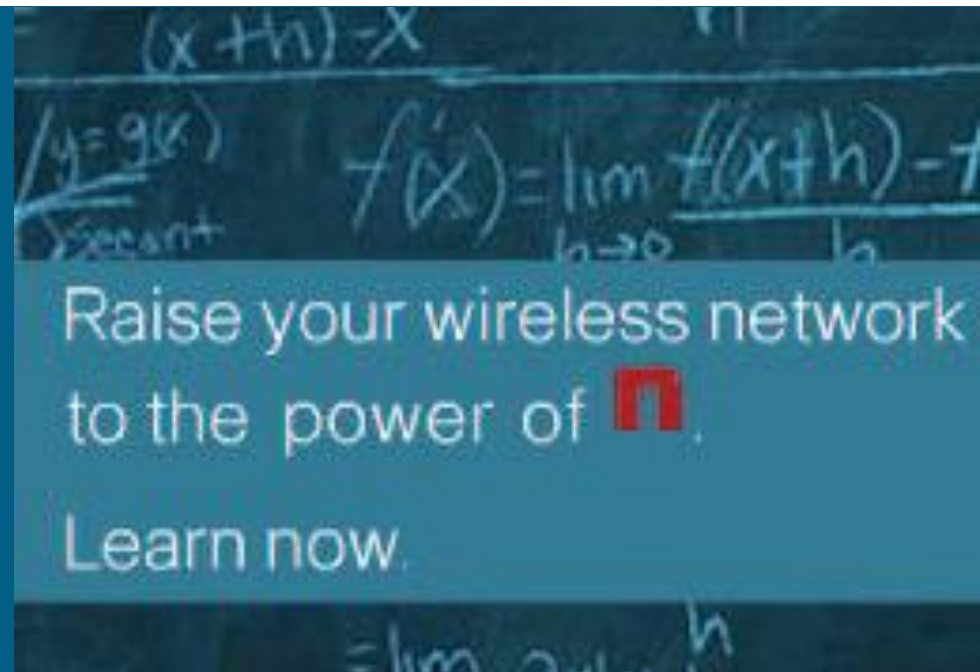




# Cisco Unified Wireless Network Release 7.0

Partner Update May 19



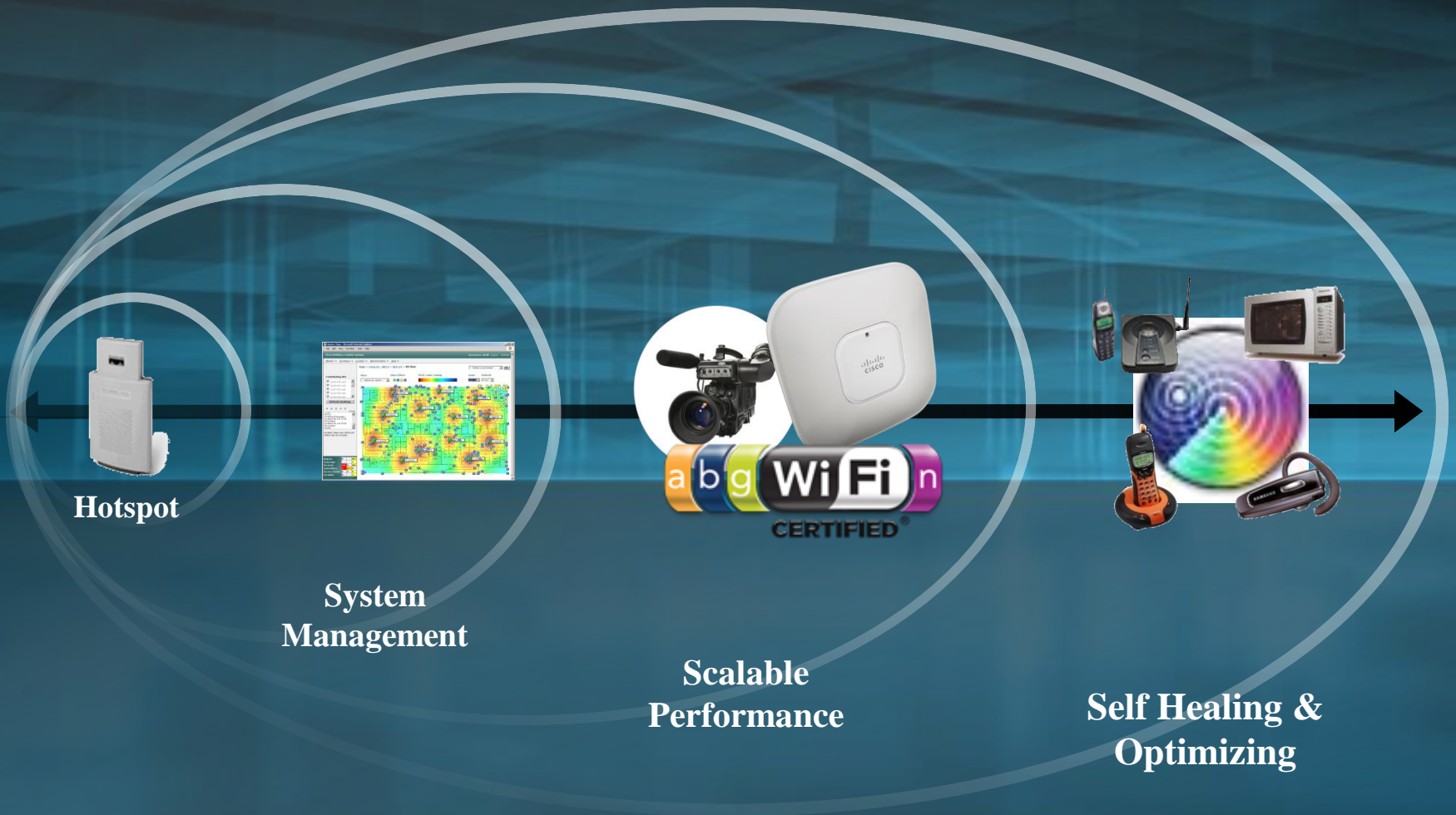
Peter Jerhamre

Systems Engineer

[pjerhamr@cisco.com](mailto:pjerhamr@cisco.com)

