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# Simplify and optimize branch user experience with Aruba SD-Branch

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#ATM18

**aruba**  
a Hewlett Packard  
Enterprise company

# Challenges with Current Branch Architectures

## LAN Side 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 Side 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

Drive simplicity and fewer boxes in branch solution



## Transport Independency

Own your WAN policy



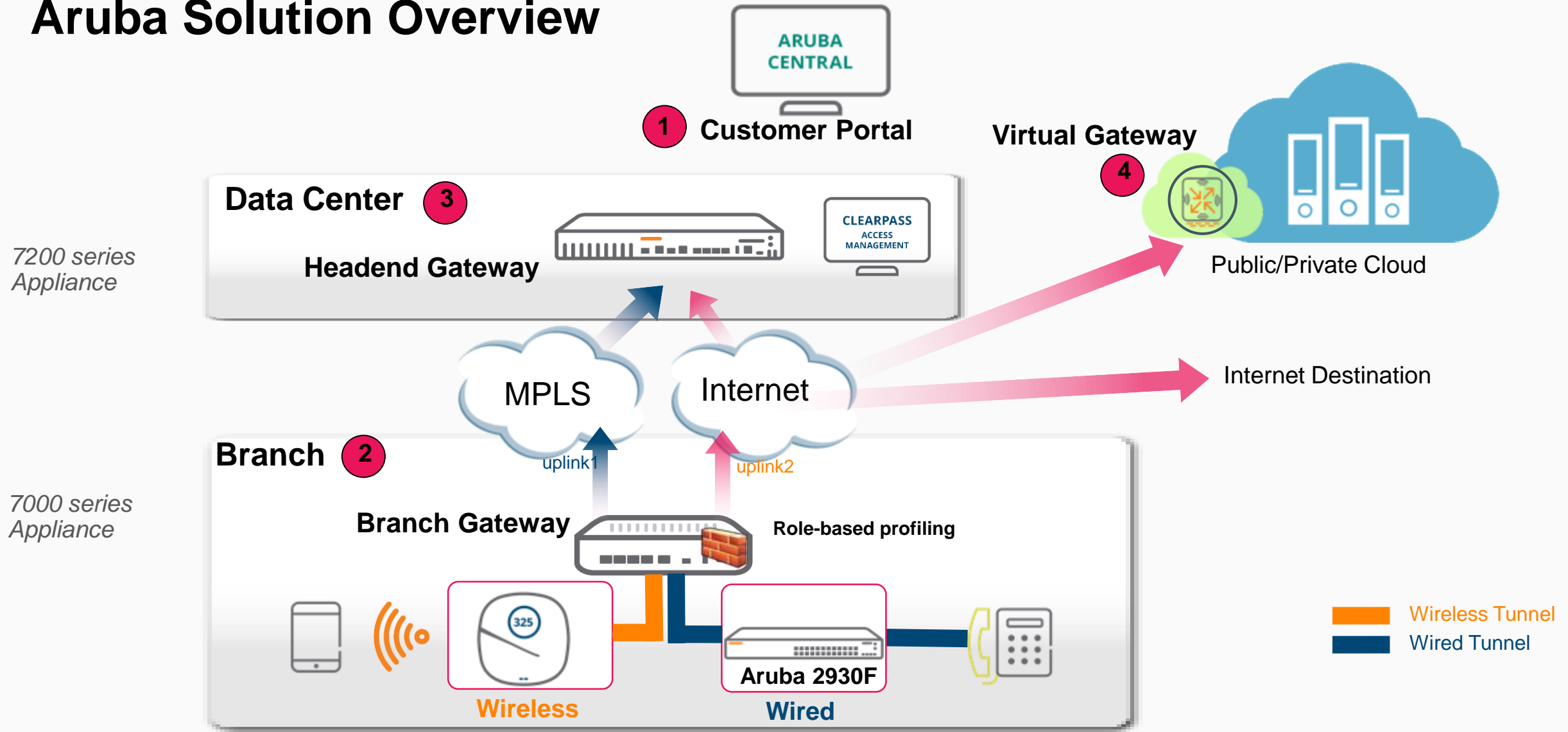
## Common Policy and Management

for Wired, WLAN and WAN





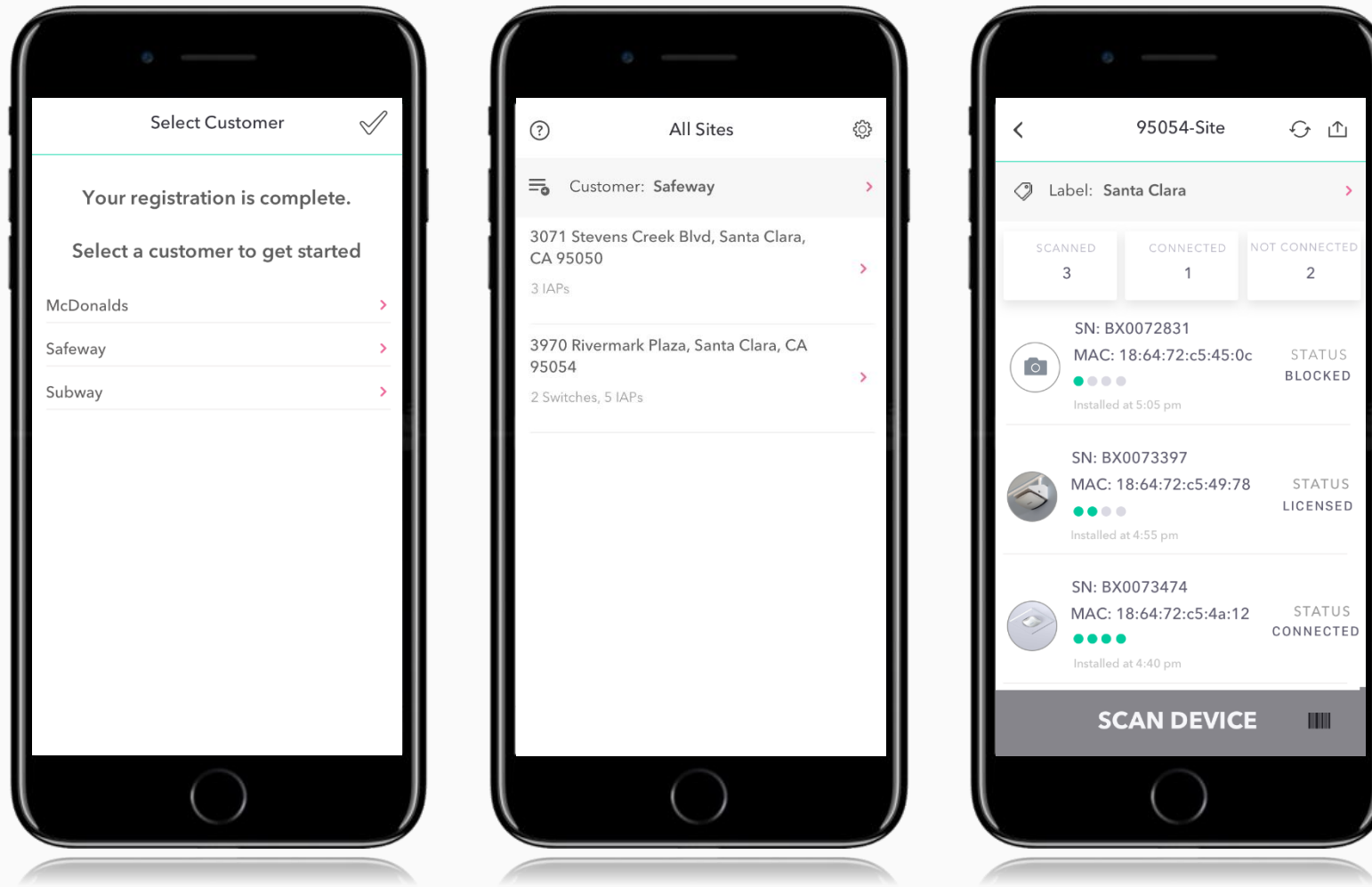
# Aruba Solution Overview



# Onboarding and management

# Simple Onboarding

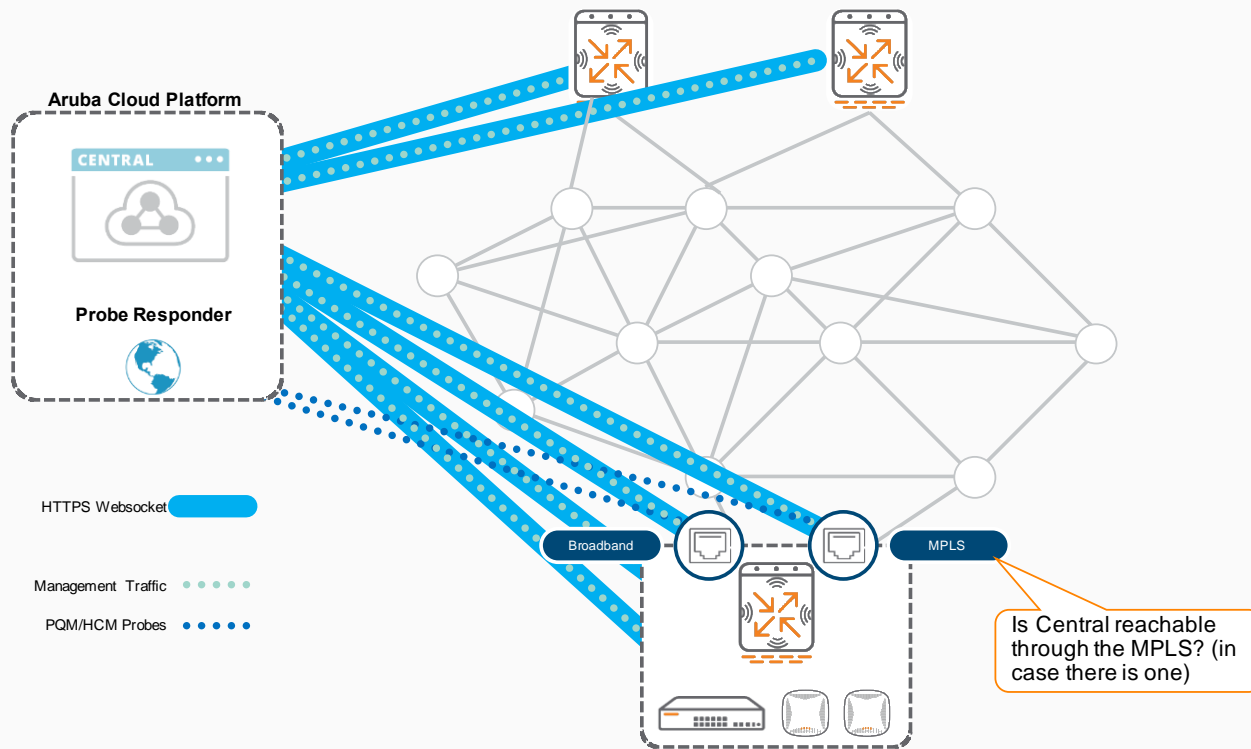
## Provisioning for AP/Switch/Gateway



- Installer selects site and scans devices
- Installer gets status of device on boarding
- Admin gains central visibility into on boarding
- Location awareness seeded into on boarding

# Cloud-based management

## True Zero-Touch Provisioning



- 1 Devices automatically appear in Device Inventory
- 2 DHCP on WAN interfaces > ZTP with activate
- 3 Alternative: OTP web interface
- 4 Websocket opened using SSL tunnels > Management, Monitoring, SW updates, Logs, Remote Console...
