AIRHEADS 2013

Mobility Access Switches & Wired/Wireless Integration

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June 4th & 5th

ARUBA networks

#airheadsconf

Agenda

AIRHEADS 2013

Platform Overview
Software Defined Networking
Role Based User Access
ClearPass Downloadable Roles
Aruba AP Interworking

Product Overview

Introducing the Aruba Mobility Access Switch Family

- **Security to wired access**
  - Flexible role-based access
  - Policy moves from wireless to wired
- **Operational simplicity**
  - Low-touch installation and configuration**
  - Dynamic configuration of policies
  - Integration with Aruba Instant
- **Simplify the network**
  - Eliminate VLANs in the closet
  - Extend logical configurations
- **802.11ac Ready**
  - Scaled to support high-density deployments
  - PoE+ on every switch port

**Roadmap – Activate Integration

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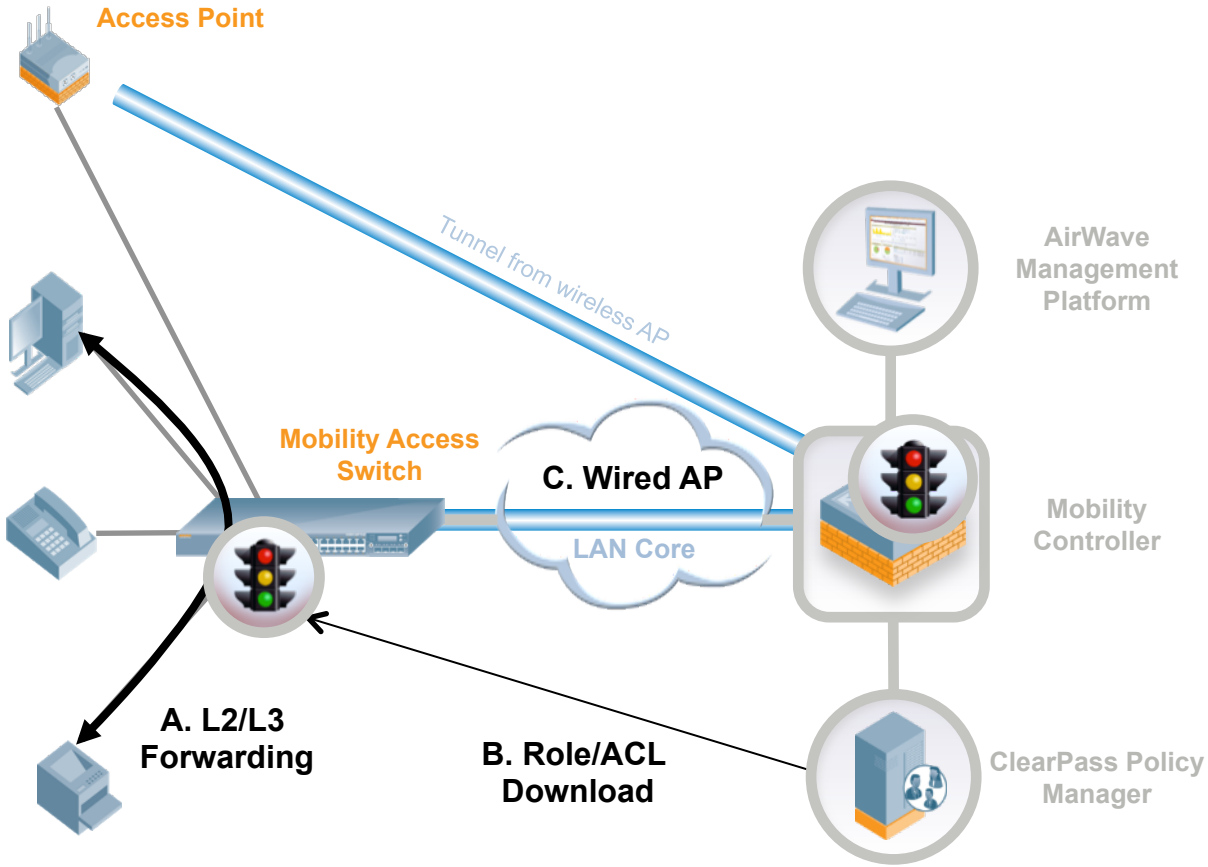
Mobility Access Switch Capabilities



A. Ethernet Switch
- Layer 2/3 forwarding
- Role-based policy enforcement

B. Integration with ClearPass
- Role-based policy
- Downloadable Role/ACL

C. Wired Access Point
- Tunneled Node
- Role-based policy enforcement at Mobility Controller
- Single policy for WLAN and wired

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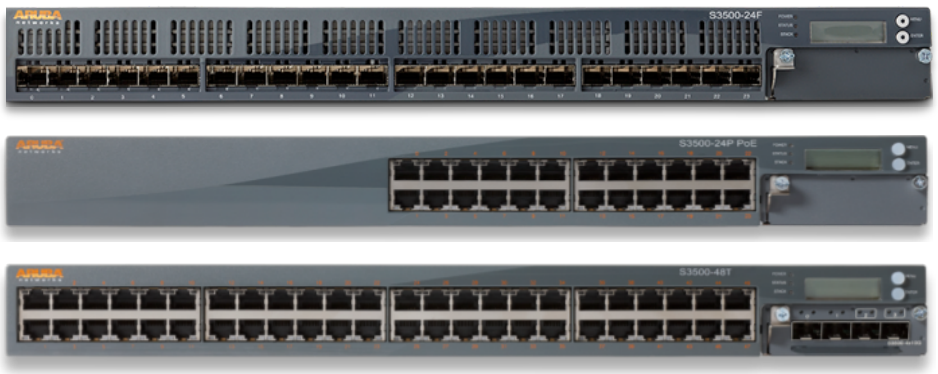
S3500 Mobility Access Switch

