

Network Management

Integrated, Cloud, On Premise

Agenda



Overview of Aruba's Management Solutions

AirWave 7.7

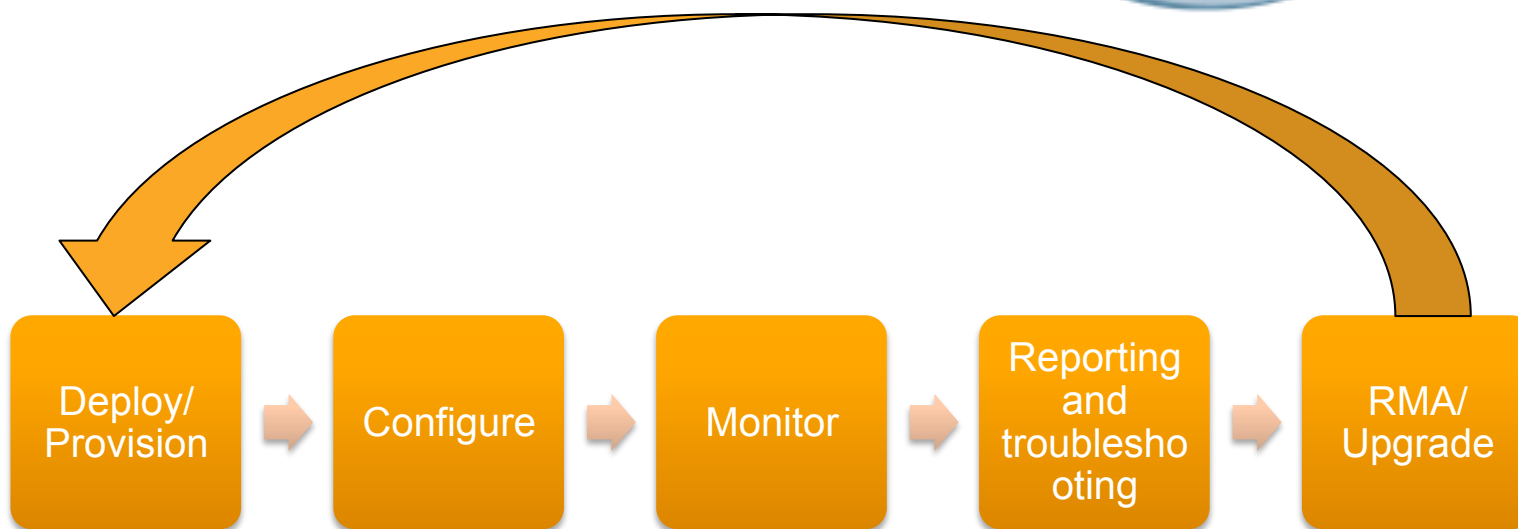
Aruba Central

Recap of the Network Management Solutions

Q & A



Aruba management suite

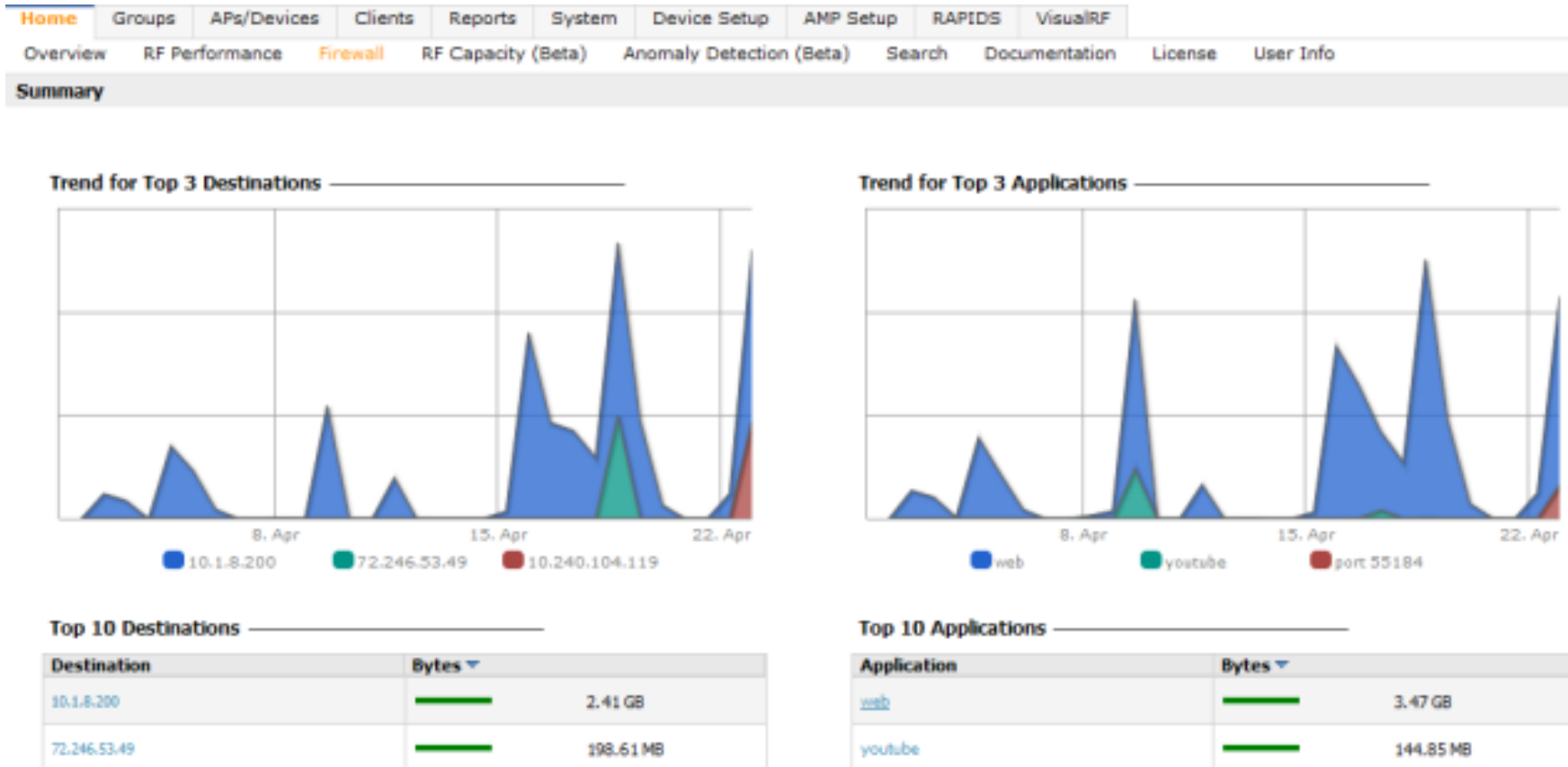


Best of breed across the entire management lifecycle

AirWave 7.7

AppRF – Firewall visibility

- Summary page to display top destinations & applications
- Drill down pages similar to ArubaOS
- Client diagnostic page to display top 3 apps/destinations



