

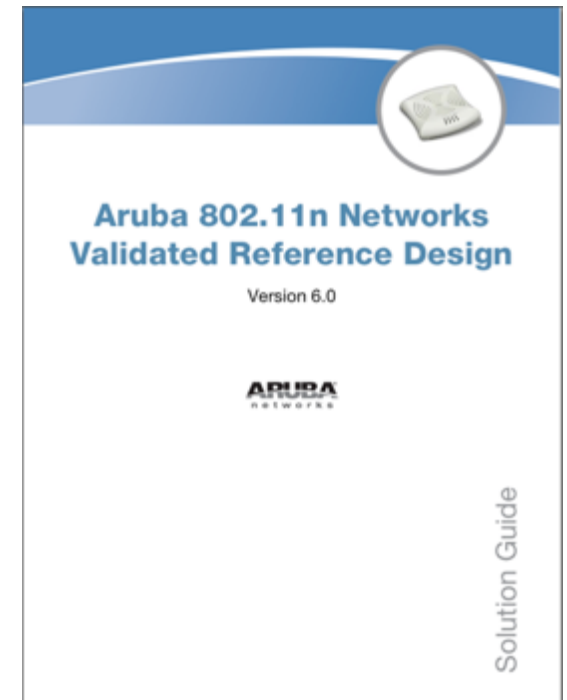
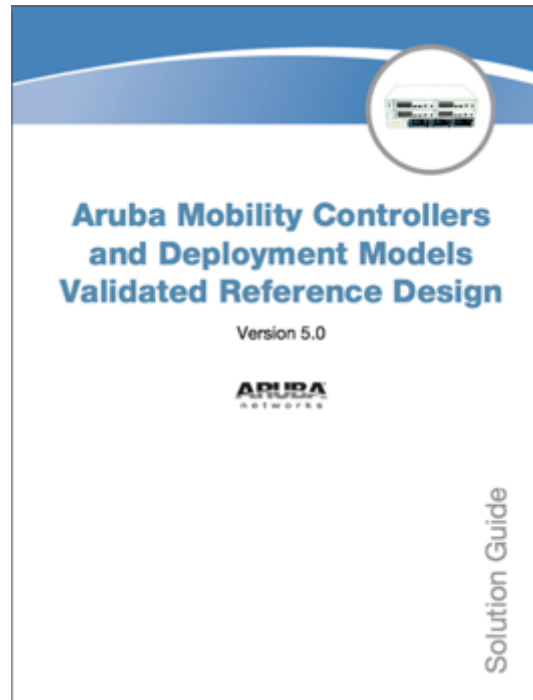
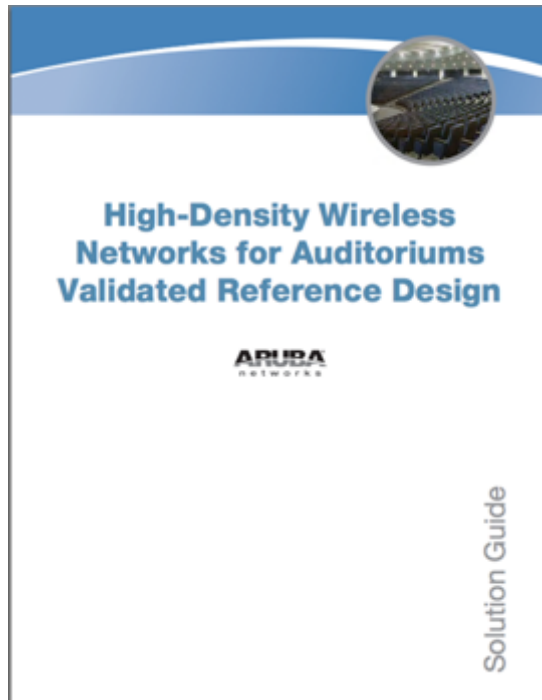
Presented by
Neil Bhavé
Channel Enablement Manager

WLAN DESIGN FUNDAMENTALS

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Validated Reference Designs (VRD)