- **Designed for Wired Access**
  - 24/48 Port Models
  - Wire-rate and non-blocking performance
  - Role-based access with user visibility
  - Per port PoE/PoE+
- **ArubaStack**
  - Stack up to 8 devices
  - Up to 384x GbE and 16x 10GbE
  - Single management IP address
  - Single configuration file
- **Flexible Forwarding Options**
  - Traditional L2/L3 Switching
  - Tunnel traffic to Mobility Controller
- **Modular Components**
  - Field replaceable AC power supplies
    - Optional redundant power supply
  - Field replaceable fan tray
  - Optional 4-port uplink module
    - 1000BASE/10GBASE-x SFP/SFP+



SKU	Ports	PoE Budget
S3500-24F	24x1000BASE-X	Not Applicable
S3500-24T	24x10/100/1000BASE-T	Not Applicable
S3500-24P	24x10/100/1000BASE-T	660W
S3500-48T	48x10/100/1000BASE-T	Not Applicable
S3500-48P	48x10/100/1000BASE-T	660W
S3500-48PF	48x10/100/1000BASE-T	1440W

Note: PoE budget assumes power-supplies are load-sharing.

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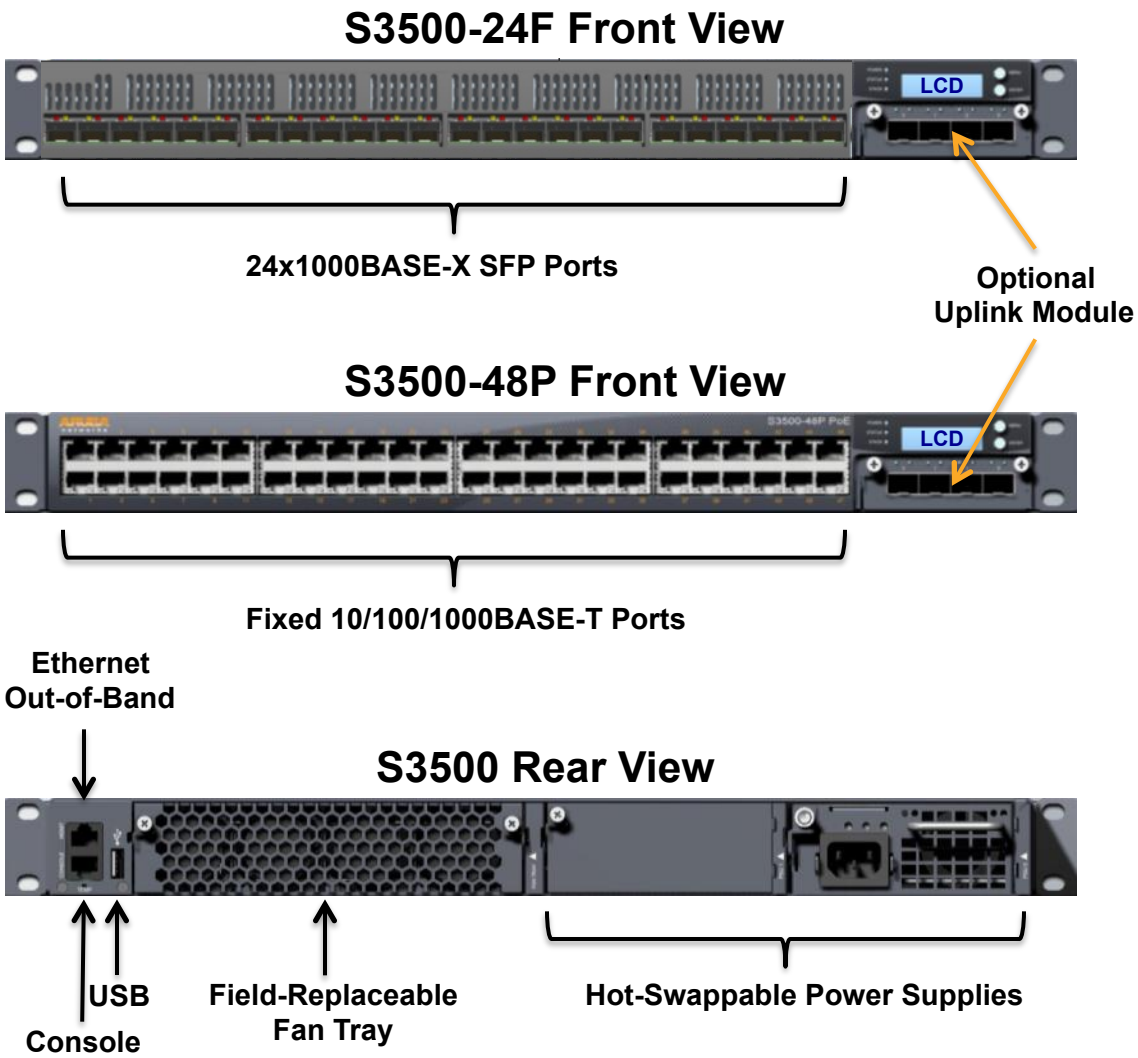
S3500: Front and Rear Views