# Enterprise Wireless Evolution

## From Best Effort to Mission Critical

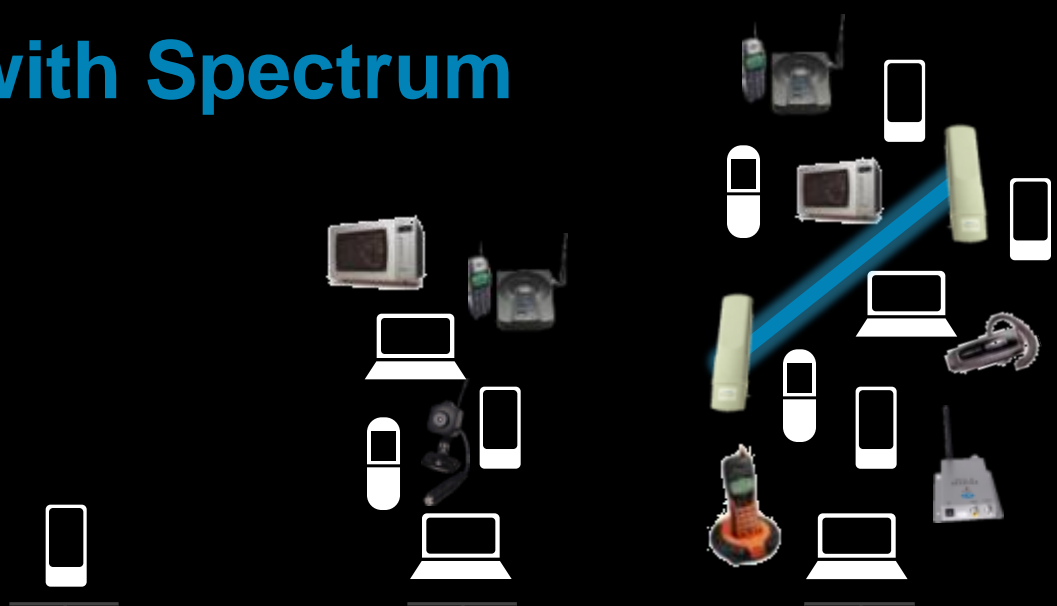


# Challenges with Spectrum

Limited Spectrum

Performance

Support Cost



SYSTEM OVERLOAD!