- 5 Branch GWs probe [pqm.arubanetworks.com](https://pqm.arubanetworks.com) to assess Central reachability

# Hierarchical Management

- 1 Apply configurations on a group basis
- 2 Overrides on a per-device basis (bulk-edit possible)
- 3 Monitoring based on sites/labels

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CURRENT APP

GATEWAY MANAGEMENT

Search Current App

Find devices, clients and networks

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

FILTER GATEWAY MANAGEMENT

home-7008 (1 Total Devices | 0 Down Ar)

REFINE FILTER LISTING

sam

GROUPS All Groups (11)

GROUP-samGROUP-sam-7008

GATEWAYS

GROUP-samdesk-7005

GROUP-sam-7008home-7008

GROUP-samJW634A-20:4C:03:...

GE-0/0/2	Enabled	✓	Not-defined
GE-0/0/3	Enabled	✓	Not-defined
GE-0/0/4	Enabled	✓	Not-defined
GE-0/0/5	Enabled	✓	Not-defined

+

Port Channel

NAME	MEMBERS	PROTOCOL
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# Making branch security scalable...

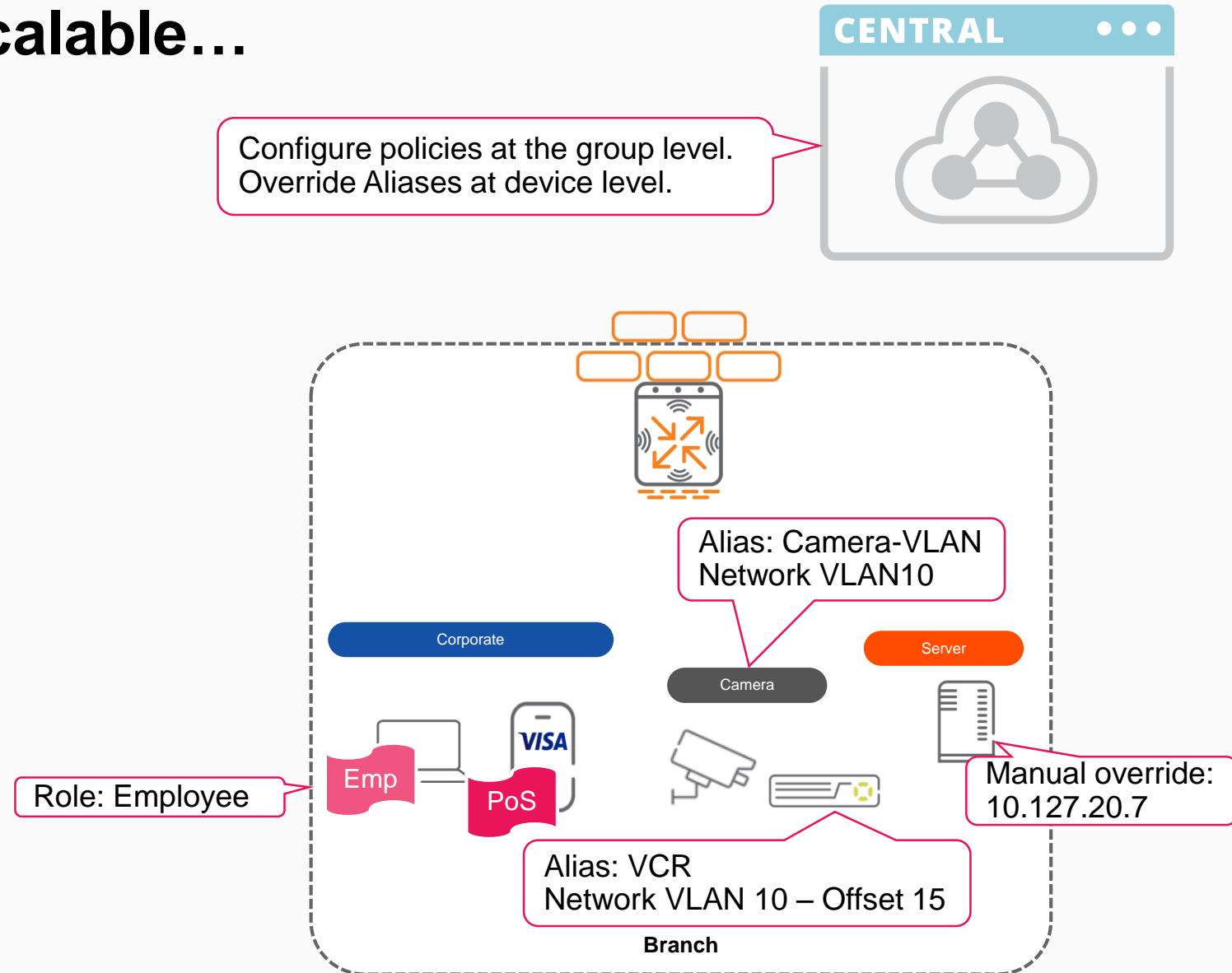
## Group based security policies

- 1 Manual override:  
Set alias at group, define it at device
- 2 Automatic override:  
Set VLAN + offset (or the whole VLAN)
- 3 Role based policies:  
From role A to role B...