AppRF – Firewall visibility



- Drill down pages similar to ArubaOS
- Client diagnostic page to display top 3 apps/destinations

Device Info

Username: ARUBANETWORKS\msubramanian

Device Name:

Device Type: Windows 7


MAC Address: 60:A4:4C:82:A1:D6

Role: employee

Notes:

Top 3 Applications

Applications	Bytes
port 37933	<div></div> 3.51 MB
svc-https	<div></div> 271.61 KB
svc-msrpc-tcp	<div></div> 261.07 KB



New Devices: 0 Up: 3 Down: 13 Mismatched: 4 Rogue: 483 Clients: 4 Alerts: 0

Log out admin

Search

Home Groups APs/Devices Clients Reports System Device Setup AMP Setup RAPIDS VisualRF

Overview RF Performance Firewall Anomaly Detection Search Documentation License User Info

Users Devices Destinations Roles WLANs

Summary > Applications(skype) > Users (3)

User	Bytes	Packets	Devices	Destinations	Roles	WLANs
kenobi	<div></div> 9.09 KB	65	OS X	2	marketing	1
lea	<div></div> 11.21 GB	10782875	OS X	4	IT	1
yoda	<div></div> 36.98 KB	886	Windows	3	sales	1

Folder Top Time Range: 2h 1d 1w 2w Custom

Usage Breakdown

Roles

Destinations

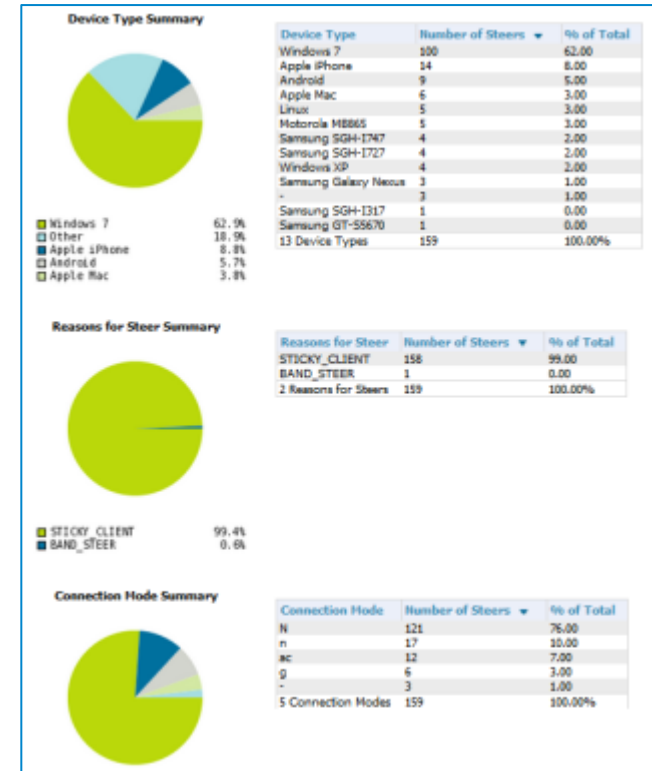
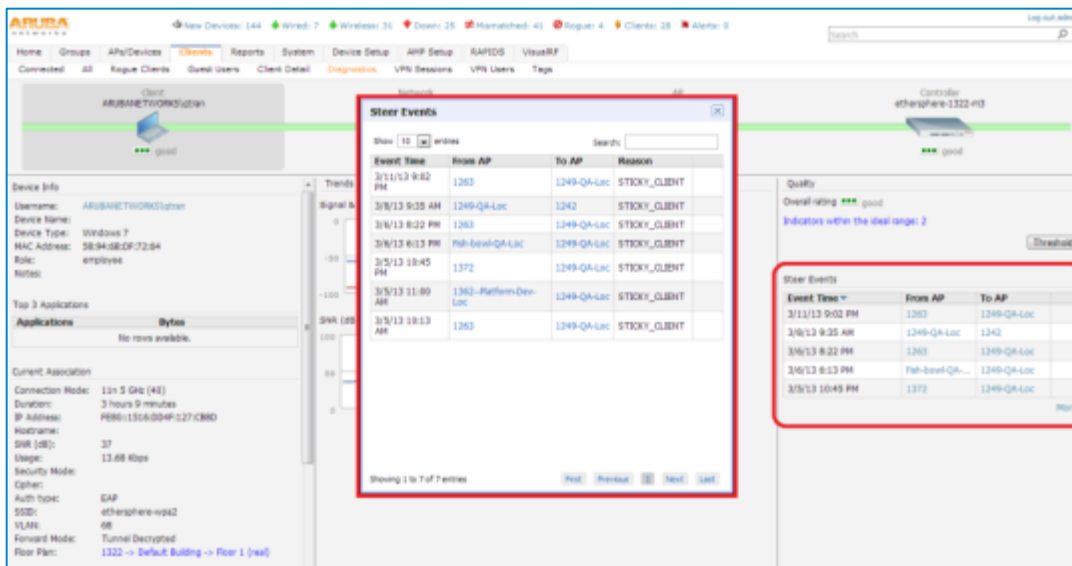
5 More +