802.11n Performance Decrease

Increase in Support Cost

\$

\$

\$

\$

# Performance At Risk in Unprotected Networks



## End User Impact

- Reduced network capacity and coverage
- Poor quality voice and video
- Potential complete link failure

## IT Manager Impact

- Potential security breaches
- Support calls
- Increased cost of operation

Interference Type	Image	Throughput Reduction	
		Near (25 ft)	Far (75 ft)
2.4 or 5 GHz Cordless Phones		100%	100%
Video Camera		100%	57%
Wi-Fi (busy neighbor)		90%	75%
Microwave Oven		63%	53%
Bluetooth Headset		20%	17%
DECT Phone		18%	10%

Source: FarPoint Group

# How does Interference impact Wi-Fi?

## Separating the FUD from the Facts

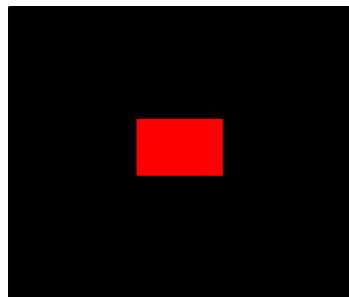
- 802.11a/b/g/n - CSMA/CA or LBT (listen Before Talk)
- Collision Avoidance – 802.11 very very polite – by design
  - CCA
  - Collisions
  - SNR
- CCA – Clear Channel Assessment
  - ED – quick – low power - prone to false positives
  - Preamble – takes time – power – less prone to false
- CCA threshold for 802.11b/g is -65 dBm
- CCA for 802.11a is different -65 dBm ED, if true then 20 dB more for Preamble interrogation needs to be processed -85 dBm

# How does Interference impact Wi-Fi?

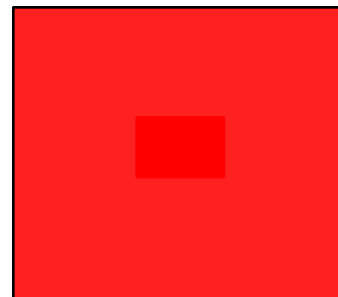
## Separating the FUD from the Fact's

- Collisions - Non Wi-Fi devices do not participate in our CA mechanism – they have their own
- No respect for Wi-Fi – results in:
  - Corrupted packets
  - Increased retransmissions
  - Increased Duty Cycle
  - Less available bandwidth
- SNR – Signal to Noise ratio

**High SNR**



**Low SNR**



# Cisco Aironet 3500 Series: A Game Changer



CleanAir, VideoStream,  
ClientLink, BandSelect

Full 802.11n with 802.3af PoE

Design Excellence

Industry Leading Performance



CleanAir Deep Dive Session VoD of PSS & SEVT Available  
Orderability and Availability: May/June 2010

# Aironet 3500 Series Access Points



**Aironet AP-3500e**



**Aironet AP-3500i**



- Designed for retail & mfg verticals or where external antennas are needed
- Support for 5 GHz 802.11a/n and 2.4 GHz 802.11b/g/n radios
- Cognio Spectrum Intelligence (SAgE)
- Designed to run full 802.11n features using 802.3af power.
- Faster 0.5  $\mu$ s DFS detection
- **Higher Temperature range -20 to +55° C**

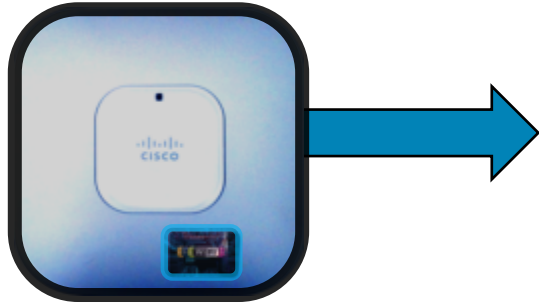
- Designed for carpeted areas
- Support for 5 GHz 802.11a/n and 2.4 GHz 802.11b/g/n radios
- Cognio Spectrum Intelligence (SAgE) provides CleanAir
- Designed to run full 802.11n features using 802.3af power.
- Faster 0.5  $\mu$ s DFS detection
- Temperature range 0 to +40° C

**Availability: FCS – May, 2010**





# What is CleanAir Technology?



- Classification processed on Access Point
- Interference impact and data sent to WLC for real-time action
- WCS and MSE store data for location, history, and troubleshooting