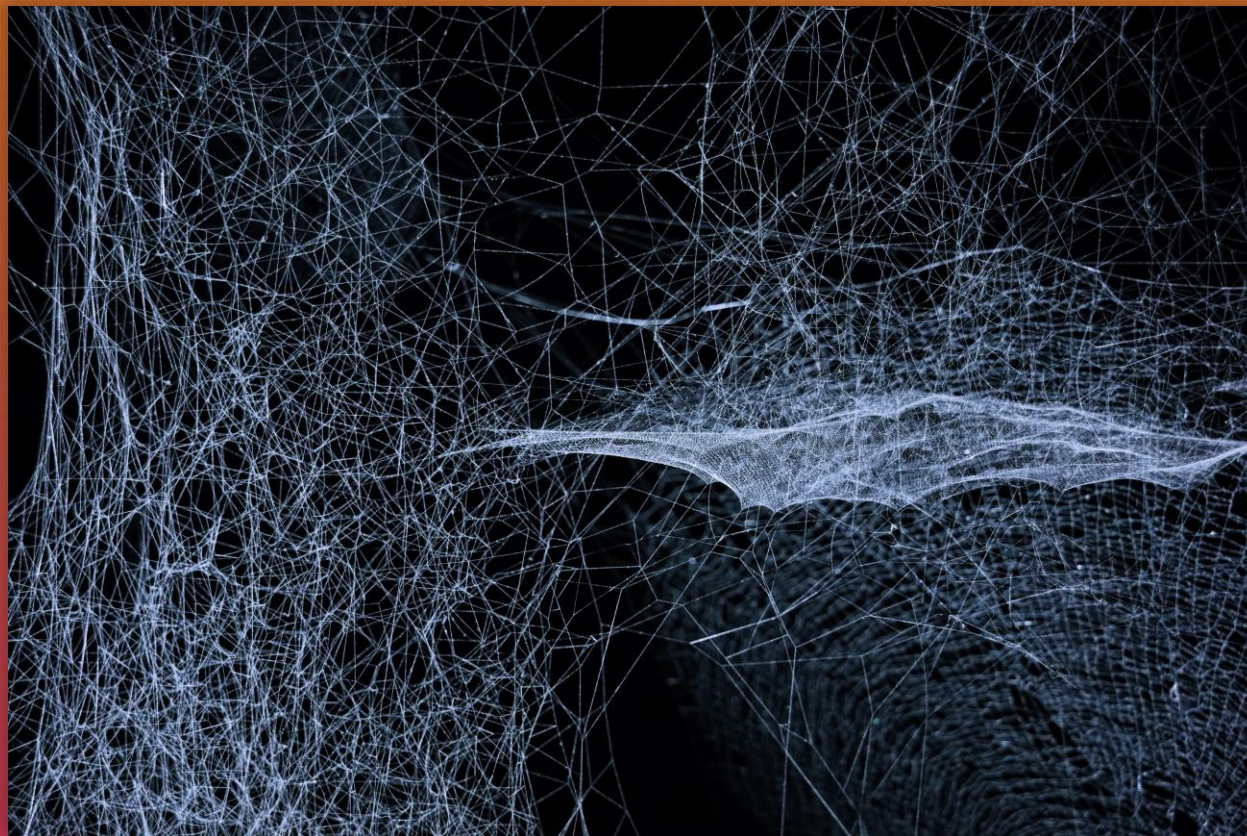


Security Core

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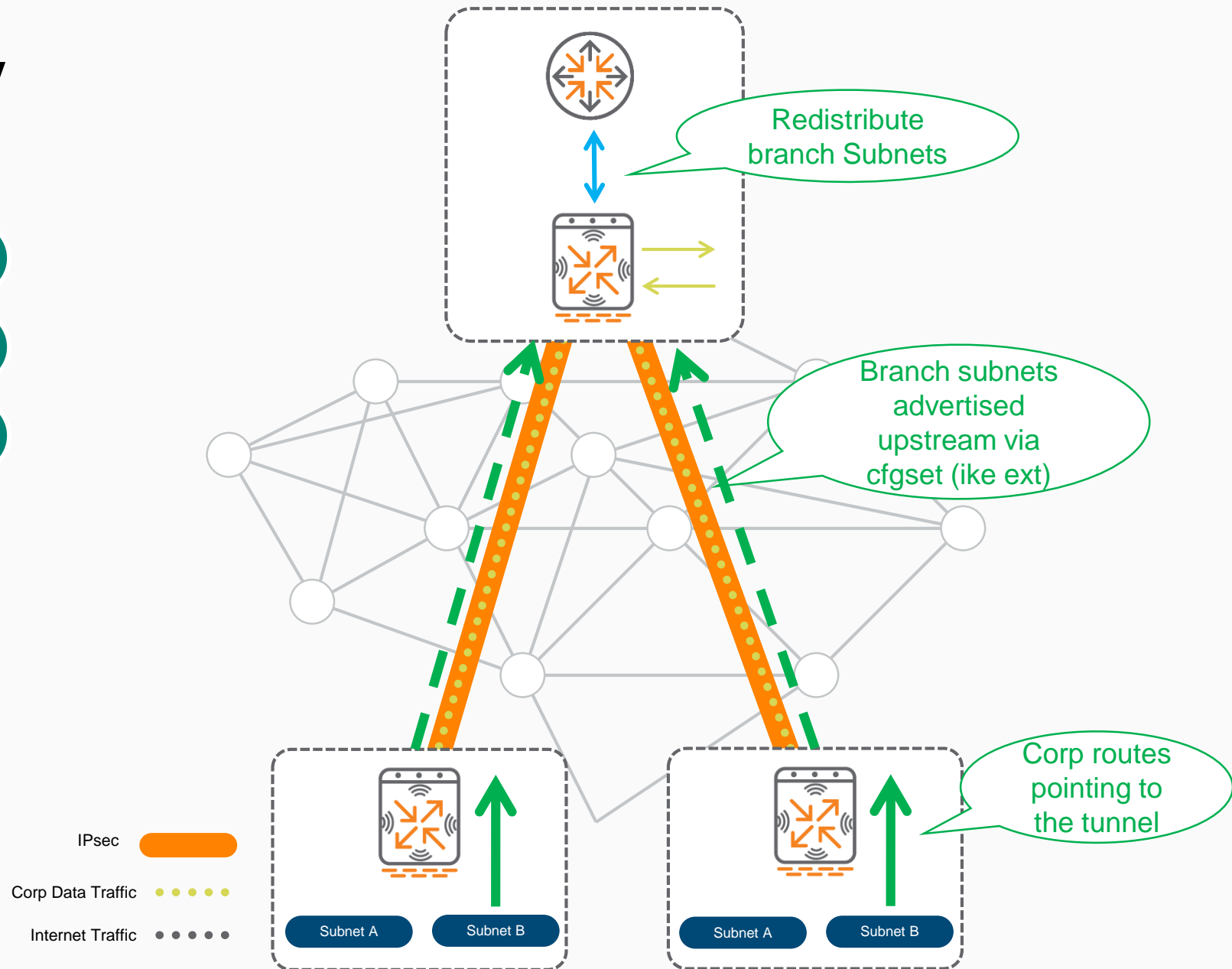