<http://www.arubanetworks.com/vrd>

The WLAN Lifecycle

- Requirements Definition
- Site Surveys

Define

- Network Design
- RF Design
- Security Design
- QoS Design

Design

Deploy

- Staging & Provisioning
- Installation & Validation

- Administration
- Monitoring
- Troubleshooting

Operate

Understand Mobility Requirements

Mobile Devices



Multimedia



Collaboration



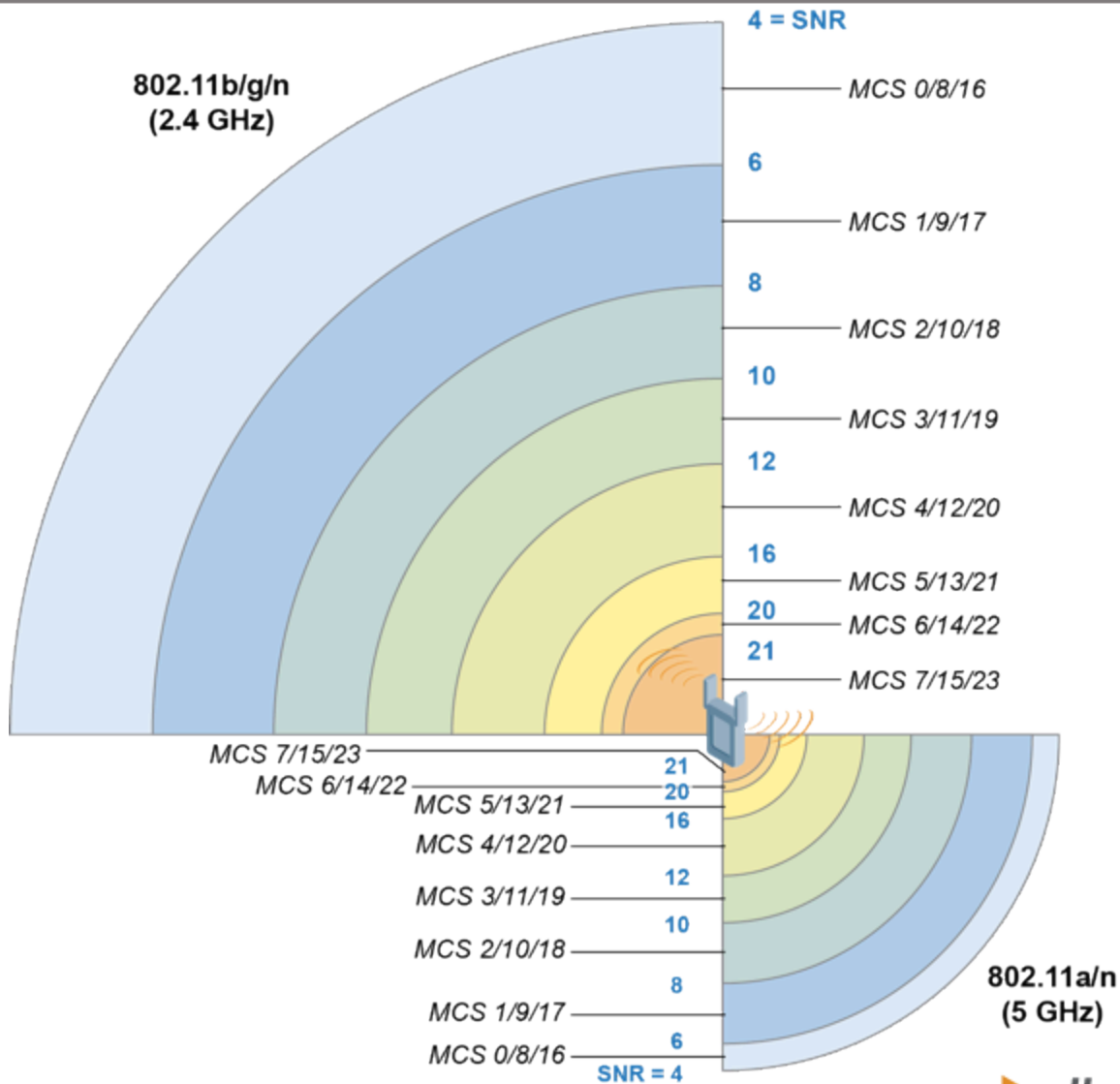
Virtual Desktops



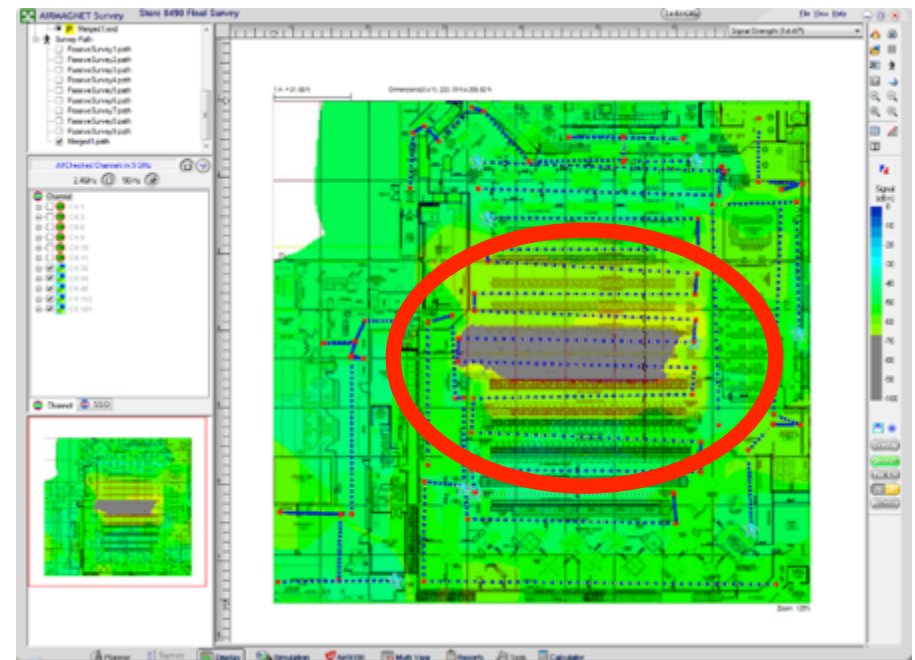
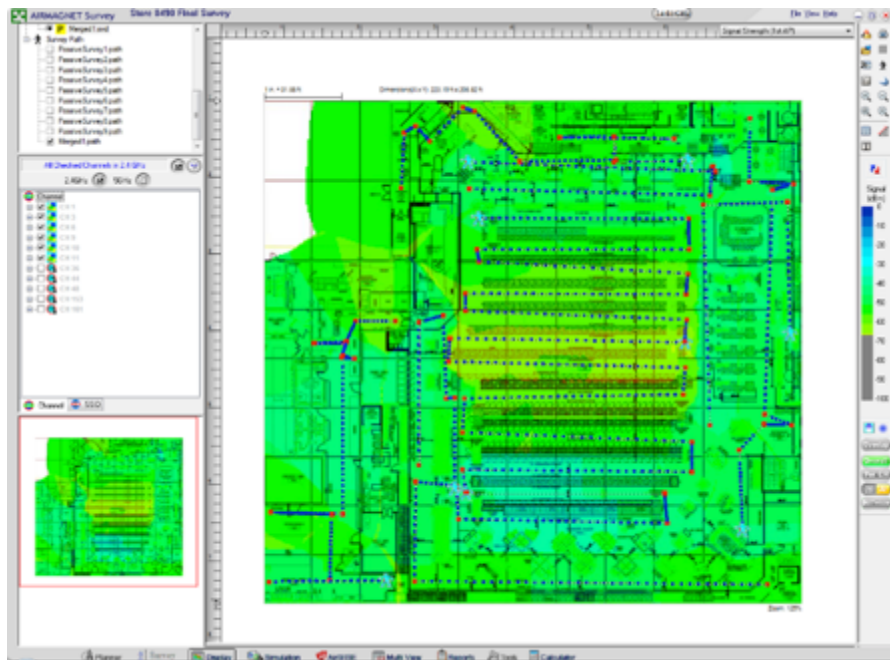
Site Surveys

	Virtual Survey	Passive Survey	Active Survey	Spectrum Clearing Survey
Description	Uses customer-supplied building drawings in JPG, PDF, or DWG format to place APs.	Involves passive data collection of the ambient RF environment to validate coverage or identify interference.	Involves active testing of real APs throughout a facility (indoor or outdoor) to determine the actual AP coverage footprint and throughput levels.	Same as Active Survey, but also includes a spectrum analysis (using a portable or handheld spectrum analyzer) at each active test location to locate and measure interference sources.
Location	Remote	Onsite	Onsite	Onsite
Deliverables	<ul style="list-style-type: none"> Marked-up JPG file indicating AP locations and controller location codes. Site bill of materials 	<ul style="list-style-type: none"> Heat maps of existing 2.4 GHz and 5 GHz RF environment. Marked-up JPG file showing AP locations. Summary narrative analysis. 	<ul style="list-style-type: none"> Heat maps of test APs with actual measured coverage. Marked-up JPG file showing AP locations. Detailed data analysis. 	<ul style="list-style-type: none"> Same as Active Survey but including 2.4 GHz and 5 GHz noise and interference sources, locations and duty cycles.
Cost	Low	Moderate	High	Highest