## Locate

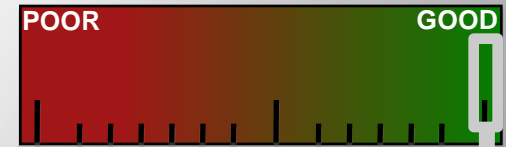
WCS, MSE



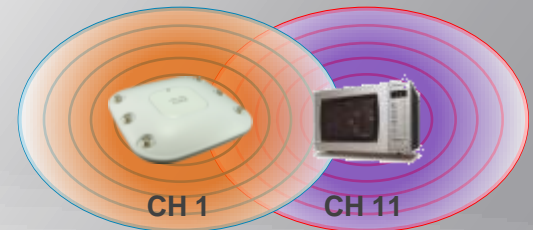
Visualize and Troubleshoot

## Mitigate

Wireless LAN Controller







Maintain Air Quality



# Benefits of Cisco CleanAir technology

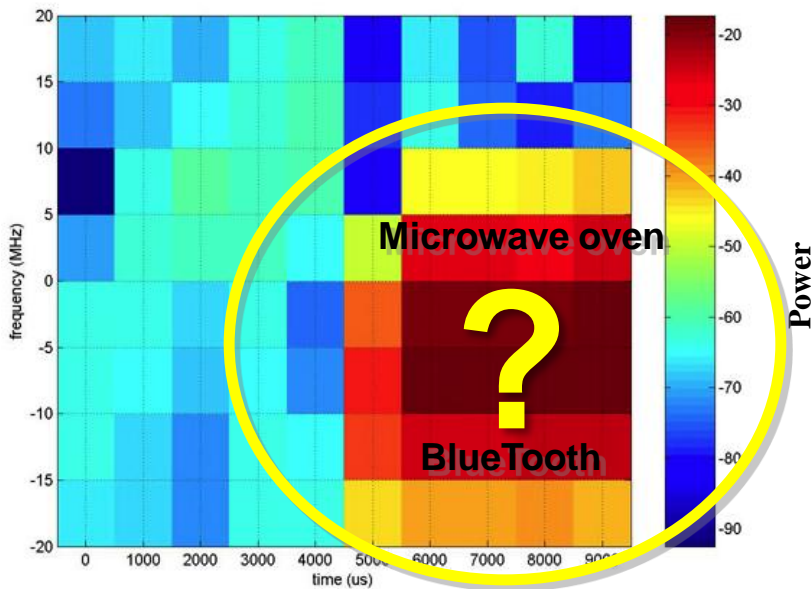


Features	Benefits
 <ul style="list-style-type: none"><li>▪ AirQuality Aware RRM</li><li>▪ Event Driven RRM</li><li>▪ Persistent Device Avoidance</li></ul>	<b>Self Healing and Optimizing</b> <i>Reduces Downtime, Maximizes Resilience</i>
 <ul style="list-style-type: none"><li>▪ Remote Client Troubleshooting</li><li>▪ Spectrum Expert Connect</li><li>▪ Location, Impact Analysis and History Playback</li></ul>	<b>Troubleshooting Forensics</b> <i>Lowers Problem Resolution Time/Cost</i>
 <ul style="list-style-type: none"><li>▪ New Rogue Threats Detection (off-channel, inverted)</li><li>▪ DOS Jammer Detection</li></ul>	<b>Wireless Security</b> <i>Improves Visibility to New Threats</i>
 <ul style="list-style-type: none"><li>▪ Unwanted Device Notification</li><li>▪ Unwanted Device Location</li></ul>	<b>Policy Enforcement</b> <i>Enables Enforceable Rules</i>