# WAN

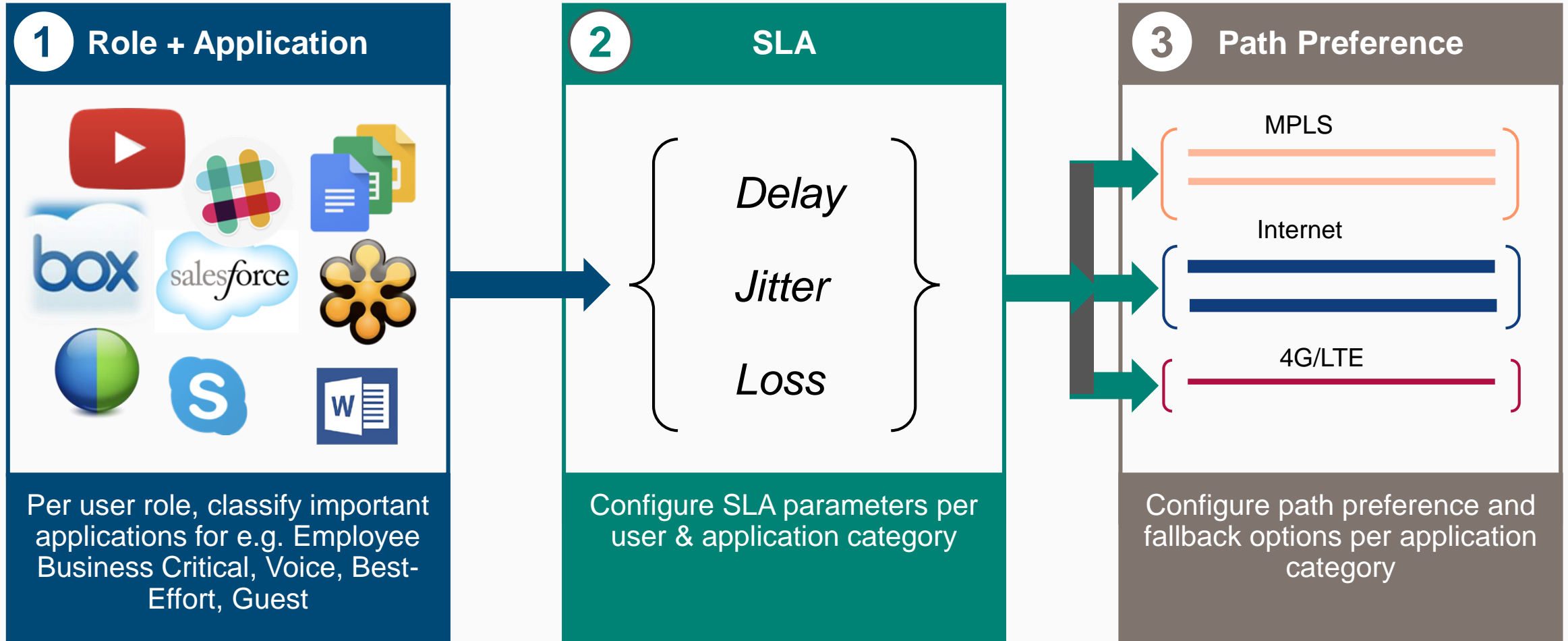


## Setting up the overlay

- 1 Establish VPN tunnels
- 2 Advertise branch routes
- 3 Start sending traffic



# Dynamic Path Selection/Steering







# What does a DPS Policy look like?

## 1 Specify 'Interesting' Traffic

### Traffic Specification Rules for Employee Mission Critical Policy

SOURCE	DESTINATION	APPLICATION	
Employee	Any	Workday	 
Employee	20.20.20.0/24	Exchange	
Employee	30.30.30.0/24	TCP Port 22	



## 2 Choose SLA parameters to measure WAN performance

### Select SLA for Employee Mission Critical Policy

NAME	LATENCY (MS)	JITTER (MS)	LOSS (%)	UTILIZATION (%)
Highly Available	150	150	1	20
Best for Internet	100	100	5	80
Best for Voice	50	25	5	80



### Probe Options for Highly Available SLA

Destination IP:

Protocol: ☒ ICMP ☐ UDP

Probe interval:  sec.

Bursts per probe:


## 3 Configure path preference parameters

### WAN Path Selection for Employee Mission Critical Policy

☐ Direct to Internet

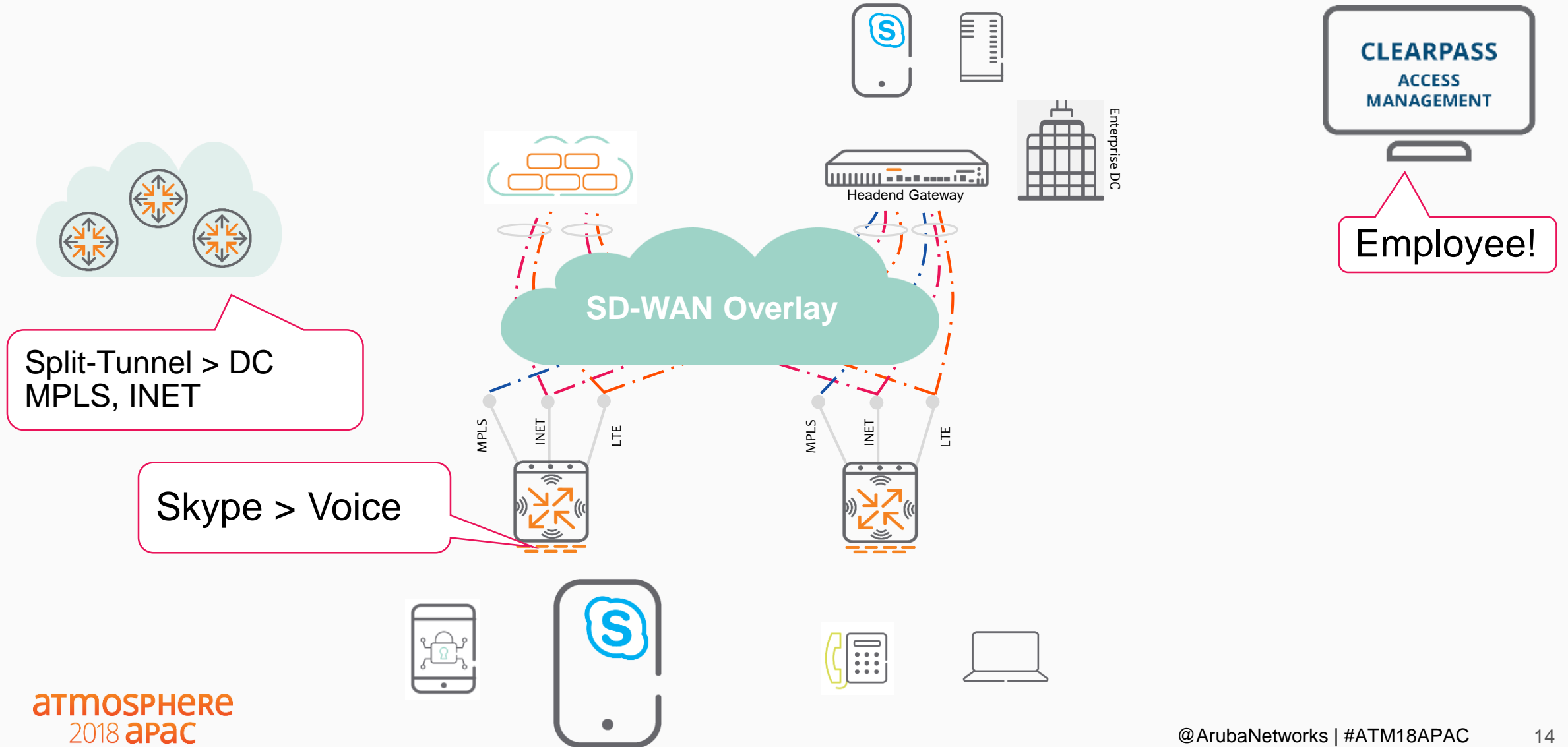
Primary path:  