WLANs

Devices

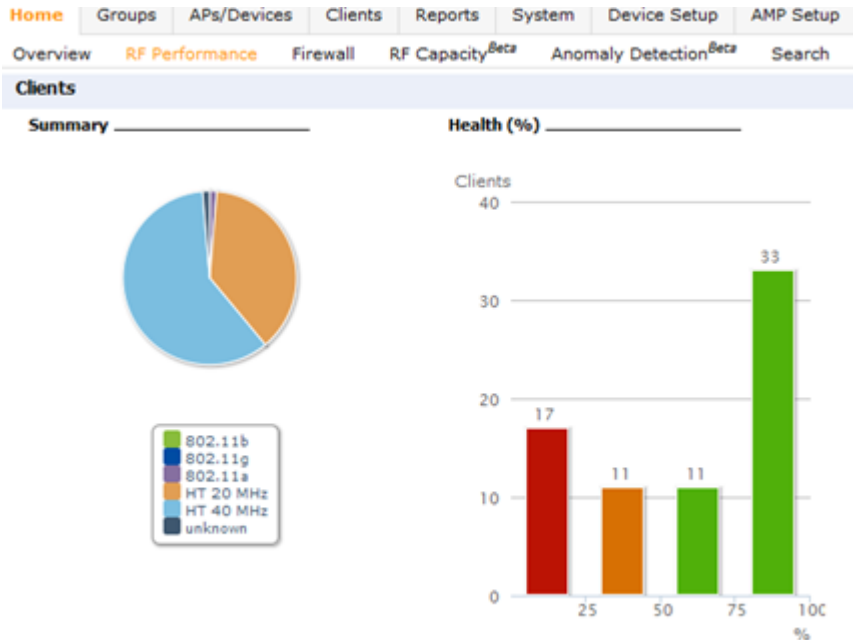
ARM 3.0 – Client Match

- Visibility into client match events and reporting



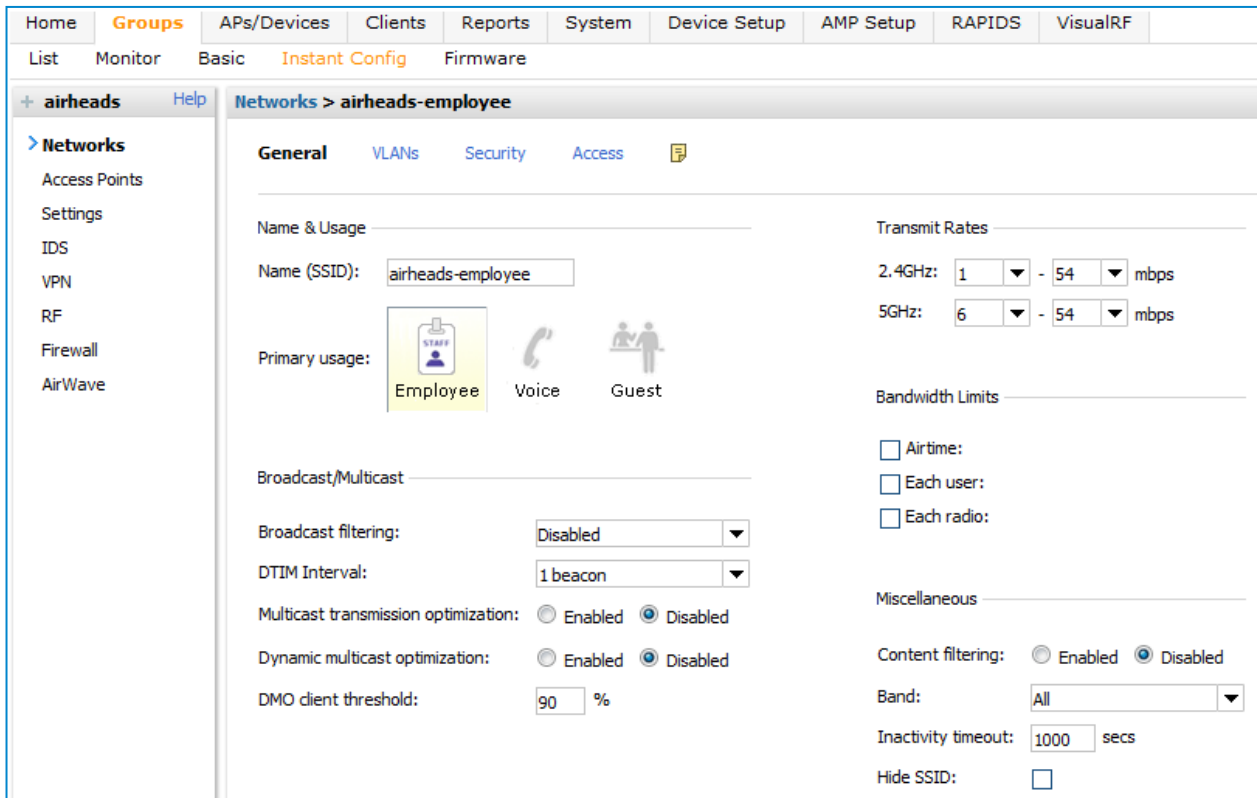
ARM 3.0 – client health

Client health: Dashboard and overlay



IAP GUI Config

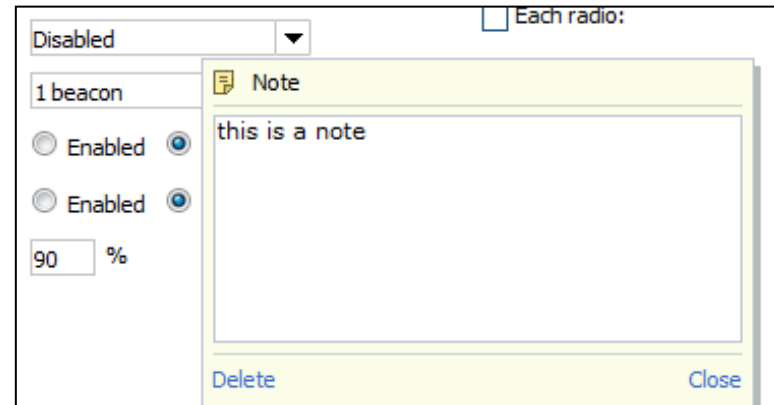
- Simplified UI to configure VCs and APs
- Terminology, help similar to IAP
- Tools to override settings per location/VC and resolve mismatches