- **Modular Components**
  - Power Supplies
  - Fan Tray
  - Uplink Module
- **Rackmount Options**
  - 2 Post Rack (front & mid-mount)
  - 4 Post Rack
  - Wall Mount
- **Dimensions & Airflow**
  - 1RU
  - 1.75″ (H) x 17.5″ (W) x 17.5″ (D)
  - Front/Side to Rear Airflow
- **Management**
  - Console (RJ45 Serial)
  - Out-of-band Ethernet
  - USB Storage
  - LCD Display
- **Limited Lifetime Warranty**

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S2500 Mobility Access Switch

- **Designed for Wired Access**
  - 24/48-port 10/100/1000BASE-T
  - Wire-rate and non-blocking performance
  - Role-based access with user visibility
  - Per port PoE/PoE+
- **ArubaStack**
  - Stack up to 8 devices
  - Up to 384x GbE and 16x 10GbE
  - Single management IP address
  - Single configuration file
  - Stackable with S3500
- **Flexible Forwarding Options**
  - Traditional L2/L3 Switching
  - Tunneled traffic to Mobility Controller
- **Integrated Components**
  - Built in fans for quiet operation
  - Fixed 4-port uplinks
    - 1000BASE/10GBASE-x SFP/SFP+

SKU	Ports	PoE Budget
S2500-24T	24x 10/100/1000BASE-T	Not Applicable
S2500-24P	24x 10/100/1000BASE-T	400W
S2500-48T	48x 10/100/1000BASE-T	Not Applicable
S2500-48P	48x 10/100/1000BASE-T	400W

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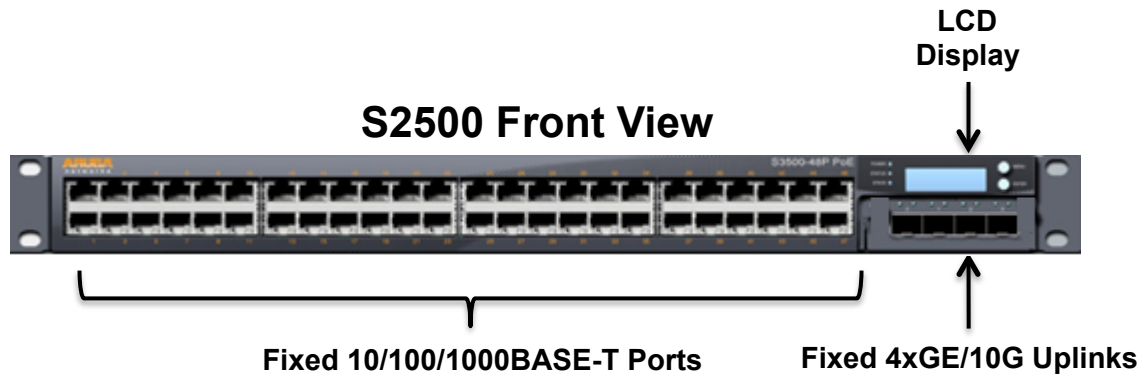
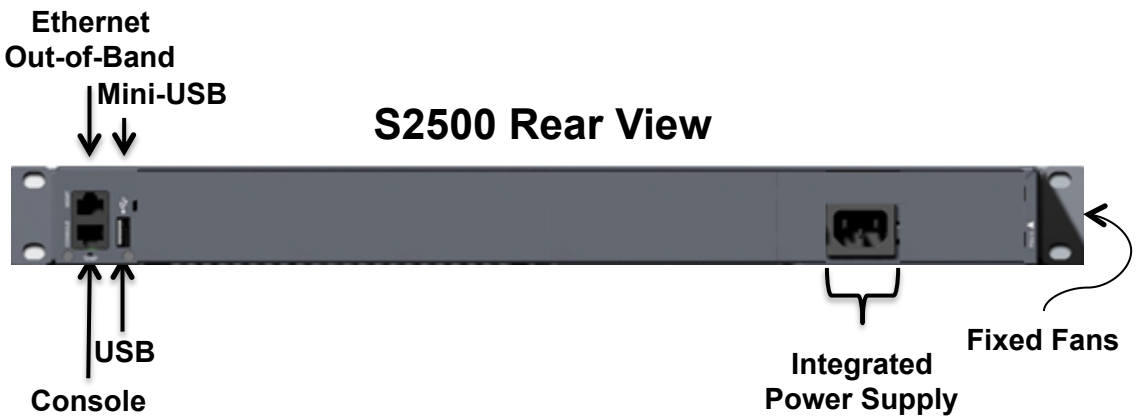
S2500: Front and Rear Views





- **Fixed Components**
  - Built-in Uplinks
  - Integrated Power
- **PoE Budget**
  - 400W
  - PoE Priority Available
- **Rackmount Options**
  - 2 Post Rack (Front)
  - Wall & 2-Post Mid Mount
- **Dimensions & Airflow**
  - 1RU
  - 1.75″ (H) x 17.5″ (W) x 12″ (D)
  - Side to side airflow
- **Management**
  - Console (RJ45 & mUSB Serial)
  - Out-of-band Ethernet
  - USB Storage
  - LCD Display
- **Limited Lifetime Warranty**