Secondary path:  

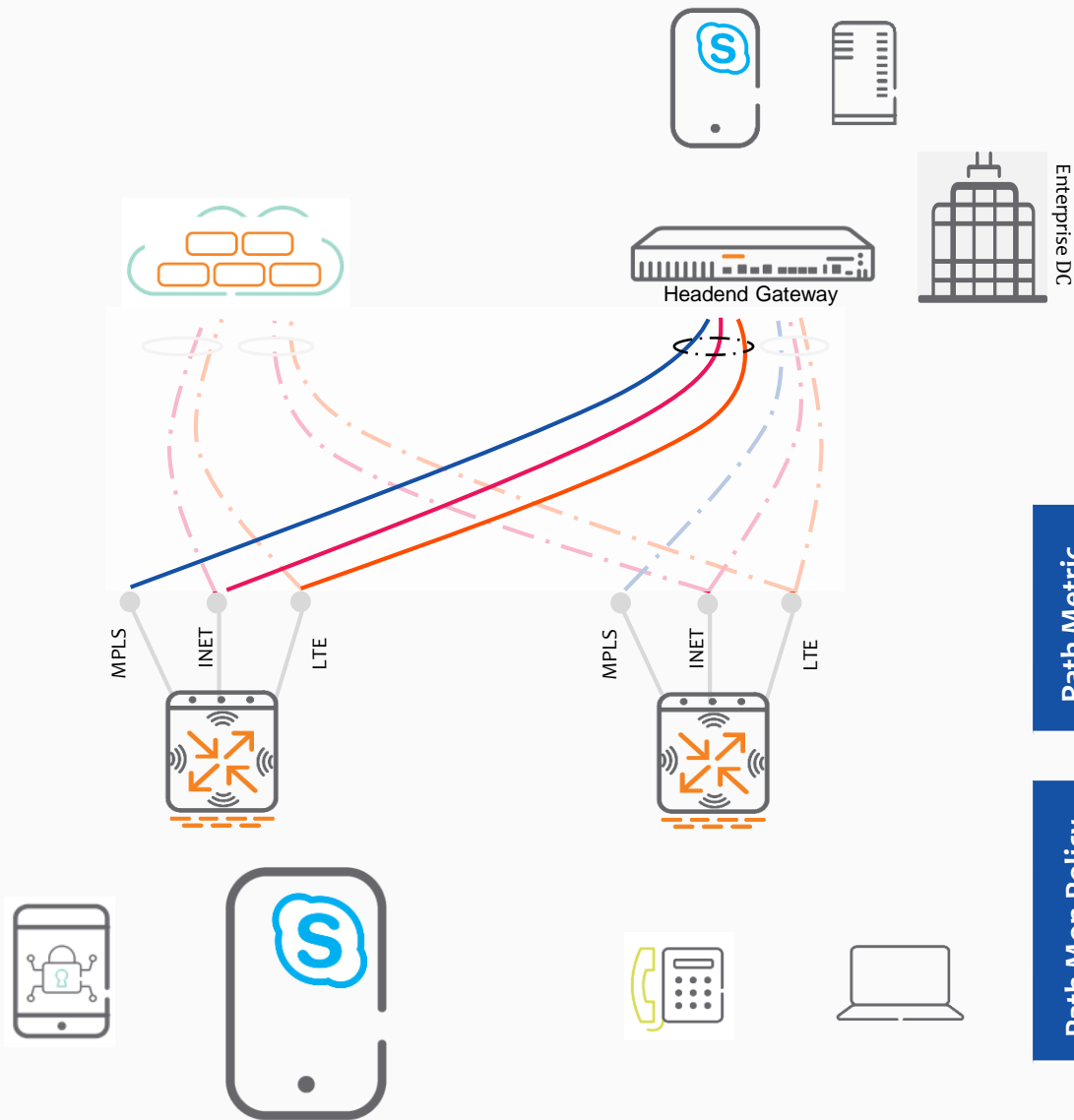
Last resort path:  



# A day in the life of an SDWAN packet



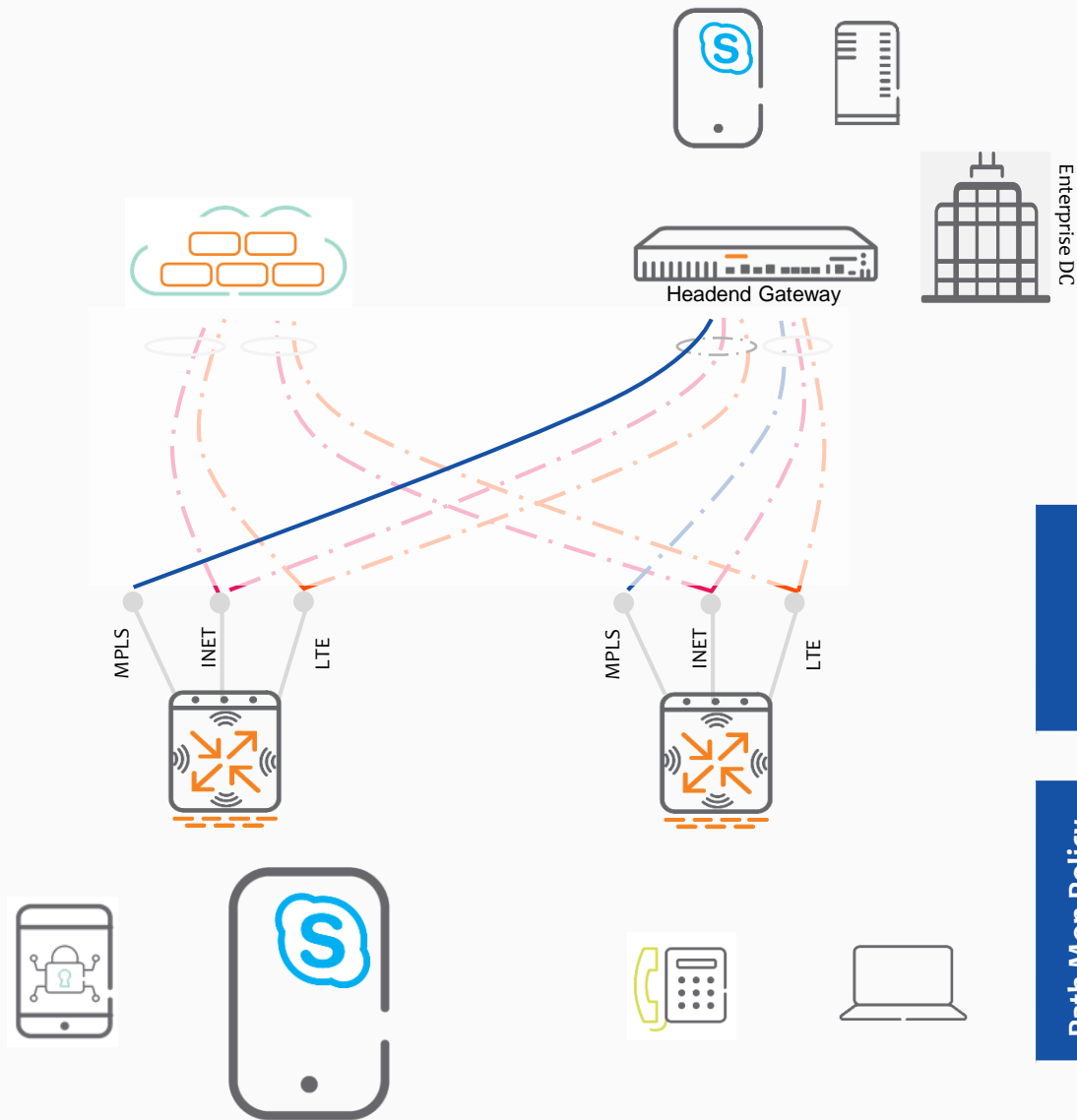
# A day in the life of an SDWAN packet



Path Metric	Link	Latency	Jitter	Loss	Util
	MPLS	4ms	5	1%	30%
	INET1	30ms	25	4%	60%
	LTE	45ms	10	20%	5%