AP Coverage

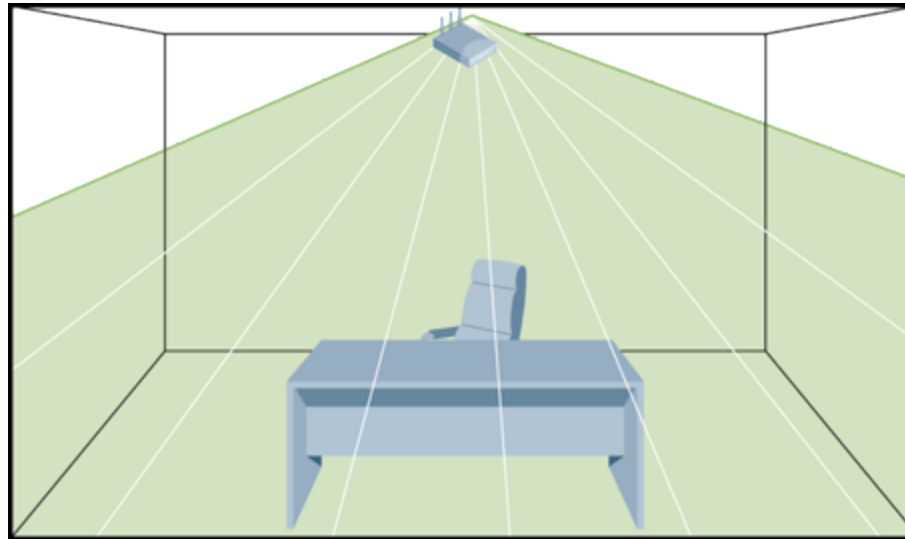


5 GHz Coverage in a 2.4 GHz Plan



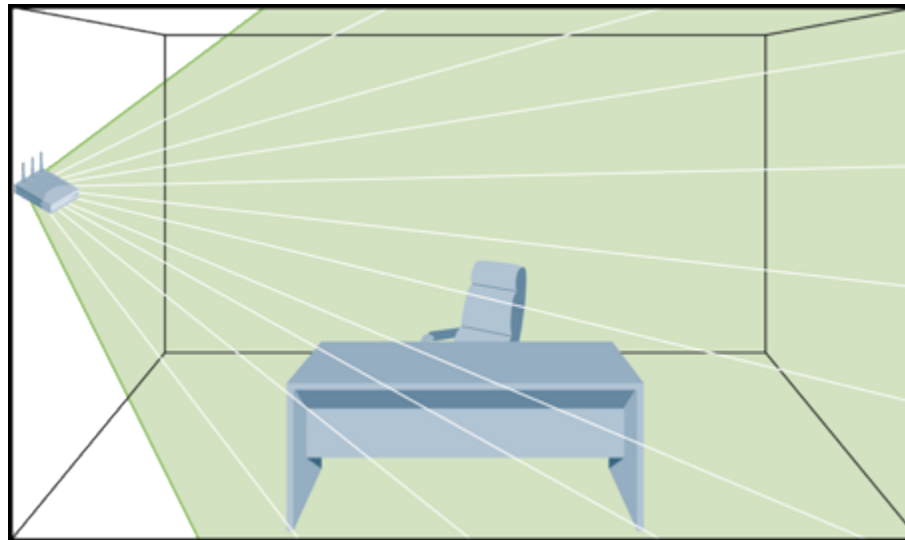
Mounting APs

Ceiling



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Wall

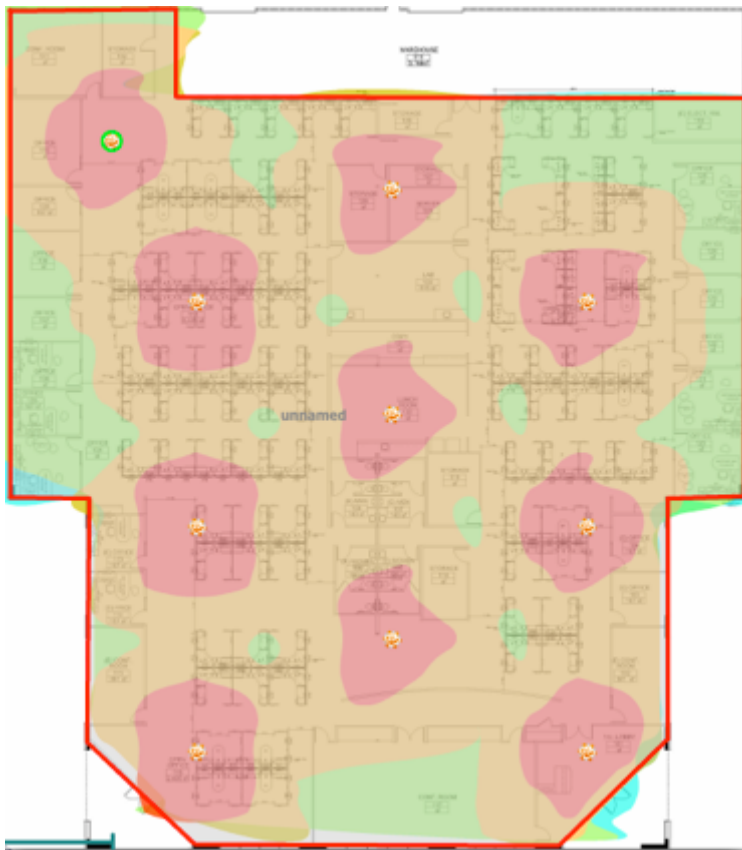


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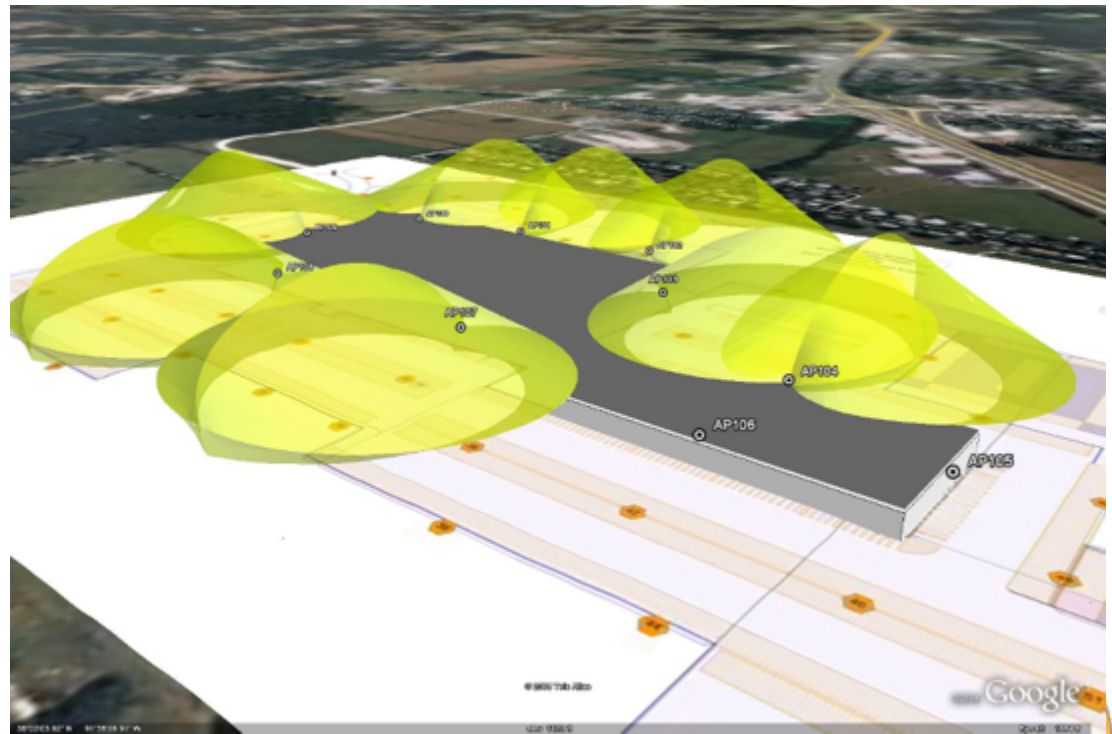


