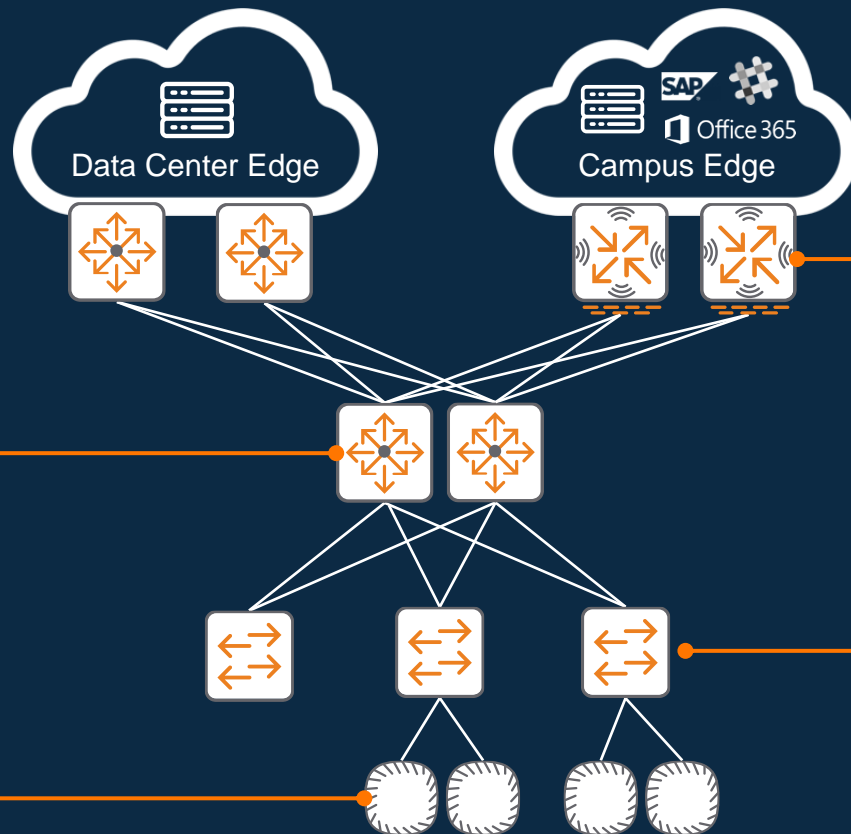
# Aruba Campus



# ARUBA CAMPUS

## CX CORE SWITCHING

- Virtual Switching Extension (VSX)
- Live Upgrade
- Network Analytics Engine (NAE)



## AOS 10 GATEWAY

- SD-WAN Gateway
- High Capacity for Campus
- Clustering/Live Upgrade

## AOS 10 AP

- AP as IOT Platform (BT5, Zigbee, etc.)
- Air Slice / Wi-Fi 6
- Live Upgrade

## CX ACCESS SWITCHING

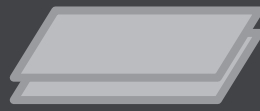
- Dense PoE and Smart Rate
- Virtual Switching Framework (VSF)
- Network Analytics Engine (NAE)