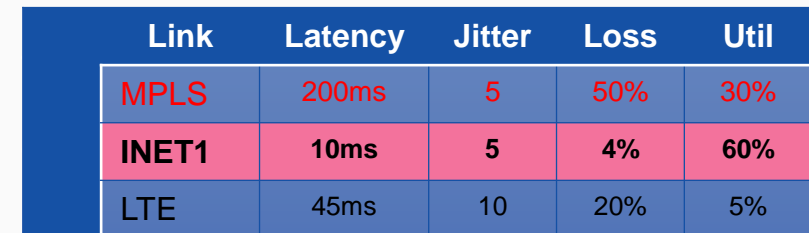
Path Mon Policy	Name	WAN Policy
	UCC	Latency < 10ms & Jitter < 10 & Loss < 2% & Util < 70%
	SAP	Latency < 50ms & Loss < 50% & Util < 90%
	Guest	Util < 95%

# A day in the life of an SDWAN packet



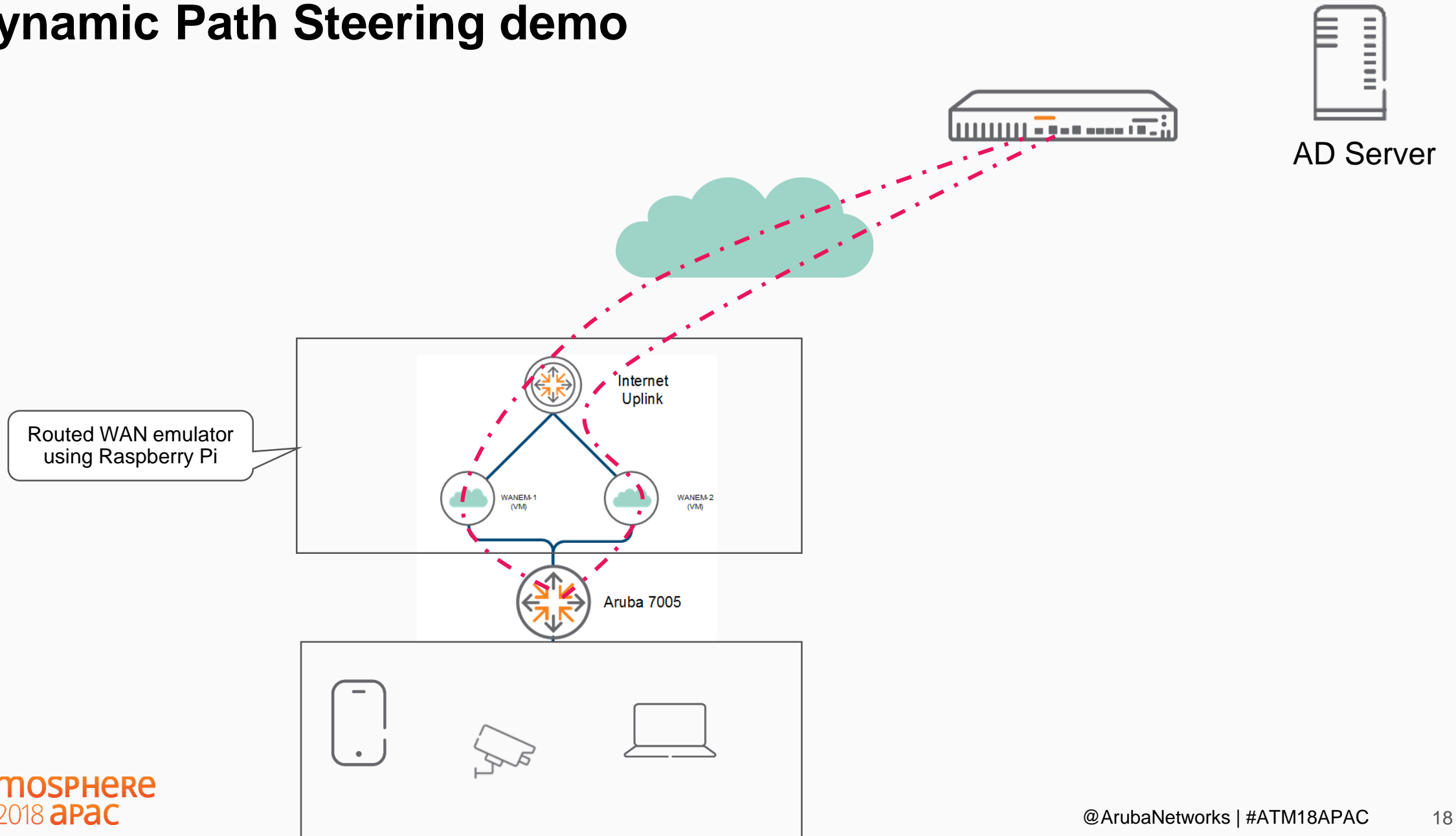
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Name	WAN Policy
UCC	Latency < 10ms & Jitter < 10 & Loss < 2% & Util < 70%
SAP	Latency < 50ms & Loss < 50% & Util < 90%
Guest	Util < 95%

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# Dynamic Path Steering demo