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S1500 Mobility Access Switch

- **Designed for Wired Access**
  - 24/48-port 10/100/1000BASE-T
  - Wire-rate and non-blocking performance
  - Role-based access with user visibility
  - Per port PoE/PoE+
- **Flexible Forwarding Options**
  - Traditional L2/L3 Switching
  - Tunneled traffic to Mobility Controller
- **Integrated Components**
  - Built in fans for quiet operation
  - Fixed 4-port uplinks
    - 1000BASE-x SFP

SKU	Ports	PoE Budget
S1500-24P	24x 10/100/1000BASE-T	400W
S1500-48P	48x 10/100/1000BASE-T	400W

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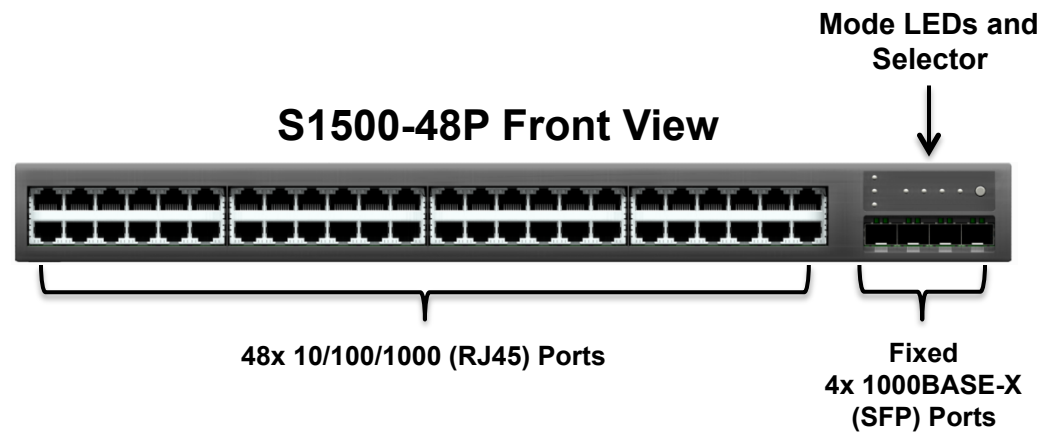
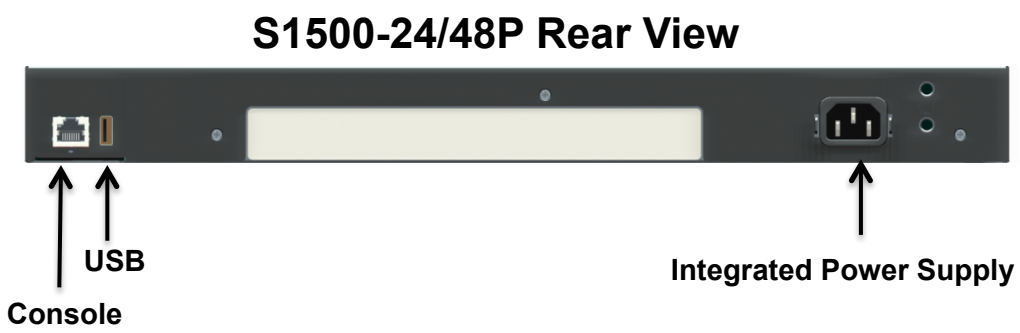
S1500: Front and Rear Views





- **Fixed Components**
  - 4x 1000BASE-x Uplinks (SFP)
  - Integrated Power
- **PoE Budget**
  - 400W
  - PoE Priority Available
- **Features & Scaling**
  - Reduced Scaling vs. S2500
  - Same Feature Set vs. S2500
- **Rackmount Options**
  - 2 Post Rack (Front)
  - Wall & 2-Post Mid Mount
- **Dimensions & Airflow**
  - 1RU
  - 1.75″ (H) x 17.5″ (W) x 12″ (D)
  - Side to side airflow
- **Management**
  - Console (RJ45)
  - USB Storage
- **Limited Lifetime Warranty**

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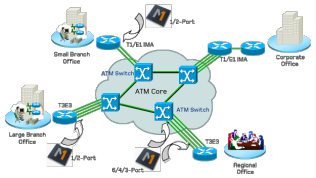
Features & Capabilities Overview

Platform / Layer 2 Features

- ArubaStack
- Multiple Spanning Tree (MSTP) & Rapid PVST+
- Link Aggregation Group
- Hot Standby Link
- GVRP*
- Voice VLAN
  - LLDP-MED & CDP Fingerprinting
- Quality of Service (Granular QoS)
- Ethernet OAM 802.3ah*

Routing / Layer 3

- Routed VLAN Interface (RVI)
- Static Routing
- OSPFv2
  - MD5 Authentication
  - Route Filtering*
- Multicast
  - PIM-SM
  - IGMP Snooping/MLDv1
- Network Address Translation*



Authentication & Security

- Role Based User Access
- User Derived Roles
  - MAC, DHCP Signature*
- AAA Authentication
  - 802.1X, MAC, Captive Portal*
- External Authentication Servers
  - Radius, Tacacs+ & LDAP
- Radius Fail-Open*
- Tunneled Node to Mobility Controller