**FLEXIBILITY**

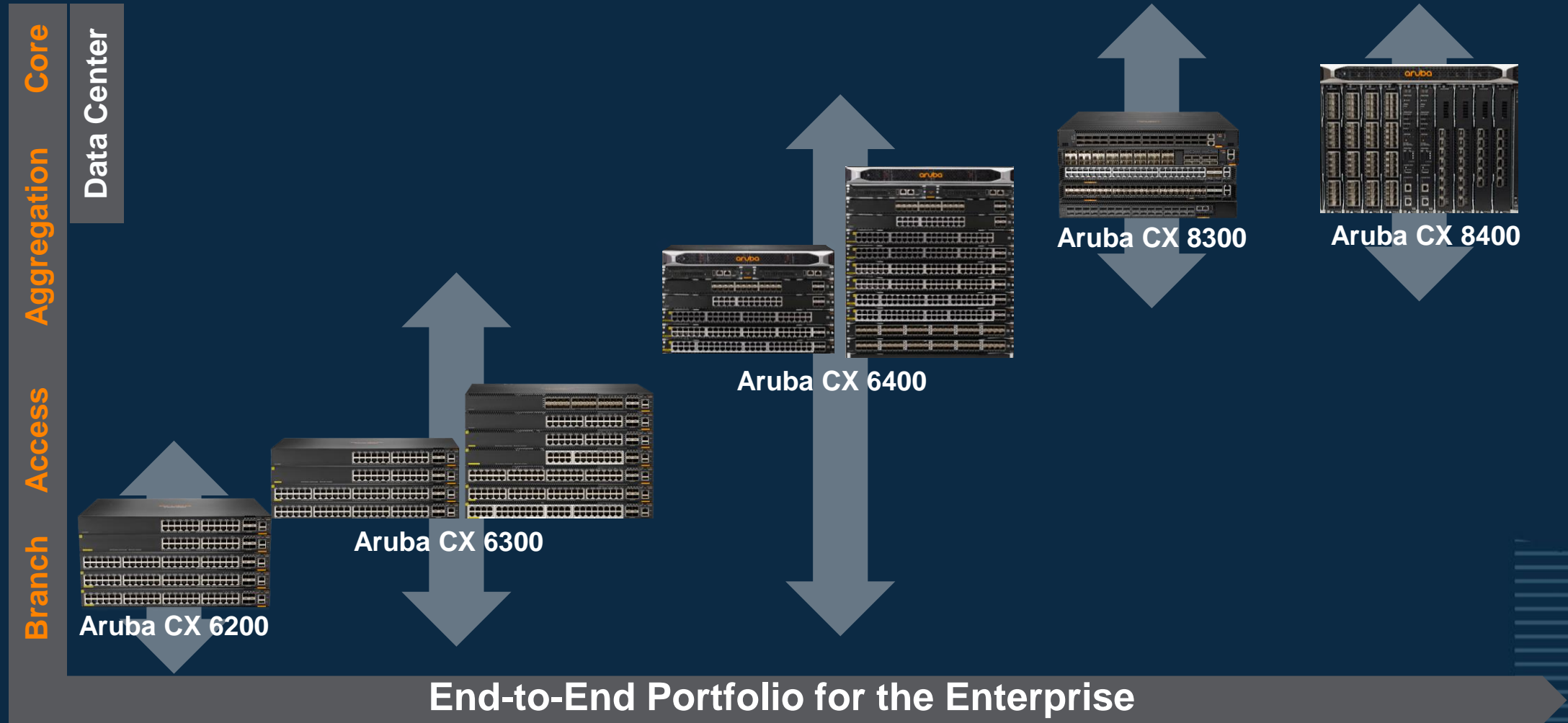
**HIGH AVAILABILITY**

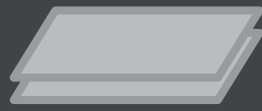
**RICH TELEMETRY**





# AOS-CX SWITCHING





# ARUBA **WI-FI 6**



Smart PoE / Zigbee Radio / Air Slice  
AI and Green AP  
Live Upgrade



**ARUBA 500  
SERIES**



**ARUBA 510  
SERIES**



**ARUBA 530  
SERIES**



**ARUBA 550  
SERIES**

**#1 IN WI-FI 6  
MARKET  
SHARE**

**3,000+**  
Customers

**300,000+**  
Units shipped since 2018



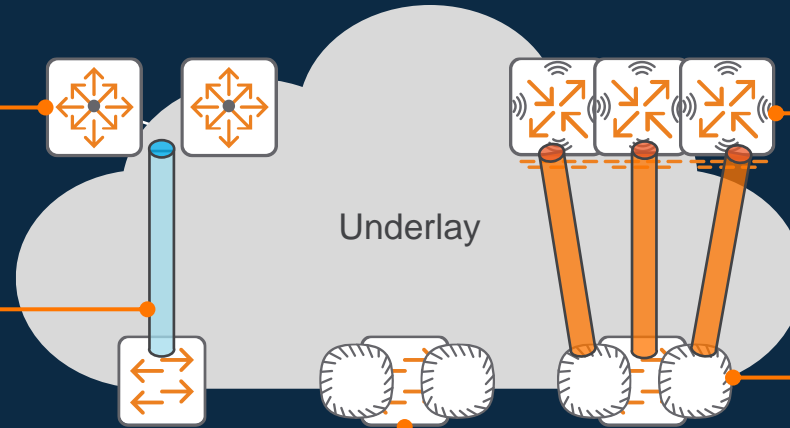
# ARUBA CAMPUS

## SWITCH TO SWITCH ENFORCEMENT

- Layer 3/4 ACLs

## SWITCH TO SWITCH TUNNELS

- Multi-Vendor Support (VXLAN)
- Bypass Gateway Enforcement
- ToR in Campus



## GATEWAY ENFORCEMENT

- Easy clustering
- Application Firewall & IPS/IDS
- Centralized VLANs

## GATEWAY TUNNELS

- Wired and Wireless Segmentation
- Colorless Port Assignment
- Fully Orchestrated