Virtual Survey Tools

VisualRF Plan



Outdoor 3D Planner

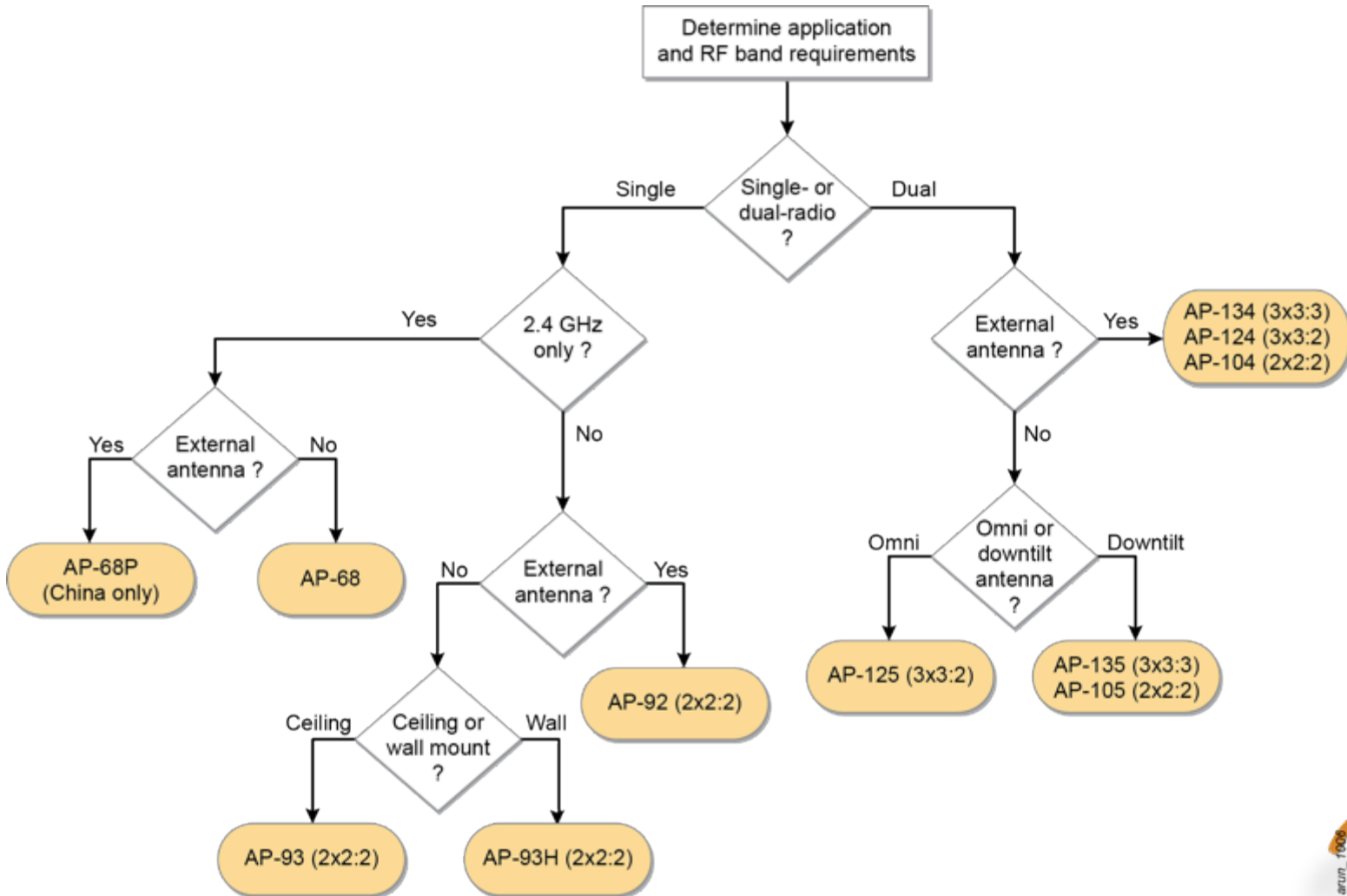


Aruba Controller vs. Aruba Instant

	Aruba Campus Solution	Aruba Instant
Relative cost	\$\$\$	\$
Scalability	Thousands of APs Hundreds of thousands of users/ devices	32 APs 512 users/ devices
Policy management	Centralized policy store	Centralize policies via AirWave
User security	Context-aware security by role, device, location	User based
Mobility	Voice ready Layer 3	Voice ready single subnet
Provisioning and software upgrades	Controller	Virtual Controller, cloud-based image server, or AirWave
Onsite IT required?	Yes, at installation and periodically during operations	No
Operations management	AirWave	AirWave



AP Decision Tree

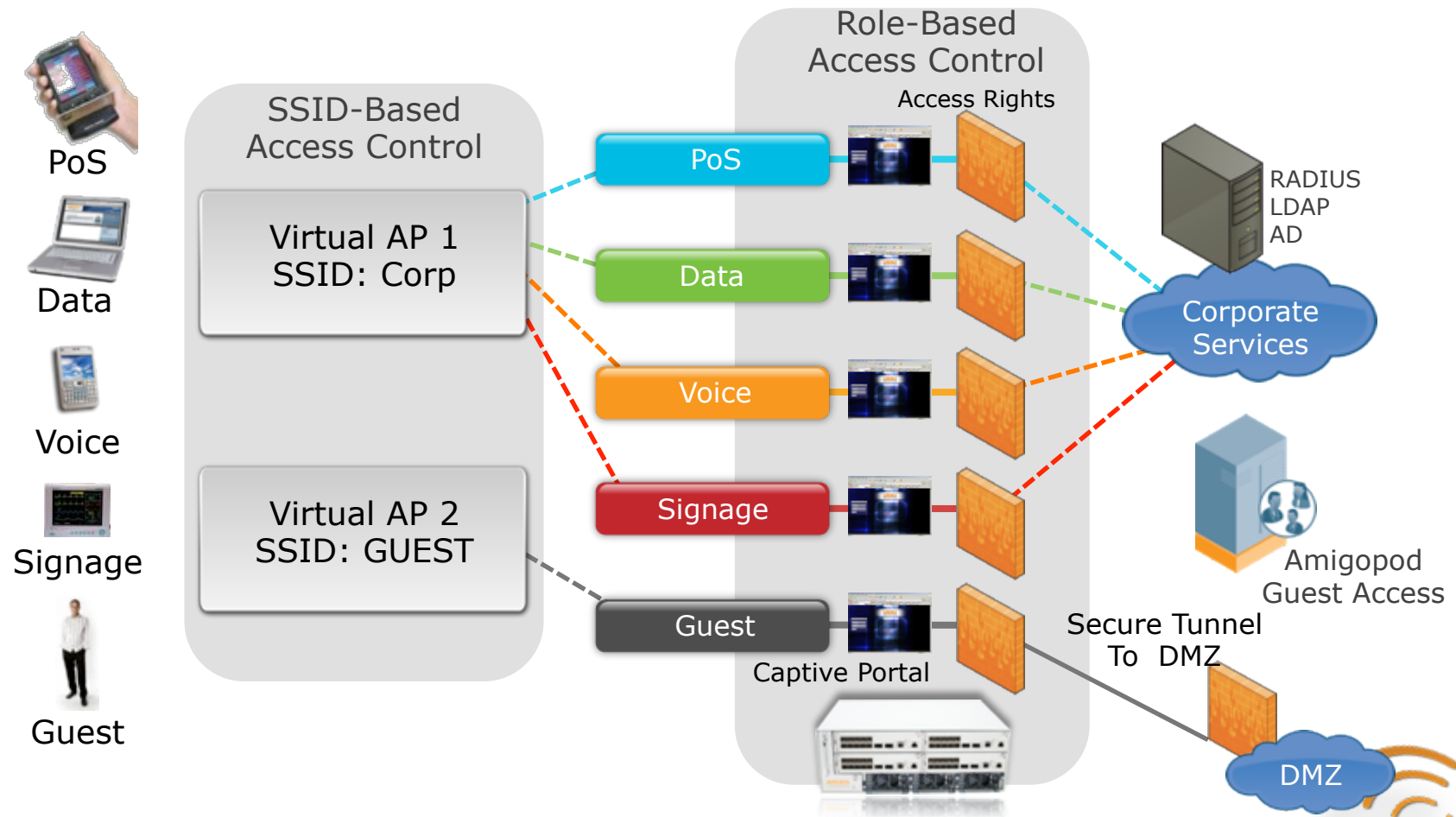


SSID Design

- **Most common SSID design for enterprise organizations includes 2-3 different SSIDs**
 - Employee users – strong authentication and encryption suite
 - Application – devices not capable of strong authentication and encryption levels
 - Guest access – will not run any encryption; requires authentication