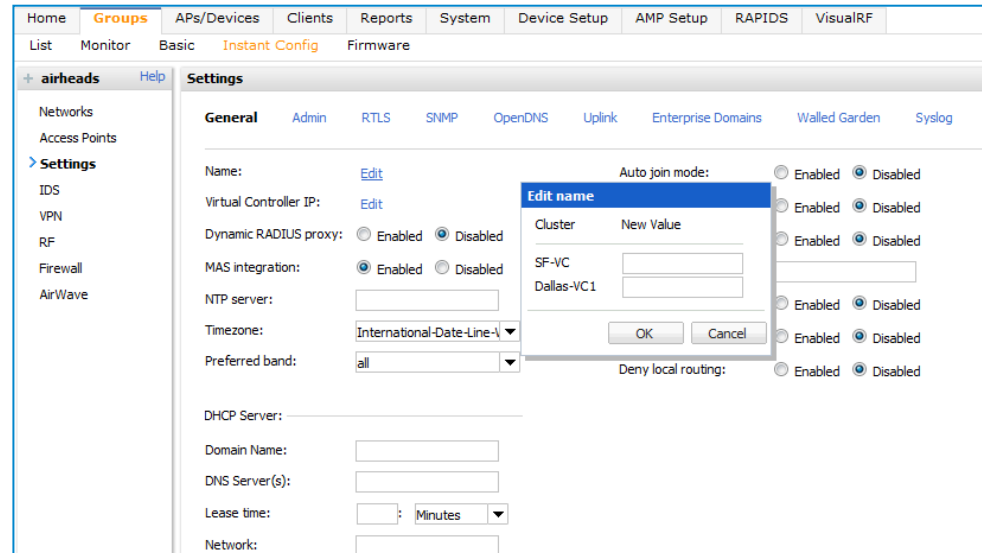
The screenshot shows the Aruba IAP GUI configuration interface. The top navigation bar includes tabs: Home, Groups, APs/Devices, Clients, Reports, System, Device Setup, AMP Setup, RAPIDS, and VisualRF. Below this is a sub-navigation bar with List, Monitor, Basic, Instant Config, and Firmware. The main header shows '+ airheads' and 'Help'. The left sidebar lists 'Networks' with sub-items: Access Points, Settings, IDS, VPN, RF, Firewall, and AirWave. The main content area is titled 'Networks > airheads-employee' and has tabs for General, VLANs, Security, and Access. The 'General' tab is active, showing 'Name & Usage' with 'Name (SSID): airheads-employee'. Under 'Primary usage', there are three icons: Employee (selected), Voice, and Guest. The 'Broadcast/Multicast' section includes 'Broadcast filtering: Disabled', 'DTIM Interval: 1 beacon', 'Multicast transmission optimization: Disabled', 'Dynamic multicast optimization: Disabled', and 'DMO client threshold: 90 %'. The 'Transmit Rates' section shows '2.4GHz: 1 - 54 mbps' and '5GHz: 6 - 54 mbps'. The 'Bandwidth Limits' section has checkboxes for 'Airtime:', 'Each user:', and 'Each radio:'. The 'Miscellaneous' section includes 'Content filtering: Disabled', 'Band: All', 'Inactivity timeout: 1000 secs', and 'Hide SSID: '.

IAP GUI Config

Add note on any field



Multi-edit for Name/IP



IAP GUI Config

Drill down to a location and override any field

Home **Groups** APs/Devices Clients Reports System Device Setup AMP Setup RAPIDS VisualRF

List Monitor Basic **Instant Config** Firmware

— Stores > Store41-VC1

- Store41-VC1 *
- Store20-VC1

> Networks

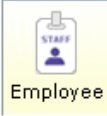


- Access Points
- Settings
- IDS
- VPN
- RF
- Firewall
- AirWave

Networks > IGC-Stores

General VLANs Security Access

Name & Usage

Name (SSID): IGC-Stores

Primary usage:  Employee  Voice  Guest

Broadcast/Multicast

Broadcast filtering: Disabled


DTIM Interval: 1 beacon

Multicast transmission optimization: ☐ Enabled ☒ Disabled

Dynamic multicast optimization: ☐ Enabled ☒ Disabled

DMO channel utilization threshold: 90 %

Bandwidth Limits

☒ Airtime: 50 % * 

☐ Each user:

☐ Each radio:

Transmit Rates

2.4GHz: 1 - 54 mbps

5GHz: 6 - 54 mbps

Miscellaneous

Content filtering: ☐ Enabled ☒ Disabled

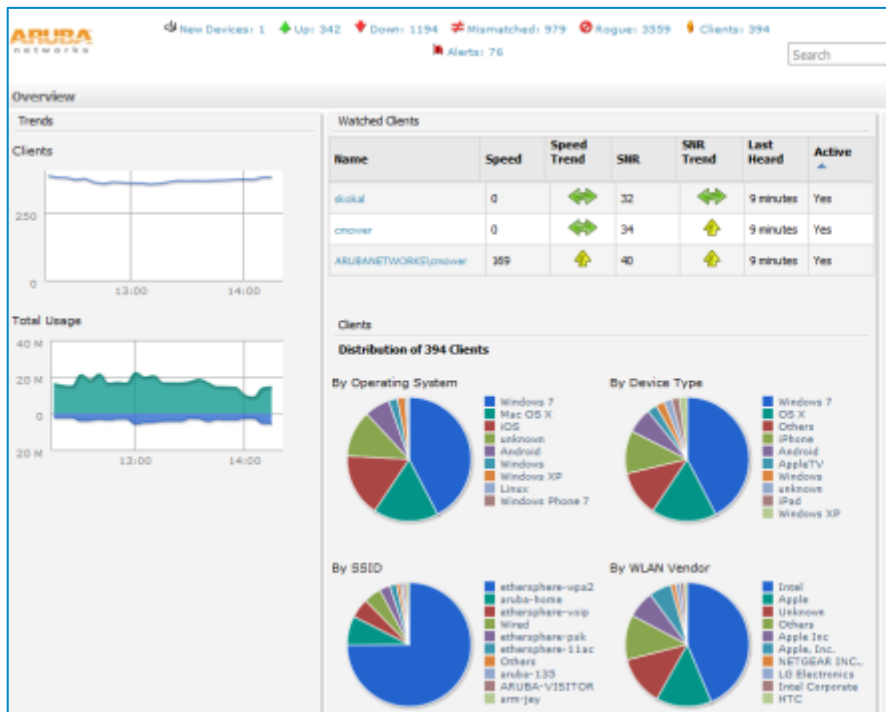
Band: All

Inactivity timeout: 1000 secs

Other Visibility Features

Watched Client (VIP) Dashboard

- Any client can be added to the watched



Home Groups APs/Devices **Clients** Reports System Device Setup AMP Set

Connected All Rogue Clients Guest Users **Client Detail** Diagnostics VPN Sess

Detail for 58:94:6B:C5:BE:A0

Device Info

Username: ARUBANETWORKS\cmower

First Seen: 4/14/2011 9:51 AM on <Deleted> for 4 mins

Last Seen: 4/19/2013 2:21 PM on 1341-AP01 (1341-ap01.arubanetworks.com) for 53 mins

Device Type: ☐ Windows 7

OS: ☐ Windows 7

OS Detail: ☐ Windows NT 6.1; rv:20.0

Network Interface Vendor: Intel

AOS Device Type: Win 7

Aruba HTTP Fingerprint: Mozilla/5.0 (Windows NT 6.1; rv:20.0) Gecko/20100101 Firefox/20.0

Classification: Valid

Watched Client: ☒ Yes ☐ No

Capacity Dashboard - Upgrade to 11ac?