Aruba Portfolio Integration*

- Instant/Campus AP PoE Prioritization
- Instant Rogue AP Enforcement
- Instant VLAN Sharing
- Airgroup
- ClearPass Policy Manager (CPPM)
  - Downloadable Roles
- ClearPass Guest (CPG)
- Site to Site IPSEC VPN

*New in AOS 7.2/7.2.1

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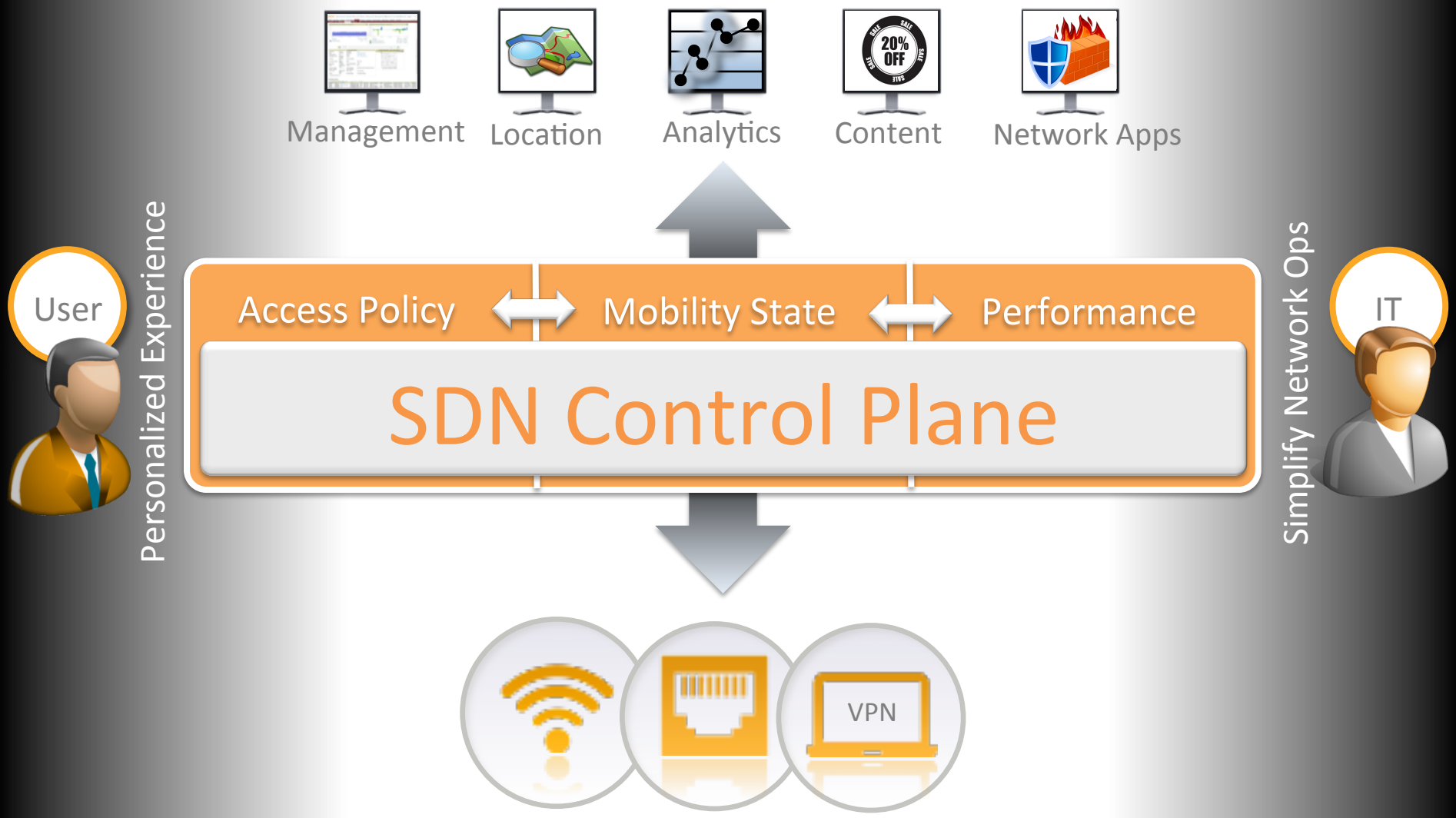
Software Defined Networking