Role-Based Security Architecture



Wireless Threat Protection Framework

Discover

Complete 802.11 Spectrum Monitoring

Continuous RF monitoring of wireless devices, activity and configuration across all 802.11 channels

Classify

Policy-Based Threat Prioritization

Automatic classification of threats and non-threats is critical to RF security

Alert and Audit

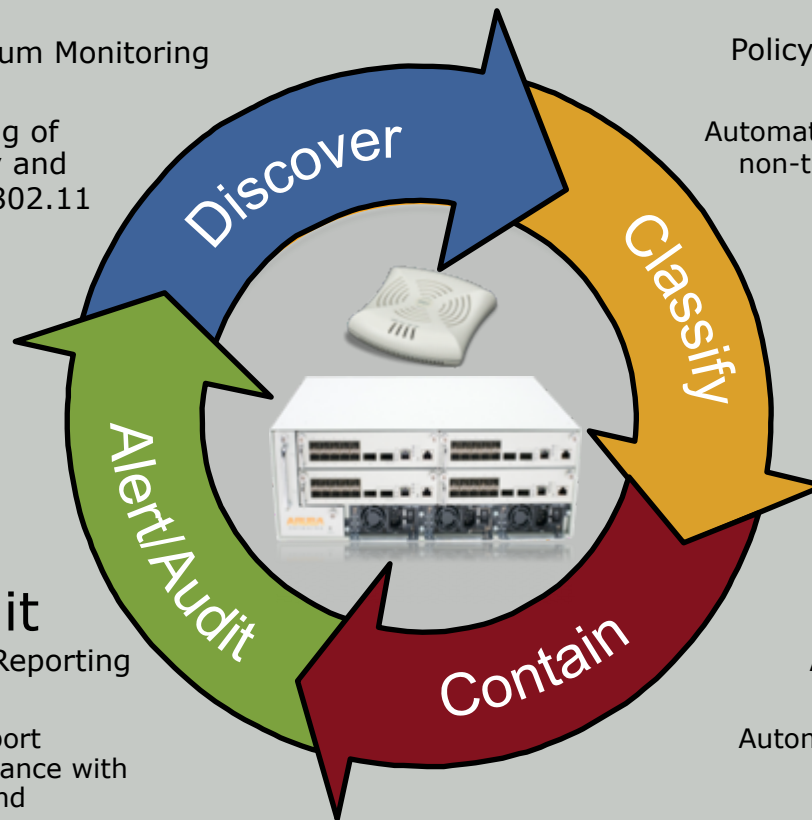
Automated Compliance Reporting

Automated logging and report distribution ensures compliance with wireless security policies and regulations