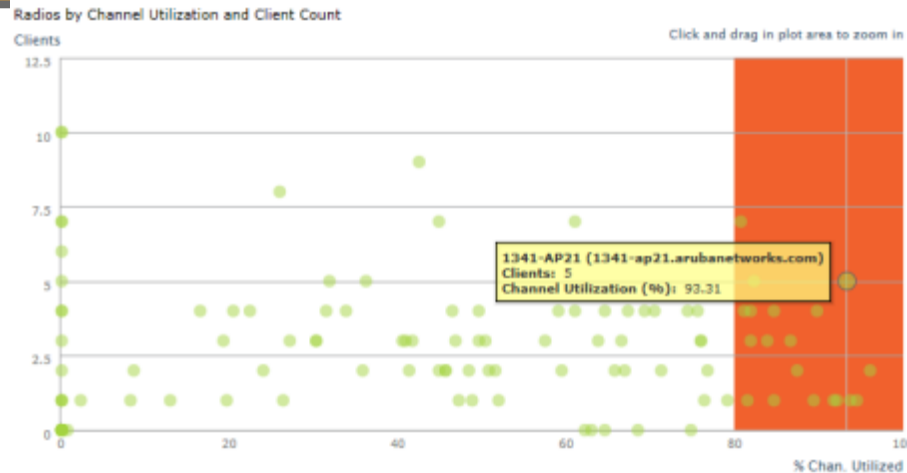
X-Y scatter plot of
all radios:
#clients .vs. radio
utilization

Radios in the from
the diagonal
deserve further
investigation

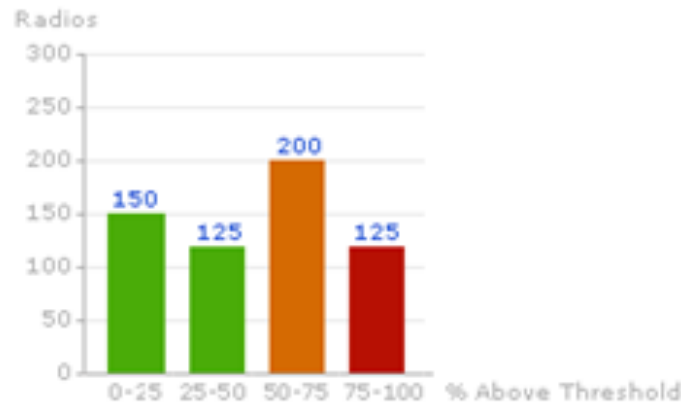
125 radios were
“heavily utilized”
75-100% of the
time.

(“Heavily utilized” is
80%+ utilization).

(Only “on time” is
considered. That is,
blocks of time the
radio is doing
something, not the
middle-of-the-night).

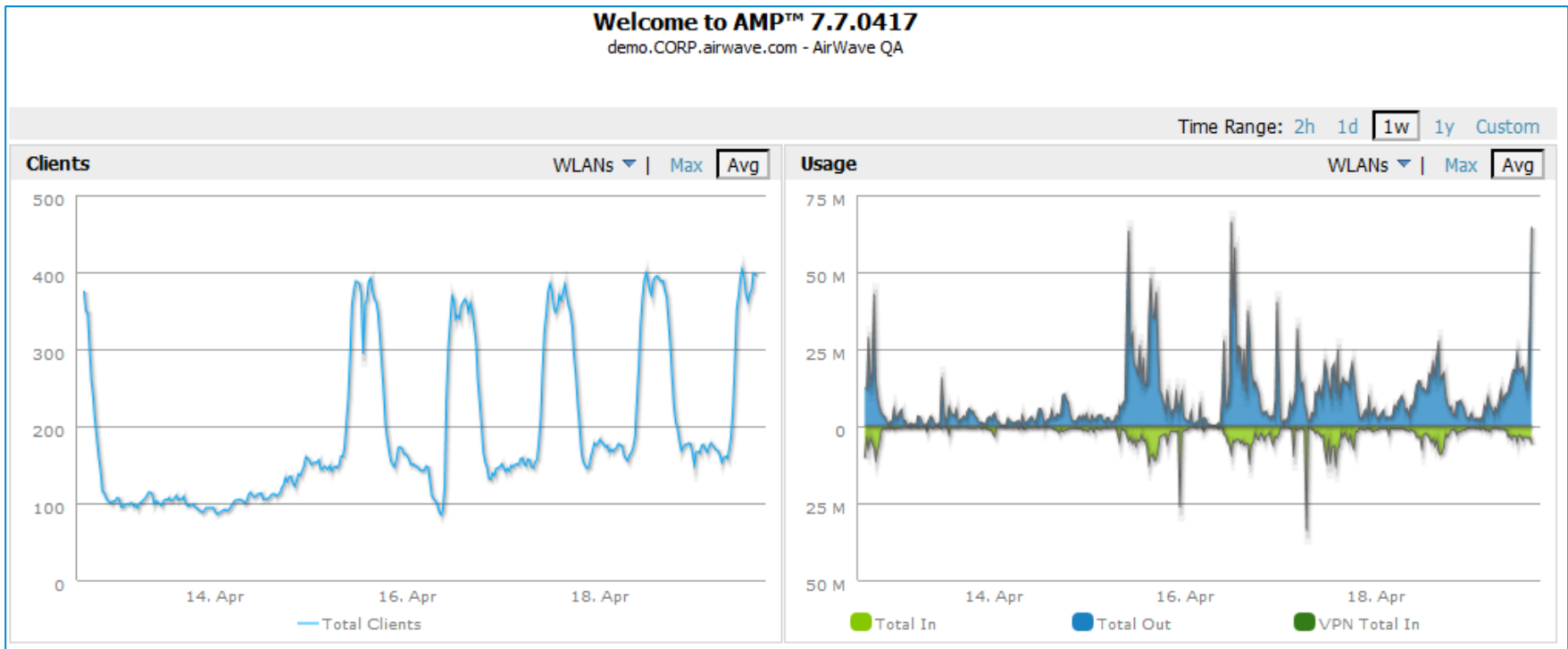


Radios Above Usage Threshold:



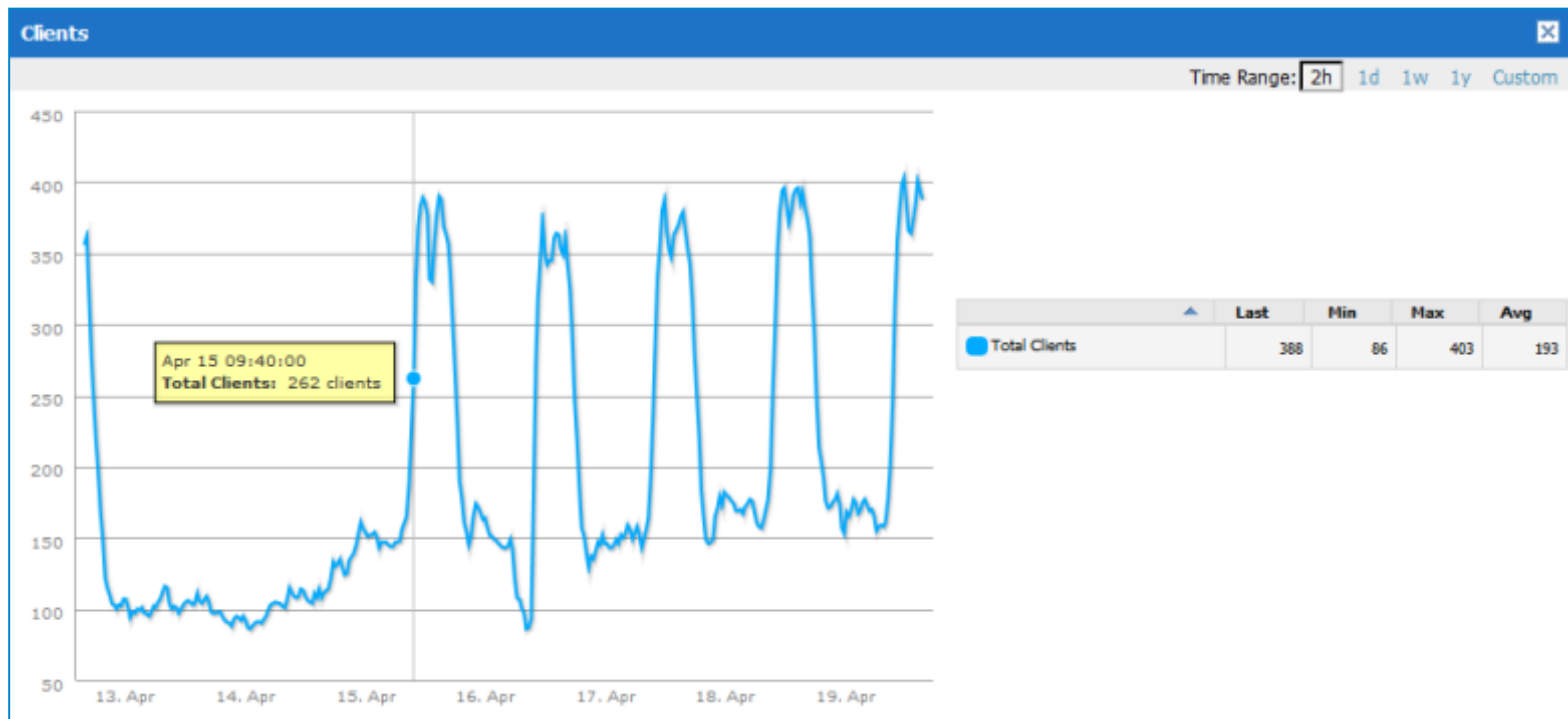
Graphs: moved Flash → HTML5

All graphs in AirWave 7.7 are converted from Flash to HTML5



Graphs: moved Flash → HTML5

By clicking on a graph, can then zoom in/out, pan, and hover (to get values for each point)



Support for new APs

- AP224/AP225 (802.11ac), RAP155/155P

AOS 6.3 Support

- Configuration of new and updated profiles
- AP monitoring with HA Lite

Real time monitoring for controllers

- Client monitoring data (state and stat)

Aruba Instant

- Support for IAP 3.3
- Threshold to mark VC down (similar to SNMP threshold)
- Show the AP acting as VC in lists
- Firmware upgrade improvements: Image Server Integration, group enforce flag

Aruba Support – MAS Config



- Configuration of 7.1 and 7.2 profiles
- MAS config is its own tab (do not use same AMP group for controller and MAS config)

Home **Groups** APs/Devices Clients Reports System Device Setup AMP Setup RAPIDS VisualRF

List Monitor Basic Templates Controller Config **Switch Config** Cisco WLC Config Firmware

Security & Authentication

- AAA Profile
 - 802.1x
 - MAC
 - Captive Portal
 - Wired
 - Management
- ACL
- Network Aliases
- Server Groups
 - TACACS Accounting
 - User Roles
 - User Derivation Rules
 - Advanced
- Interfaces
 - GigabitEthernet
 - GigabitEthernet Group
 - Loopback
 - Management
- Port Channels
 - Tunnel Node
- Routed Virtual Interfaces
- Layer 1 and PoE
- Layer 2 Features
- Layer 3 Features

Group: **switch**

New AAA Profile

1-3 ▼ of 3 AAA Profiles Page 1 ▼ of 1 Choose columns Export CSV

	Name ▲	GigabitEthernet Group	Used By	VLAN	Wired Auth	User Rules
<input type="checkbox"/>	default	-	-	-	default	-
<input type="checkbox"/>	default-dot1x	-	-	-	-	-
<input type="checkbox"/>	default-mac-auth	-	-	-	-	-

1-3 ▼ of 3 AAA Profiles Page 1 ▼ of 1

Select All - Unselect All

Aruba Support – MAS Config



Per switch overrides on any profile

Aruba Overrides

Aruba Switch Override
Certificates selected here will have higher priority while resolving Certificate Name, type uniqueness conflicts between "Aruba Config" and "Device Override".