## UNDERLAY POLICY

- AP Application Firewall
- Switch Layer 3/4 ACLs
- VLAN-based Segmentation

SEGMENTATION

TRANSPORT INDEPENDENCE

SERVICE INSERTION



# ARUBA CAMPUS

## MANAGEMENT

- Unified Client Visibility
- Unified Device Management
- GUI, Template and Workflow based configuration

## ANALYTICS

- Infrastructure-wide Data
- AI Insights Wireless
- AI Insights Wired and SD-WAN

## Central

Management

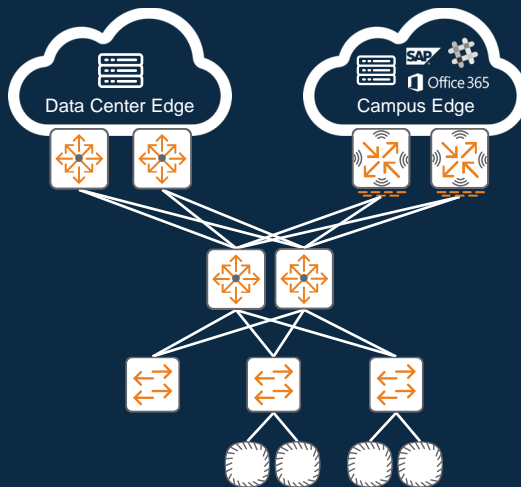
Control Services

Analytics

Orchestration

## ClearPass

Policy Management



## CONTROL SERVICES

- AirMatch
- AirGroup
- ClientMatch
- UCC
- Key Management

## ORCHESTRATION

- Tunnel Orchestration
- Workflow Driven
- Cross Infrastructure



# Aruba SD-Branch



# ARUBA SD-WAN

## MICROBRANCH AP

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

## BRANCH GATEWAY

- Flexible Connectivity
- Form Factor Variety
- LAN Integration
- Small/Med - 70xx, 90xx