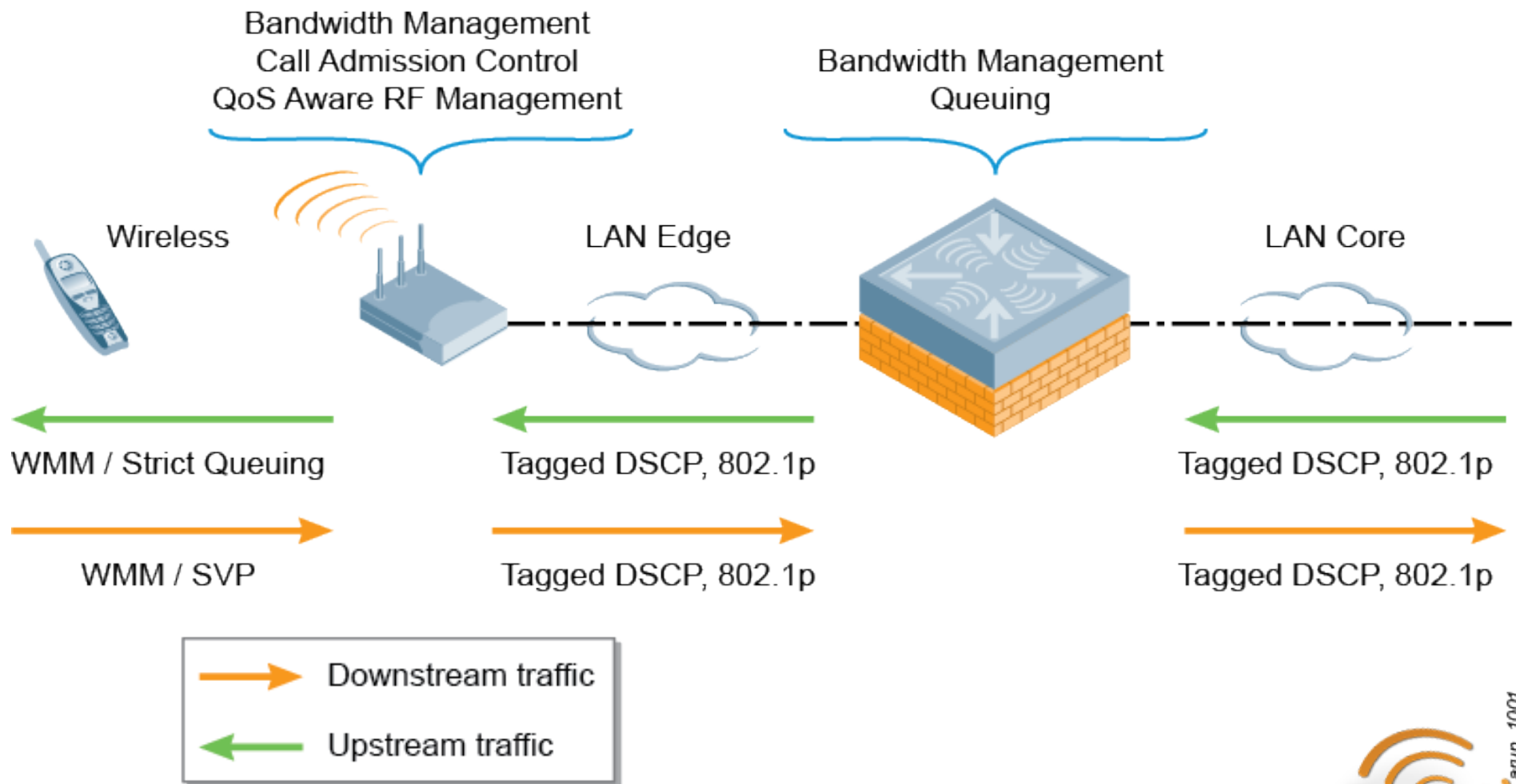
Contain

Automated Threat Mitigation

Automated containment to block any rogue or intruder



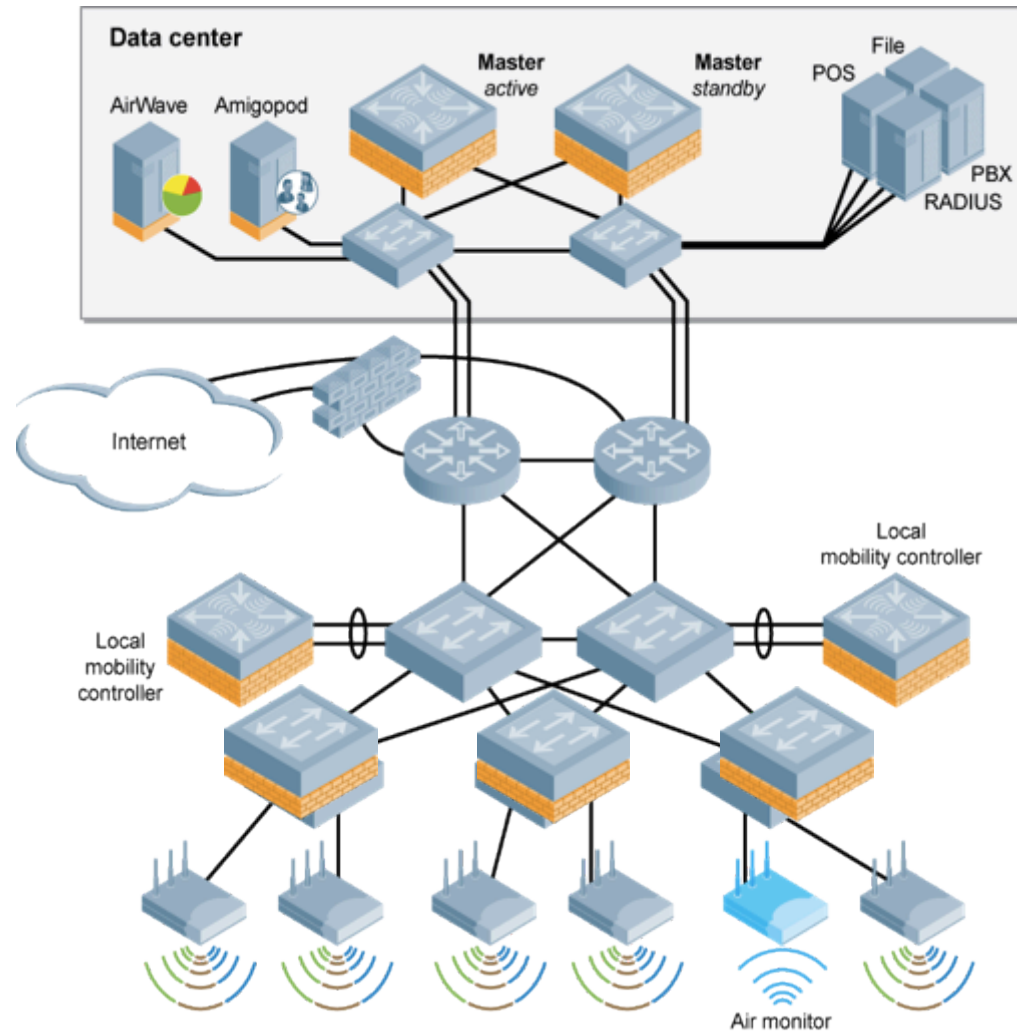
Quality of Service (QoS)



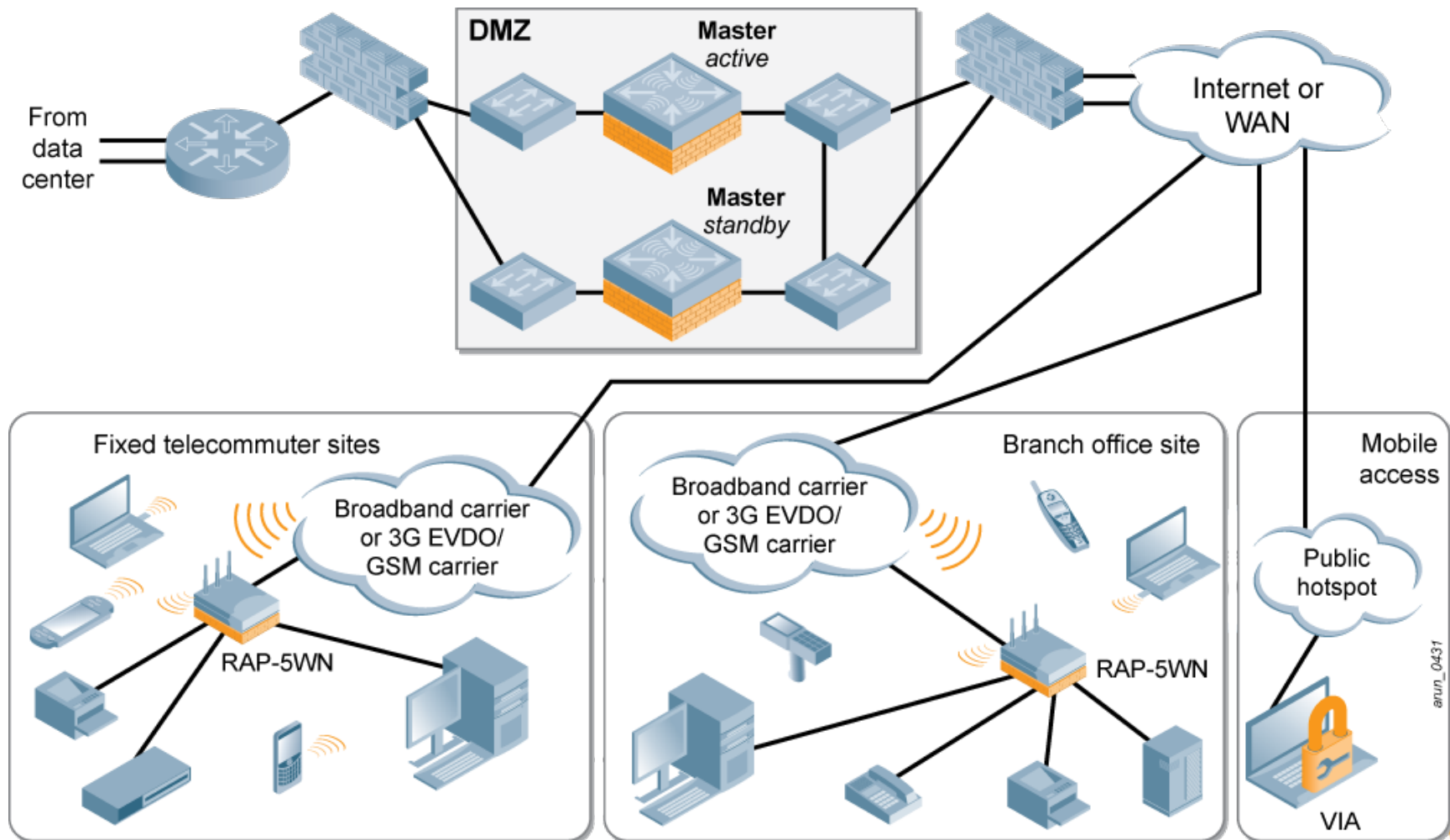
Deployment Considerations

- **How big / how many subnets do you need to support your devices (not just users)?**
- **How will the APs discover the master controller?**
- **How will the installer let you know where the AP was mounted?**
- **How will RAPs be configured, IT or end user?**