Software Defined Unified Access



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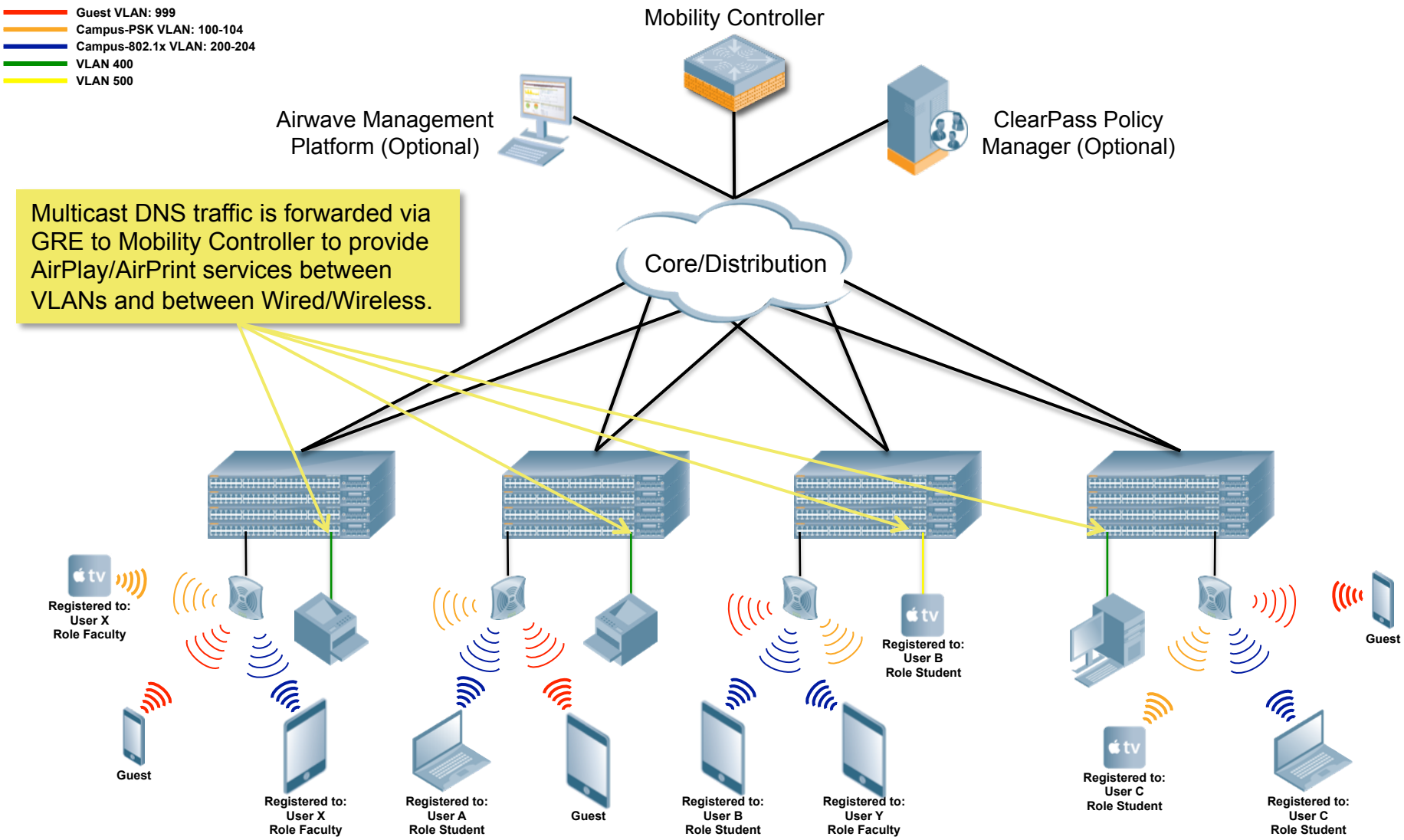
Airgroup Today



*New in AOS 7.2

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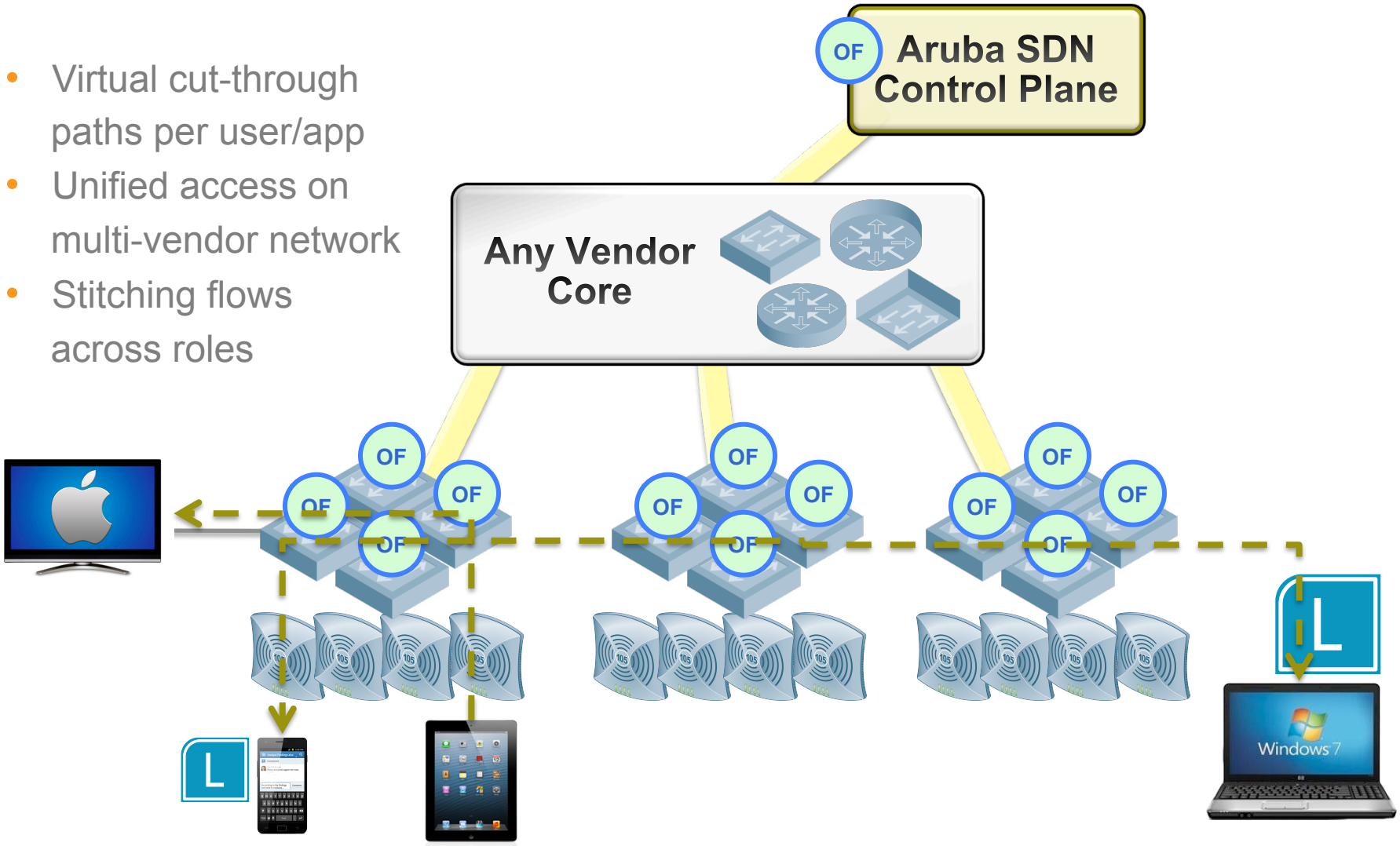
Flow Steering Tomorrow