Profile:	IGMP Snooping ▼
Profile Instance:	igmp-snooping-factory-initia ▼
Field:	Query-interval ▼
Query-interval (1-18000 sec):	125

7.7 – Other Enhancements



Trigger Enhancements

- Auto acknowledgement of up/down alerts
- NMS integration now supports SNMPv3 informs
- Radio up trigger

Reporting Enhancements

- Folder level summarization in Device Summary reports
- Wired bandwidth in Network Usage Report
- Quarterly reports (reports every n months)
- Email CSV reports

Usability and workflow enhancements

- 30x improvement in time taken for nightly audit (login to controller once for all the APs)
- Import config from controller/switch when added into group (like Instant)
- Show device name everywhere (no more mac addresses in AP names)
- Aruba AP Group on APs/Devices-> New page
- Split up image download and reboot (Cisco and Aruba)
- First discovering AP/time in the rogue list

Multi-vendor device support

- Support for Cisco 1600 and 2600
- Support for HP devices

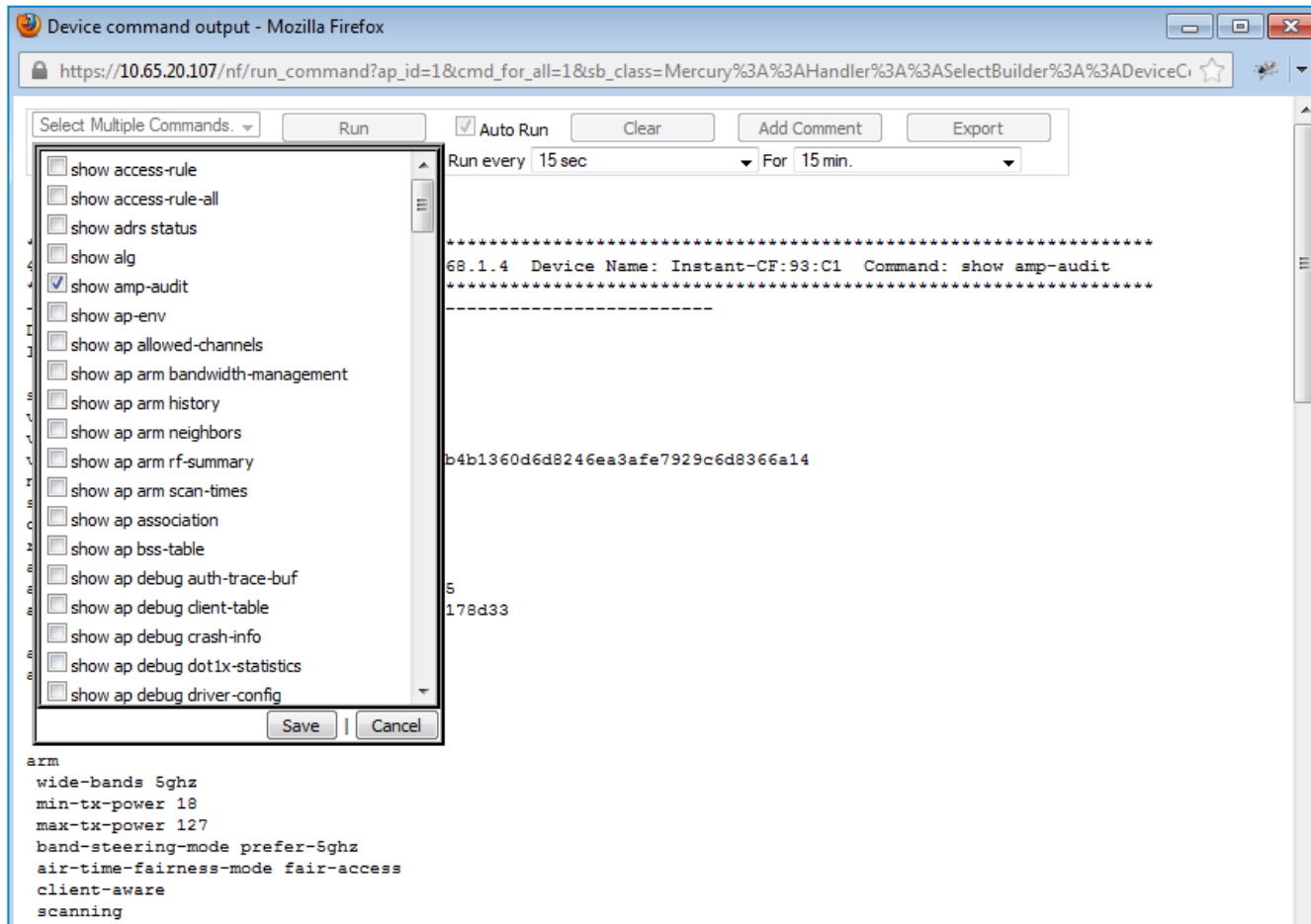
API Improvements

- API to get report data in XML format (XHTML)

Serviceability Enhancements



- Visibility into performance issues on AMP
- Run commands enhancements (both IAPs and controllers)



Features

- Identify planned APs on a floor plan
- Show notes field (read only)
- New AP Support (AP224, RAP155)

Performance and Scalability Improvements

- Loading VisualRF page is faster
- Optimized for better handling of channel utilization and interface metrics
- Speedups in VisualRF startup
- Better logging and diagnostics
- Better defaults for http timeouts
- Handle OOM issues better
- Location Accuracy Tool for better troubleshooting