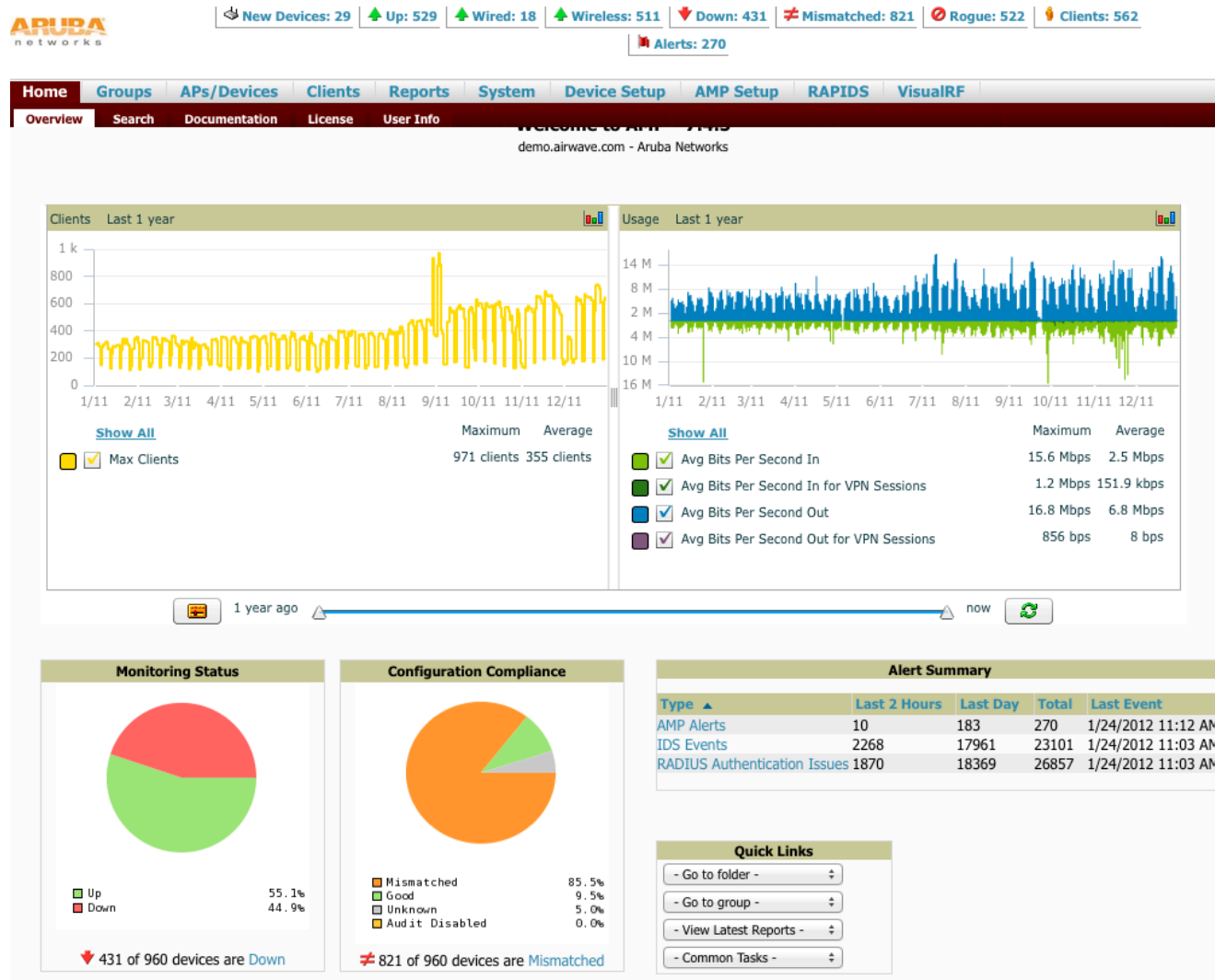
Campus Deployment



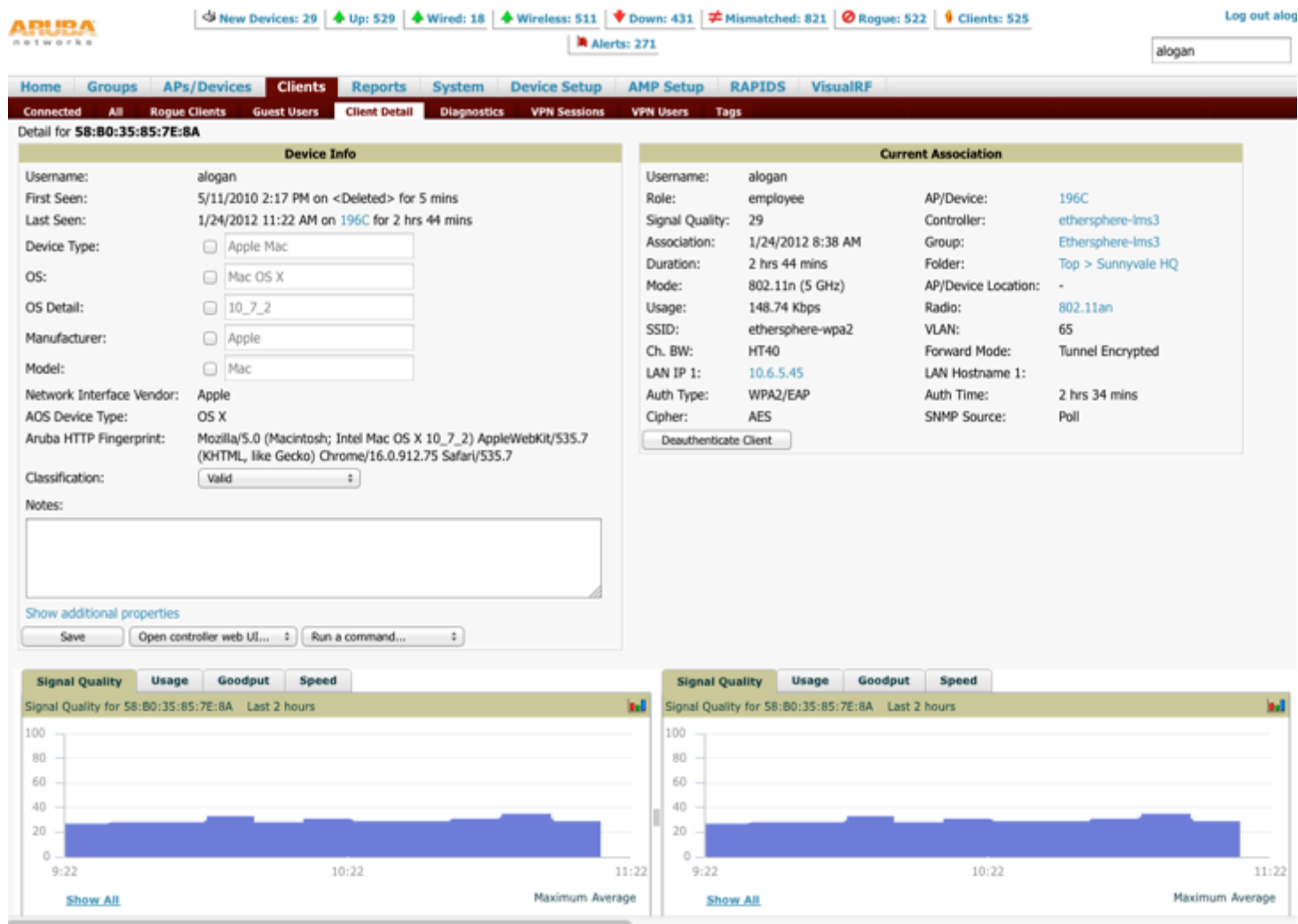
Remote Access



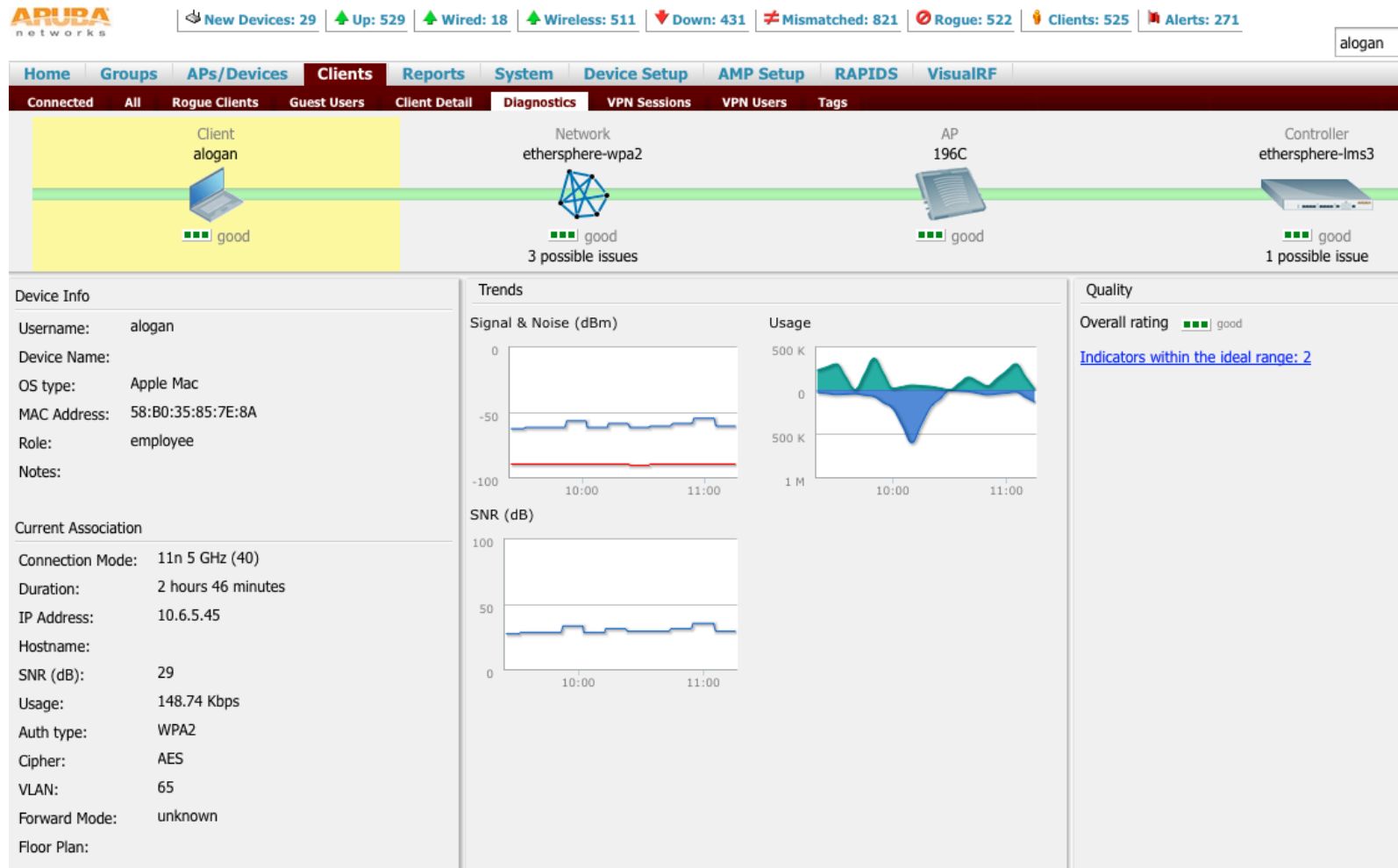