## BRANCH GATEWAY

- Higher Capacity
- High Availability
- Advanced Routing
- Large - 72xx

## SAAS OPTIMIZATION

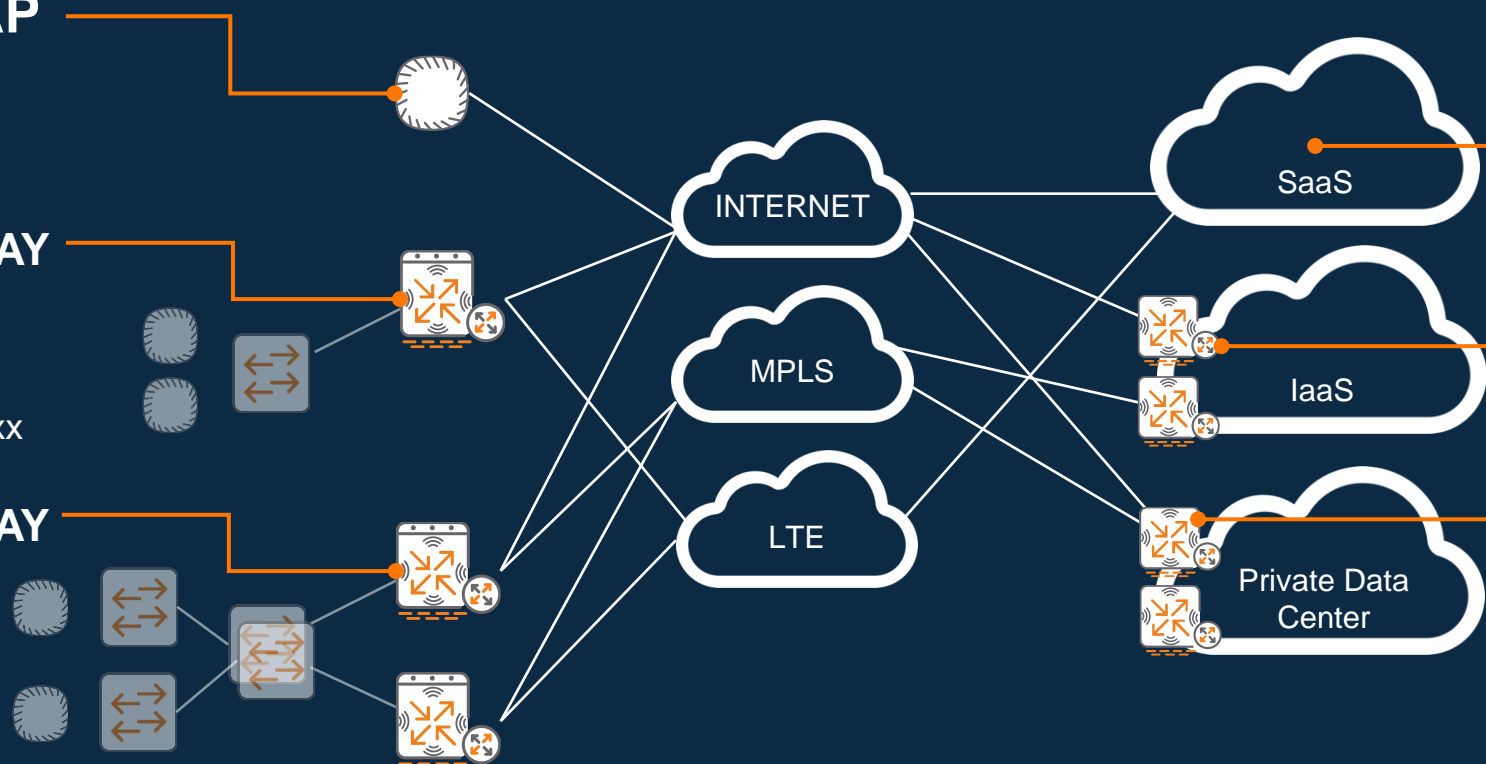
- Optimal Routes
- Redirect DNS

## VIRTUAL GATEWAY

- Scalable Performance
- AWS Transit VPC
- MS Azure Transit VNet

## HEADEND GATEWAY (VPN Concentrator - VPNC)

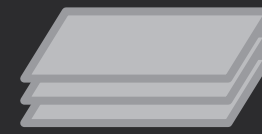
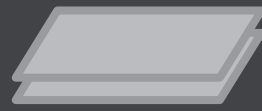
- Advanced Routing
- Hardware Resiliency
- High Speed Connectivity