# Monitoring, Alerting...

# Gateway Monitoring

*Is the WAN link compliant to the application SLA?*

- View compliance per WAN link
- Highlight violations with specific reasons

*Is the policy honoring path preference?*

- View session distribution across active links

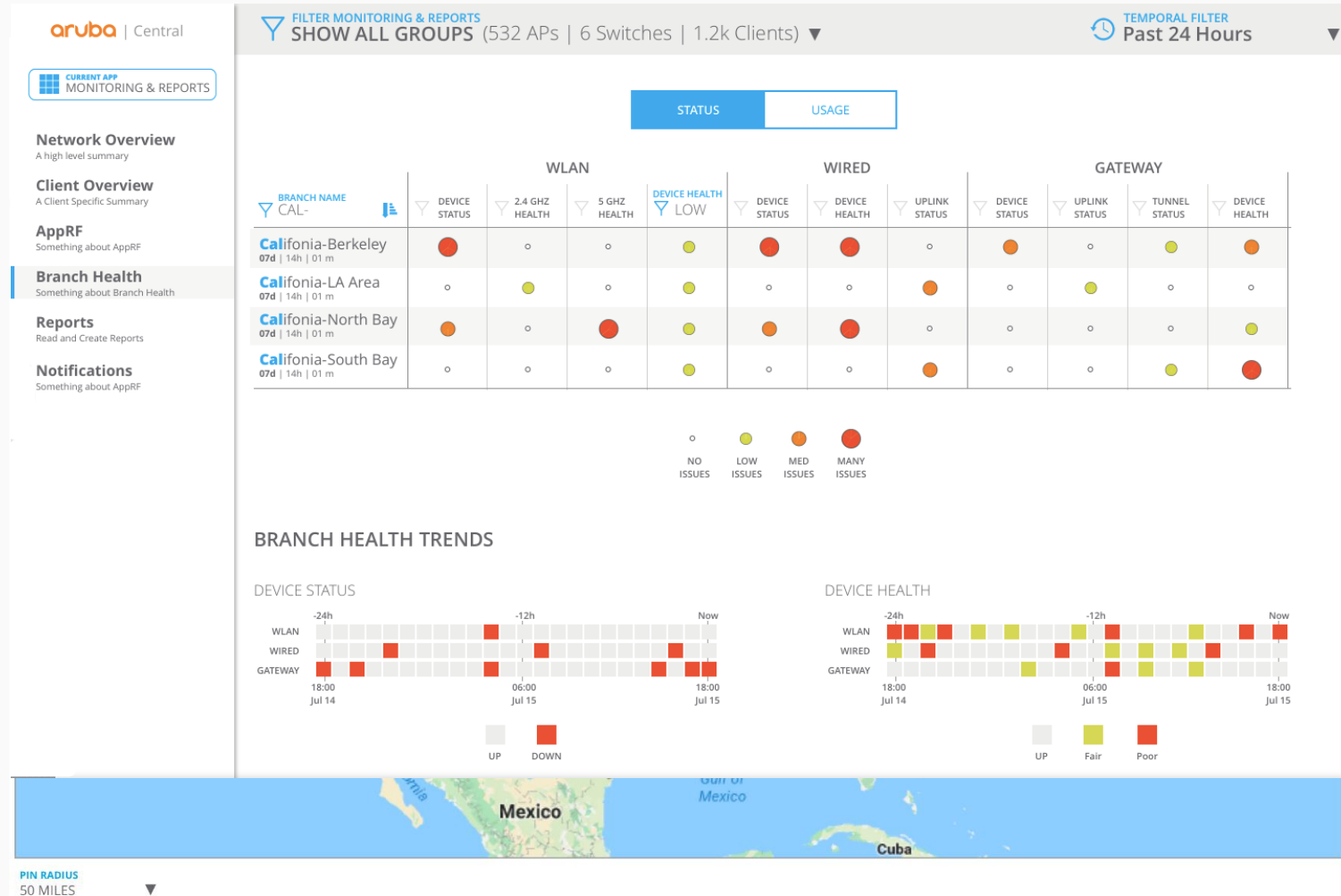
*Is DPS kicking in when there are WAN link SLA violations?*

- Quickly identify session movement between WAN links



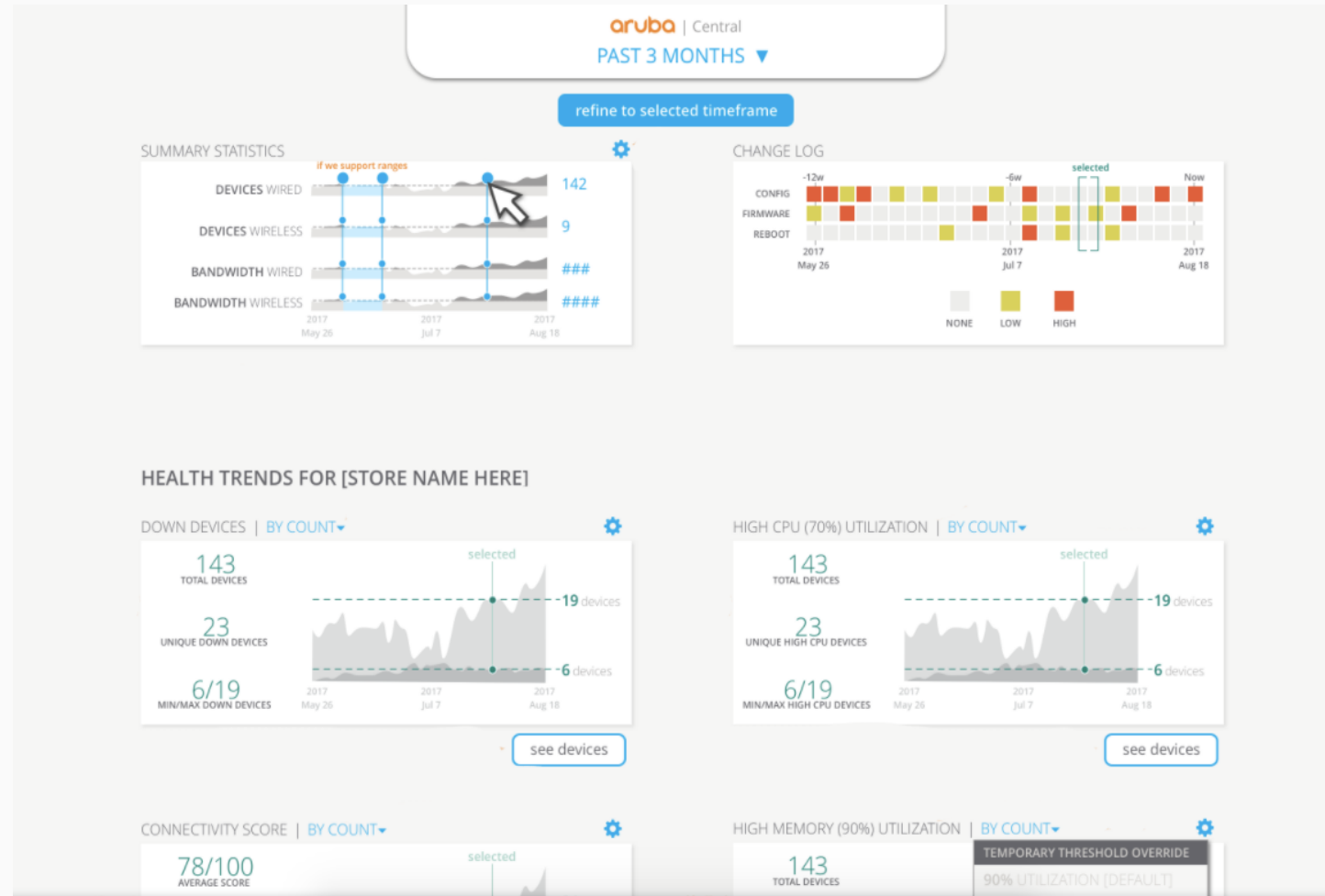
# Health Dashboard

- Monitoring via two approaches
  - Metrics and stats that are passively collected
  - Metrics and stats that are actively collected from synthetic transactions
- Results Delivered in Three Ways
  - Via APIs and API based notifications
  - Via exportable reports
  - Via the Central Dashboards



# Site Health Dashboard

- System Health Indicators
  - Devices Disconnected
  - CPU Utilization
  - Memory Utilization
- RF Health Indicators
  - Channel Utilization (5/2.4Ghz)
  - Noise Floor (5/2.4Ghz)
- Client Health Indicators
  - Client Health Score
  - Connectivity Health Score
- WAN Health Indicators
  - Network Latency, Loss
  - Speedtest