- Virtual cut-through paths per user/app
- Unified access on multi-vendor network
- Stitching flows across roles



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Role Based User Access

Our AAA View of the World

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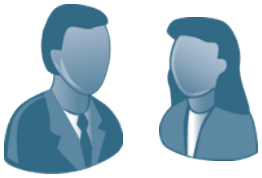
Mobility Access Switches see…

Manufacturers Via MAC OUI

MAC Addresses

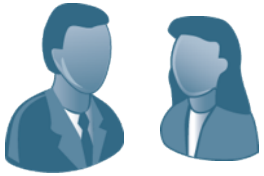


Usernames/ Passwords

Operating Systems Via DHCP Fingerprinting

IP Phones Via Device-Type Fingerprinting

And our security enforcement model uses…



User-roles

…provisioned locally or dynamically which simplifies AAA deployments

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What is a User-Role?

A user-role is a container that consists of:

- VLAN ID
- Stateless ACLs
- QoS Profile
- Policer Profile
- Captive Portal Settings
- VoIP Profile

…A user-role can be referenced locally or passed down via a Radius Vendor Specific Attribute

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How do I implement User-Roles?

User Derivation Rules

- **Manufacturers by Vendor OUI**
  - Instead of pre-populating a user database or a static MAC bypass list with MAC addresses from the same vendor, create a UDR to match on the Vendor's OUI (first 6 digits or 24 bits) and assign a VLAN or user-role.
- **Operating Systems by DHCP Fingerprinting**
  - Operating systems and some classes of devices utilize unique DHCP messages (e.g. the options they request, the order of the options). A UDR can be created to match on that unique fingerprint or signature and assign a VLAN or user-role.
- **IP Phone by Device-Type Fingerprinting**
  - IP Phones and AAA don't always get along. Device-Type fingerprinting allows you to match on an IP Phone's LLDP/CDP "phone" capability announcement so you can create a UDR to assign a VLAN or user-role.

No External Radius Required!

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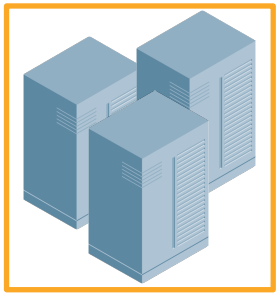
How do I implement User-Roles?



Traditional AAA Services

- **802.1x**
  - For clients with 802.1x compatible supplicants, 802.1x provides secure access using usernames/passwords and/or certificates. Authenticated users can be assigned a default user-role or a specific user-role.
- **MAC Authentication**
  - For network assets that do not support 802.1x, MAC authentication can be used to allow access to the network. Authenticated users can be assigned a default user-role or a specific user-role.
- **Captive Portal**
  - For guest clients, a web page can be provided so that they can login and gain access. Guest users can then be assigned a specific user-role limiting their network access.

Supported with Internal and External Auth Servers!

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Begin Demo 1

Aruba CPPM & MAS

ClearPass Policy Manager Integration

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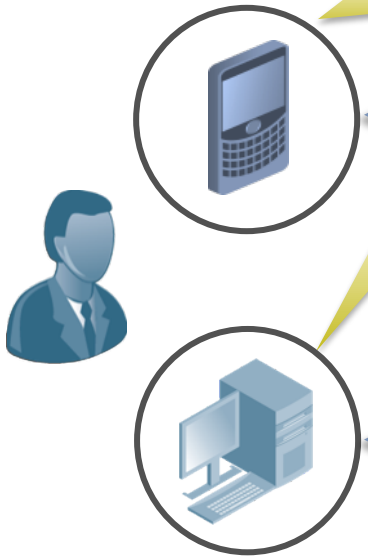
Context
- User: Joe Smith
- Role: Guest
- Device: Apple iPad
- Date: M-F, 8am-5pm
- Access: Internet