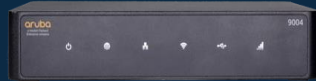
**SD-Branch**

**Data Center / Cloud**





# SDWAN Portfolio of Gateways and Controllers



**9004 Series**  
Small/midsize branch  
4 Gbps firewall throughput



**7210**  
Large campus  
20 Gbps firewall throughput



**7005/7008**  
Small branch w/ 4-8 ports  
and optional PoE  
2 Gbps firewall throughput



**7220/7240XM**  
High density large campus  
40 Gbps firewall throughput



**7010/7024**  
Midsize/large branch w/16-  
24 ports and PoE  
4 Gbps firewall throughput



**7030**  
Large branch/small campus  
8 Gbps firewall throughput

Aruba Model/SKU Name	Throughput	Supported AWS Instance	vCPU	Flash Memory (GB)	Tunnels
VGW-500MB	500 <a href="#">Mbps</a>	c4.xlarge	4	15	1600
		c4.2xlarge	8	30	
		c4.4xlarge	16	60	
VGW-2GB	2 <a href="#">Gbps</a>	c4.2xlarge	8	30	4096
		c4.4xlarge	16	60	
VGW-4GB	4 <a href="#">Gbps</a>	c4.4xlarge	16	60	8192



# ARUBA SD-WAN

## CORPORATE EXTENSION

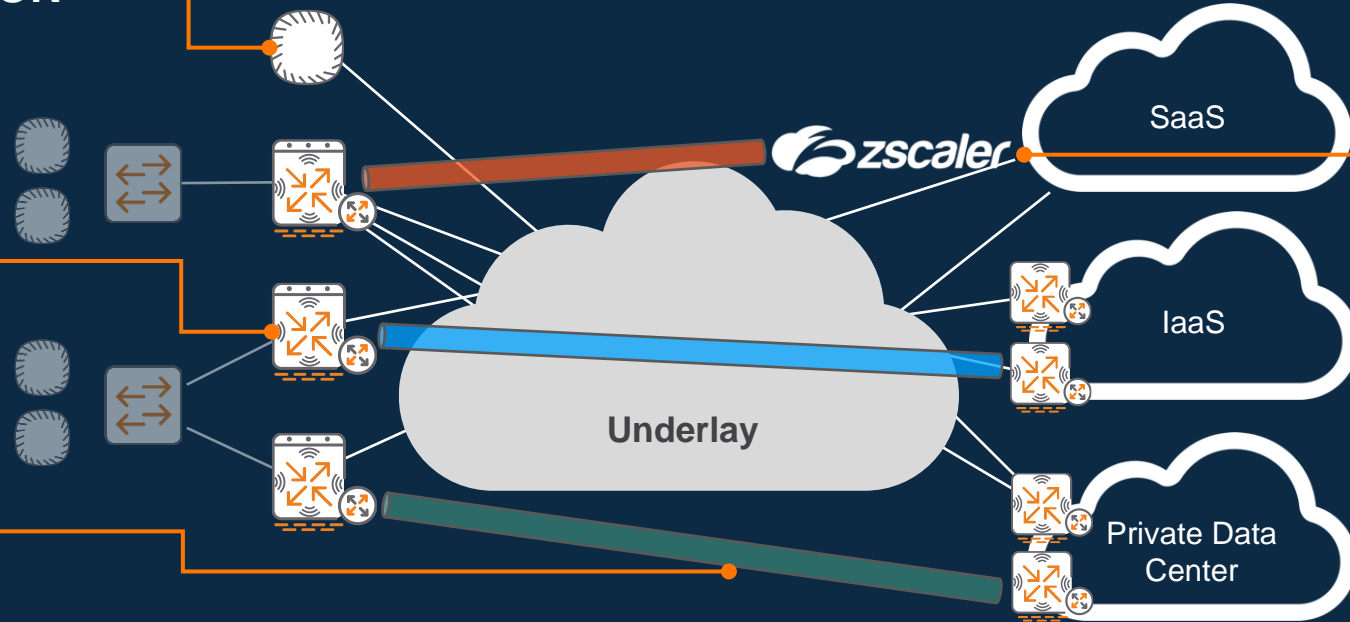
- Wired and Wireless
- User VLANs at Gateway
- Optional Split Tunnel