Monitoring



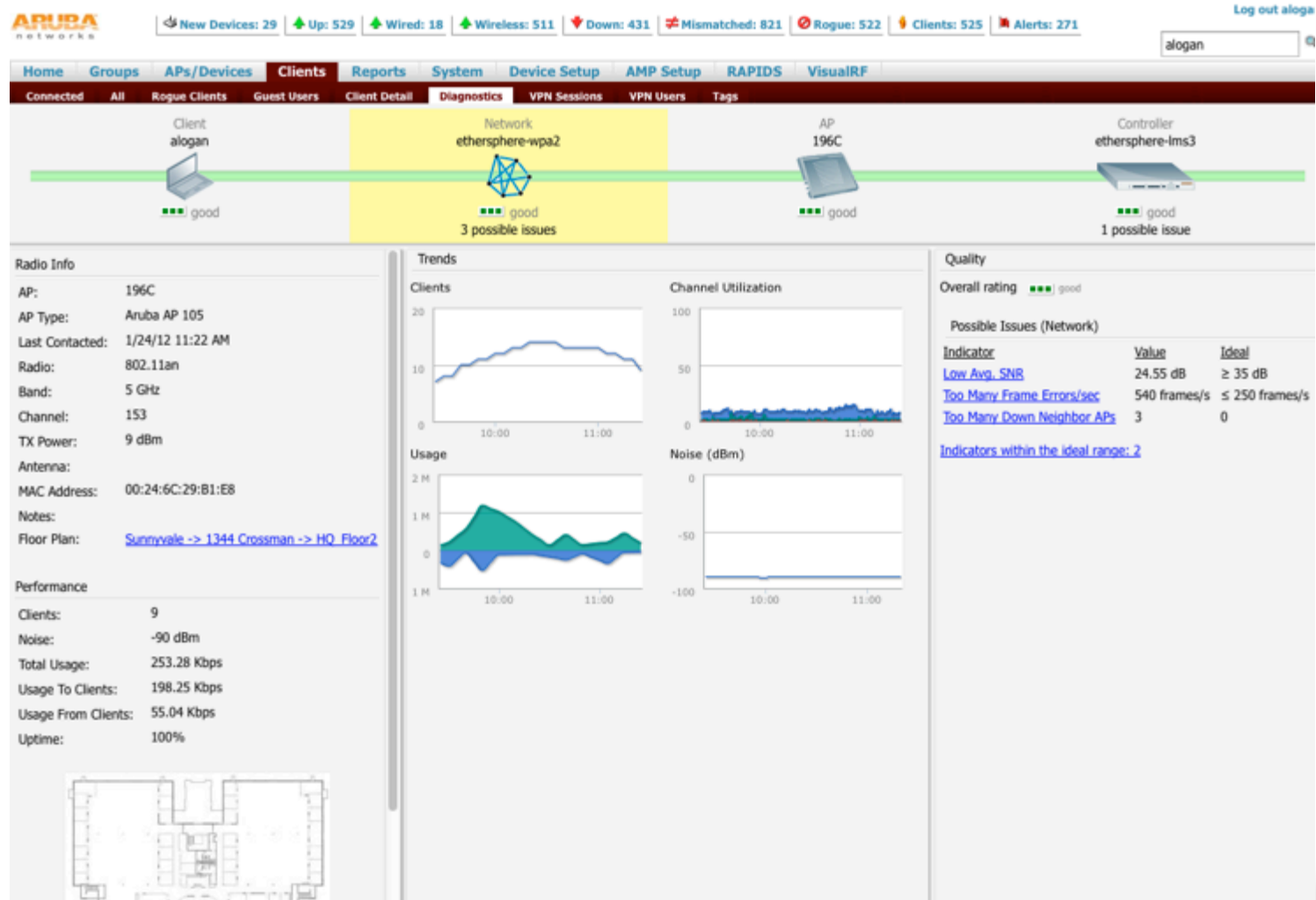
Troubleshooting



Client Diagnostics



Network Diagnostics





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