Policy Enforcement

Policy Definition



1. User provides their credentials and other context to Authenticate

802.11n AP

Mobility Controller

2. ClearPass Policy Manager returns Role & Policy for User/ Device

ClearPass

3. Role & Policy pushed to the Mobility Controller for Role & Policy Enforcement**

Mobility Access Switch

3. Role & Policy pushed to the Mobility Access Switch for Role & Policy Enforcement*

**Roadmap *New in AOS 7.2

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Begin Demo 2

Aruba IAP & MAS

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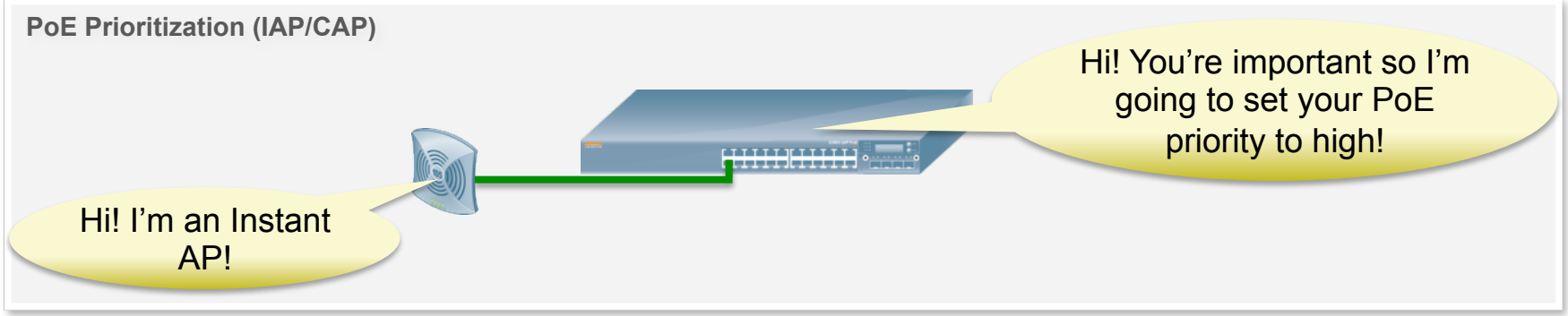
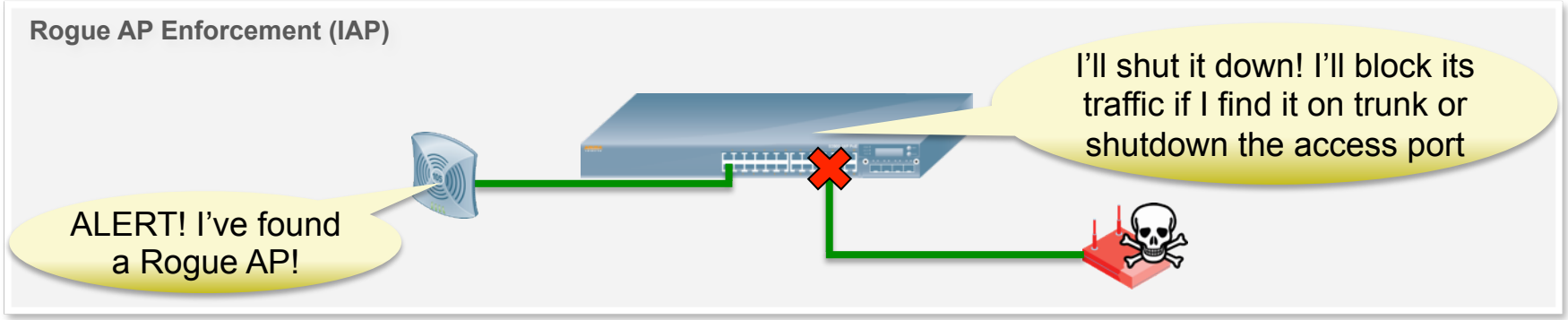
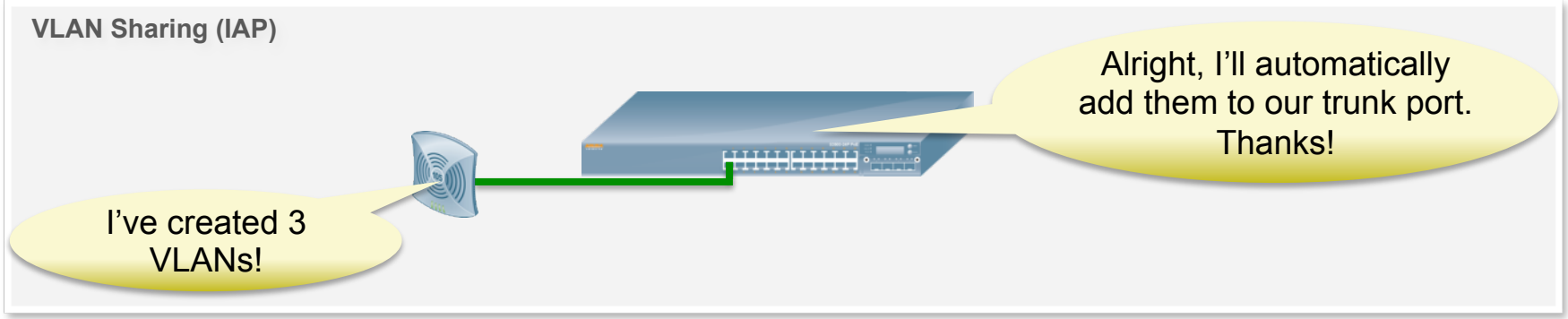
Aruba AP Interworking







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Begin Demo 3

Thank You

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