## ON-BOARD UTM

- Direct Internet Access
- Dynamic Segmentation
- IPS/IDS

## IPSEC TUNNELING

- Transport Independence
- Secure Untrusted Networks
- Fully Orchestrated



## CLOUD CONNECT

- PBR Traffic Selection
- Flexibly Policy
- Any Device Security

**SEGMENTATION**

**TRANSPORT INDEPENDENCE**

**SERVICE INSERTION**



# ARUBA SD-WAN

## MANAGEMENT

- Full Branch Stack MRT
- Unified Client List
- App Visibility and Trending

## ANALYTICS

- Network Health
- Circuit Planning
- AI Insights

## Central

Management

Control Services

Analytics

Orchestration

## CONTROL SERVICES

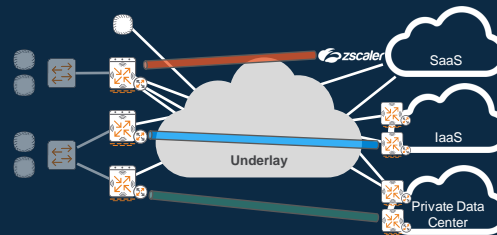
- Key Management
- Overlay Routing

## ORCHESTRATION

- Tunnel Topology
- Hub Mesh

## ClearPass

Policy Management



**FLEXIBLE DEPLOYMENT**

**ELASTICITY**

**EXTENSIBILITY**



# SIMPLIFYING INTEGRATIONS WITH **ARUBA** **DEVELOPER** **HUB**

Rich APIs across portfolio

In-depth developer's  
documentation

The screenshot shows the Aruba Developer Hub website. At the top left is the 'aruba Developer (HUB)' logo, and at the top right is a 'Log In' link. Below the header is a search bar with the text 'Aruba Developer Hub' and a search icon. A dark grey banner contains the text 'Want to integrate with Aruba platforms? You've arrived at the right place!'. Below this is a section titled 'EXPLORE OUR PRODUCTS' with five product tiles: 'ArubaOS 8' (Wi-Fi icon), 'ArubaOS-CX' (network switch icon), 'Central' (gear icon), 'ClearPass Policy Manager' (lock icon), and 'User Experience Insight' (lightbulb icon). At the bottom of the page is a 'STAY CONNECTED' section.



# DEMO



# TRY ARUBA CENTRAL TODAY !!!

[www.arubanetworks.com](http://www.arubanetworks.com)

The screenshot shows the Aruba website's navigation bar with links for HPE, HPE GREENLAKE, ARUBA, HPE FINANCIAL SERVICES, and DISCOVER VIRTUAL EXPERIENCE. The Aruba logo is on the left, and search, language, login, contact, and try central buttons are on the right. Below the navigation is a breadcrumb trail: HOME > NETWORKING PRODUCTS > NETWORK MANAGEMENT > ARUBA CENTRAL > ARUBA CENTRAL DEMO. The main heading is "Aruba Central Demo". The text describes the demo's features: "With embedded automation and analytics, Aruba Central self-heals and self-optimizes your network, leaving you the bandwidth to do what actually matters. Experience a fully interactive demo, with over 40 common workflows—right from your browser." Below this is the question "Ready to start the demo?" followed by a form with fields for First Name, Last Name, Email, Phone, and Title. On the right, a "RELATED LINKS" section includes "Simplified Cloud Networking with Aruba Central" and "Visit our Community Page".