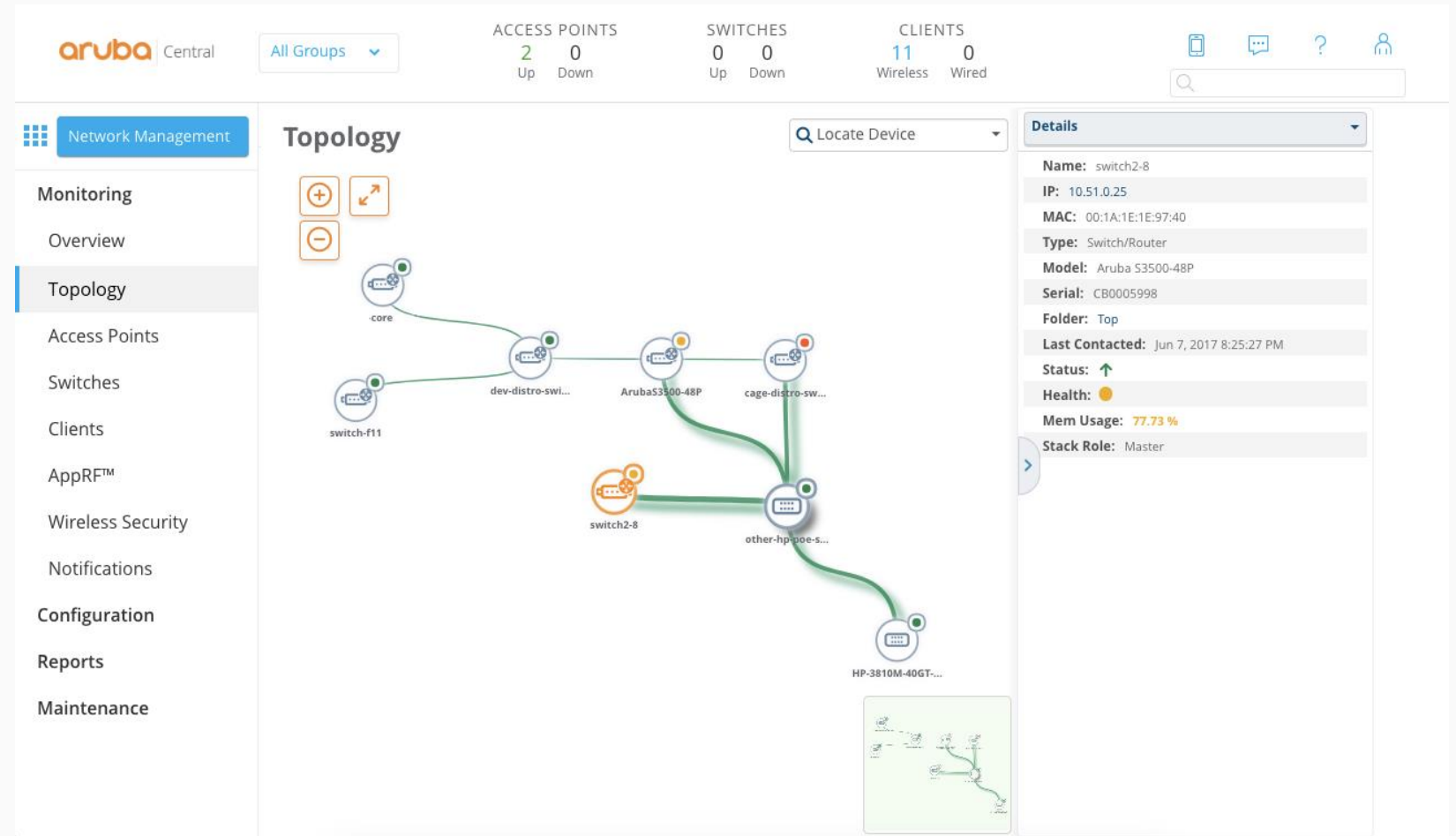
# Topology

## Tree and Planetary View

## Health status

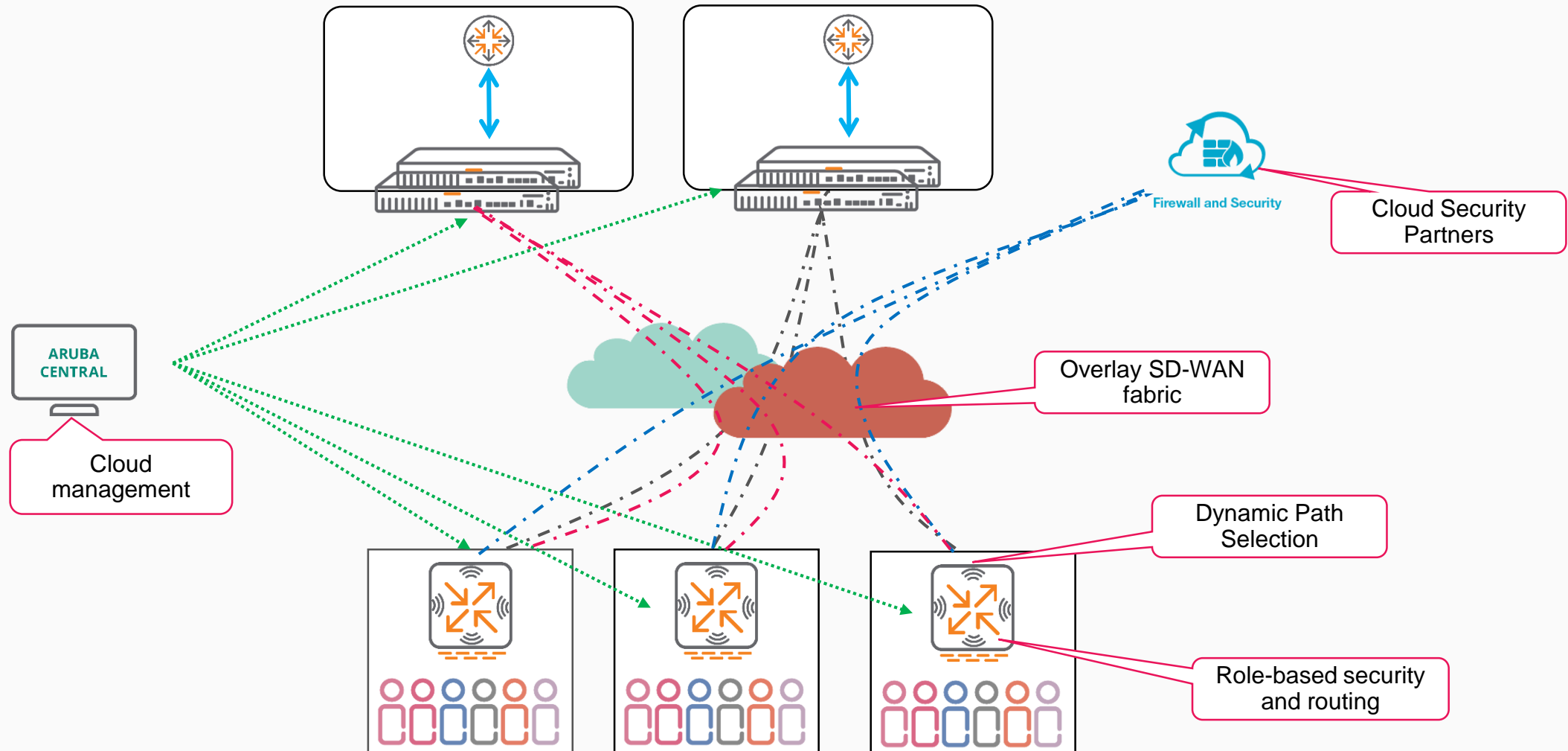
## Hover info

## VLAN Overlays

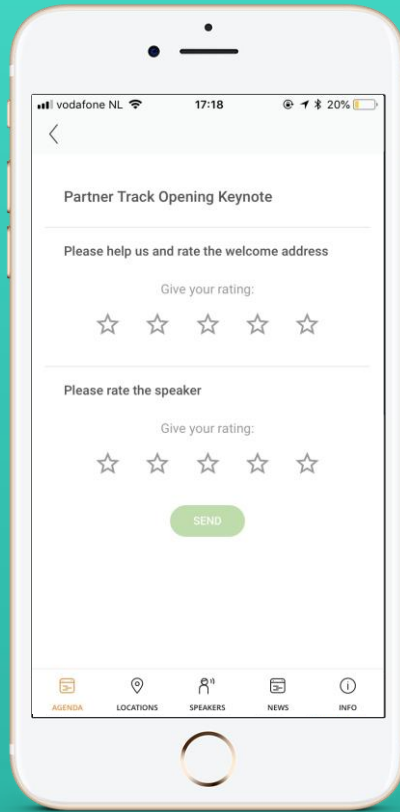




# Aruba SD-WAN solution components



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- Go to this session
- Please give us your rating





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# Thank You

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