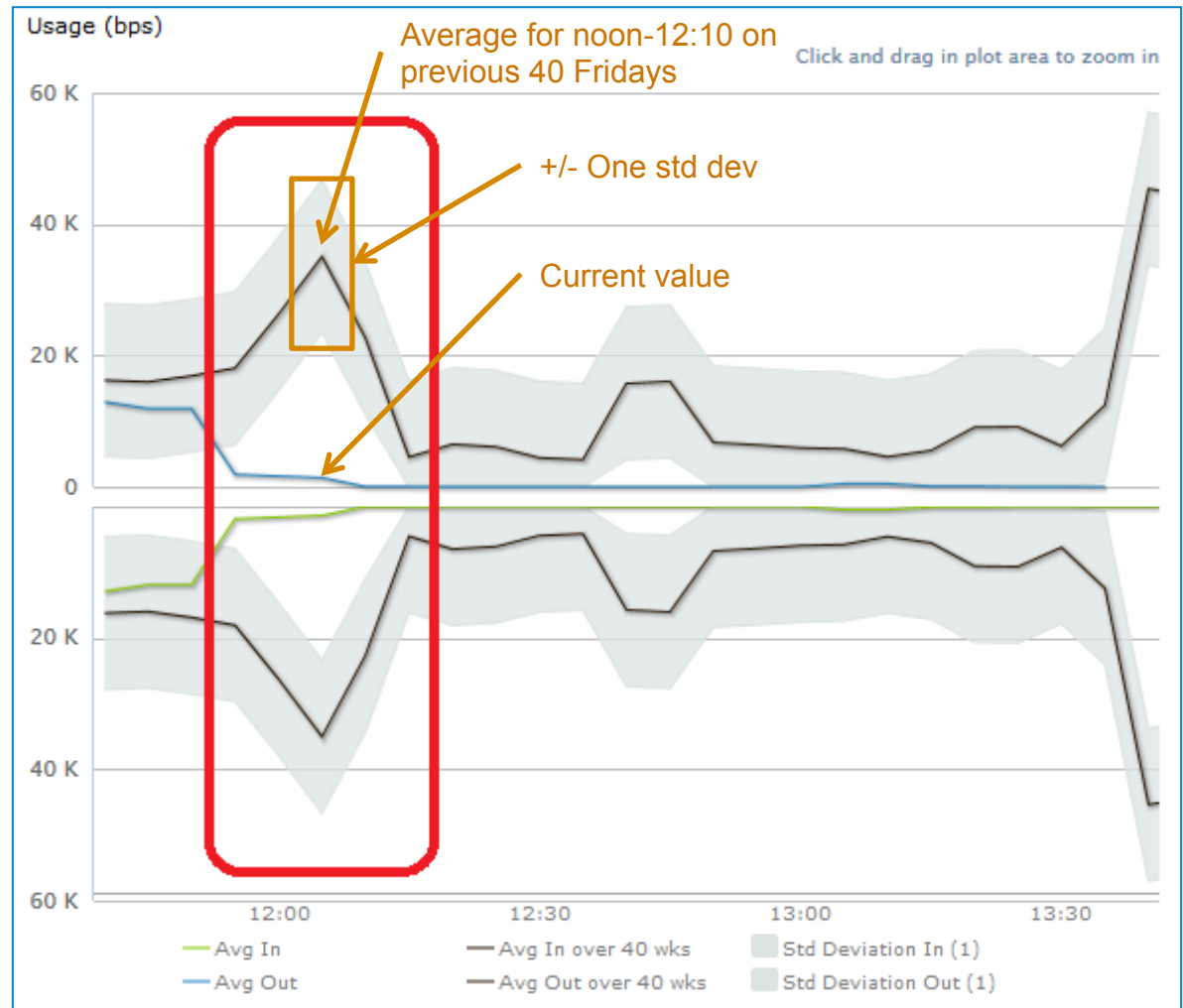
Anomaly detection

Anomalies illustrated for clients and bandwidth.

Shown here, the current reading (blue, green), plotted against 40-week average \pm one standard deviation.

Average for any given period of time, (for example, noon-12:10 on a **Friday**), is calculated for that same time-period (noon-12:10) for the previous 40 **Fridays**.

(Average is NOT simply the previous few days).

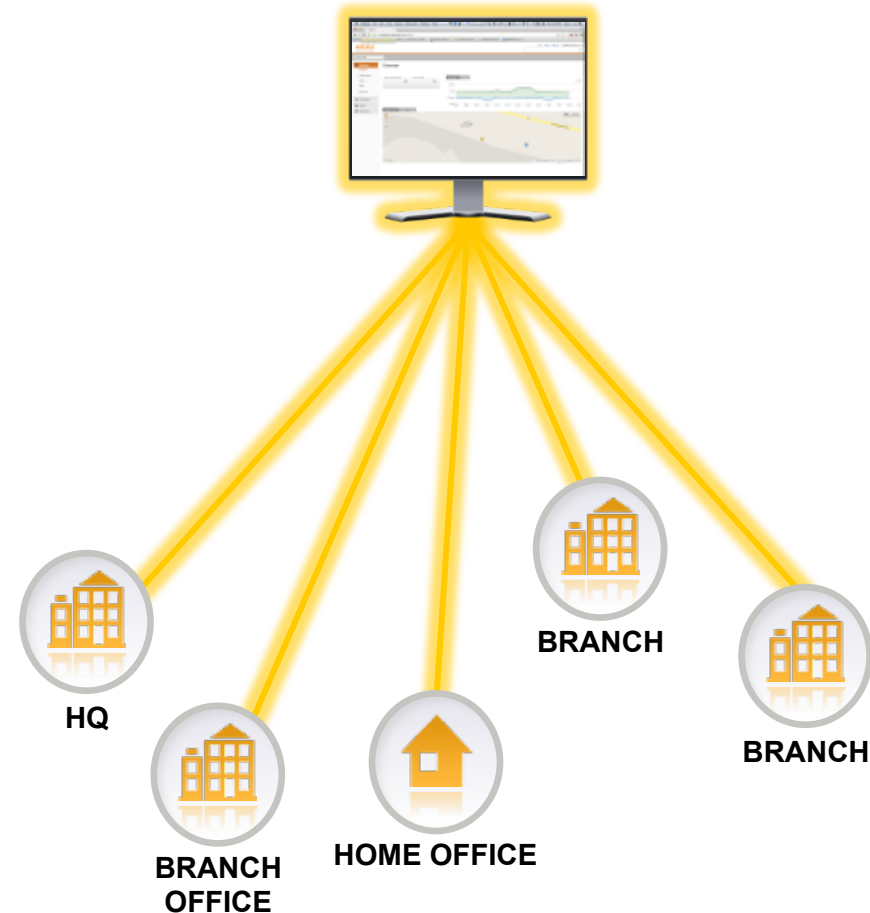


Aruba Central

Introducing Aruba Central

✓ Centralized cloud based management for Instant APs

- ✓ Multiple sites (or)
- ✓ Multiple clusters in a single site
- ✓ No servers to install
- ✓ No ongoing maintenance



Key platform capabilities



- **Multi-tier multi-tenant architecture**
- **MSP console**
- **Complete “rebrandability”**
- **Highly reliable cloud infrastructure to provide SLA to your customers**

Summary on NMS Solutions

AirWave or Aruba Central?



Private cloud

Strong data privacy, compliance and security requirements

Desire control over management software (exact image version etc.)

Prefer a one time expense over a recurring fee

Want to control access to the management software only from internal network

Public Cloud

Ease of setup, deployment and expansion of a “cloud” based solution

Do not want to “manage the management software”

Prefer an operational expense over initial upfront capital expense

Prefer having access to the management software from anywhere in the world with an Internet connection

Your choice depending on your business requirements