HPE | HPE GREENLAKE | ARUBA | HPE FINANCIAL SERVICES | DISCOVER VIRTUAL EXPERIENCE

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SEARCH 🔍 ENGLISH (US) ▶ LOGIN ▶ CONTACT US ▶ TRY CENTRAL

Products Solutions Services Support Community

HOME > NETWORKING PRODUCTS > NETWORK MANAGEMENT > ARUBA CENTRAL > ARUBA CENTRAL DEMO

## Aruba Central Demo

With embedded automation and analytics, Aruba Central self-heals and self-optimizes your network, leaving you the bandwidth to do what actually matters. Experience a fully interactive demo, with over 40 common workflows—right from your browser.

Ready to start the demo?

First Name

Last Name

Email

Phone

Title

RELATED LINKS

- ▶ Simplified Cloud Networking with Aruba Central
- ➔ Visit our Community Page





All Devices

GLOBAL

NETWORK HEALTH

WAN HEALTH

SUMMARY

WI-FI CONNECTIVITY

AI INSIGHTS *Early Access*

VISUALRF

Filter, Menu icons

MANAGE

OVERVIEW

DEVICES

CLIENTS

GUESTS

APPLICATIONS

SECURITY

NETWORK SERVICES

ANALYZE

ALERTS & EVENTS

AUDIT TRAIL

TOOLS

REPORTS

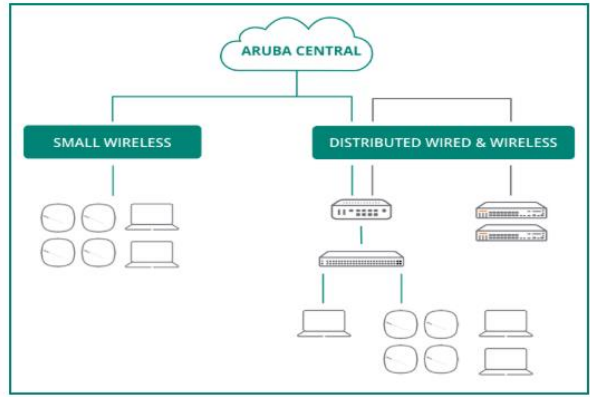
MAINTAIN

FIRMWARE

ORGANIZATION

### WELCOME TO ARUBA CENTRAL

Aruba Central simplifies the daily operations of a network administrator by offering compelling workflows for configuring, monitoring, reporting, and troubleshooting. To experience the solution, click one of the guided tours:



GUIDED WIRELESS LAN DEMO

GUIDED SD-BRANCH DEMO

NO ISSUES POTENTIAL ISSUES

WAN

HIGH NOISE: 2.4 GHz | 5 GHz  
 UPLINKS STATUS: NO ISSUES | DOWN  
 TUNNELS STATUS: NO ISSUES | DOWN



5 Plotted Site(s)



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# Quiz

Q1: What does ESP Stands for ?

- a. Enterprise Services Platform
- b. Enterprise Secure Platform
- c. Edge Services Platform

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**Answer : c**

Q2: Name 3 Cloud Native Principles ?

- a. Resiliency, Scalability, Security
- b. Resiliency, Scalability, Elasticity
- c. Resiliency, Scalability, Managability



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**Answer : b**



## Q3: What Are the 3 Layers Of Aruba Architecture?

- a. Connectivity, Policy, Services
- b. Connectivity, Security, Services
- c. Connectivity, Managability, Services

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**Answer : a**

## Q4: What Are the 3 Pillars Of Aruba ESP?

- a. AI-OPS , Manageability , ZeroTrust
- b. AI-OPS, Unified Infrastructure, Zero Trust
- c. Connectivity, Managability, Services

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**Answer : b**

Q5: How Many Days Aruba Central Trial version available?

- a. 90 Days
- b. 30 Days
- c. 60 days



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**Answer : a**



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*THANK YOU*