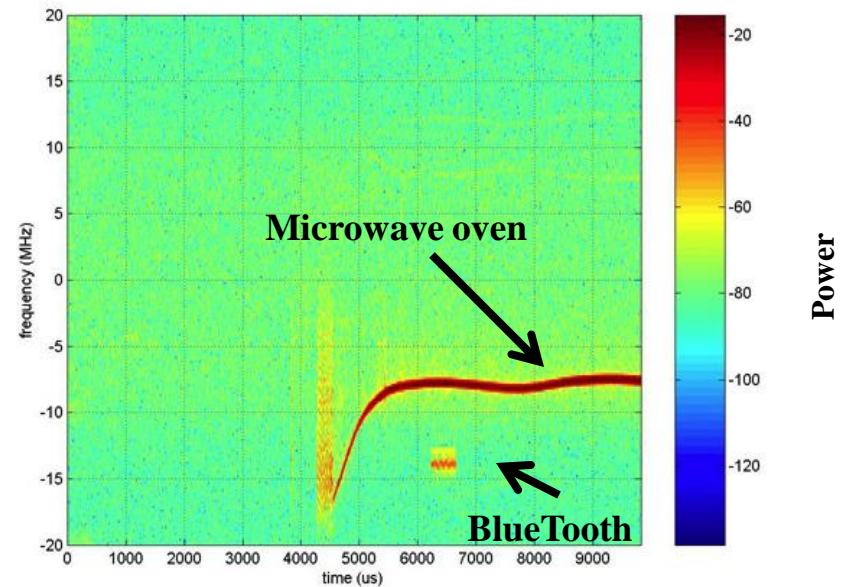
# High Resolution Spectral Advantage

*The Industry's ONLY in-line high-resolution spectrum analyzer*

Typical Wi-Fi chipset  
Spectral Resolution at 5 MHz



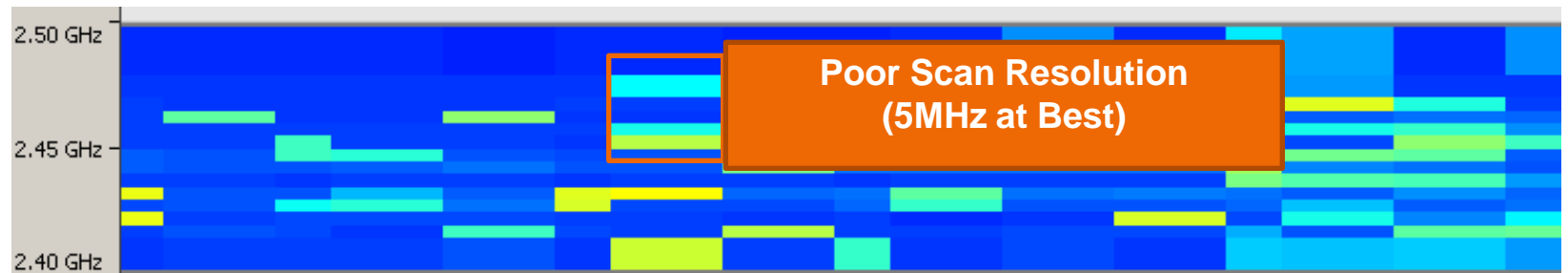
Cisco CleanAir Wi-Fi chipset  
Spectral Resolution at 78 to 156 KHz



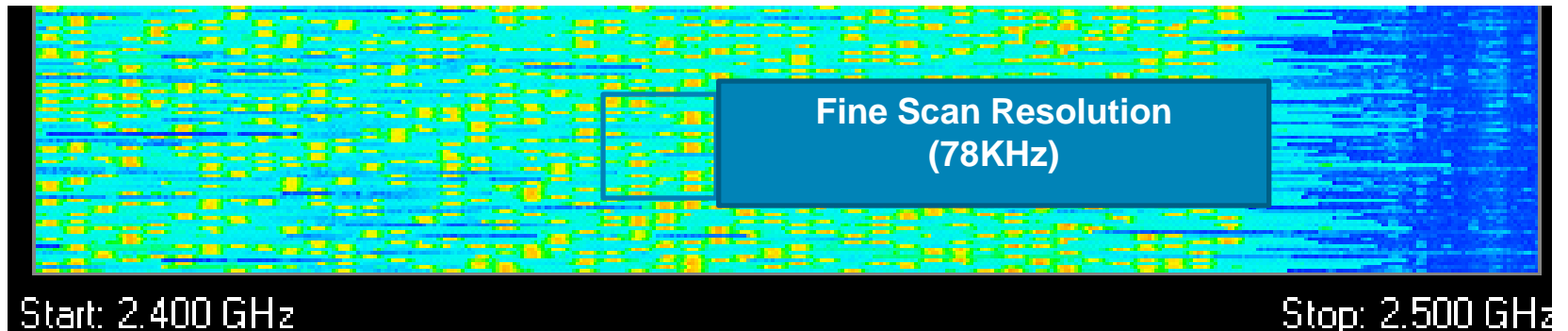
**'Chip View Visualization' of Microwave oven and BlueTooth Interference**

# Spectrum Analysis Granularity Comparison

- Spectrum Analysis using a WiFi Chip:



- Spectrum Analysis on purpose-built CleanAir silicon:



# Aironet AP3500 Series Ordering & Pricing

Dual Band		List Price	Deployment	Antenna
	AIR-CAP3502I-x-K9	\$1,295	Carpeted Office	Internal
	AIR-CAP3502E-x-K9	\$1,495	Ruggedized	External
Single Band				
	AIR-CAP3501I-x-K9	\$1,095	Carpeted Office	Internal
	ARI-CAP3501E-x-K9	\$1,295	Ruggedized	External

- x = Regulatory Domain (A,C,E,I,K,N,Q,S,T)
- MSE will automatically provide 100 interferers at no cost when 3500 is present (5 per AP, additive)

Dual Band Bundles (10 APs)		List Price	Deployment	Antenna
	AIR-CAP3502I-xK910	\$12,950	Carpeted Office	Internal
	AIR-CAP3502E-xK910	\$14,950	Ruggedized	External

- Eco Packs for reduced packaging, lighter for cost effective shipping
- Ruggedized AP bundle (3502E) will have popular dipole antenna as order option. Alternate antennas available as spares
- Includes WCS PLUS Upgrade (software license key) for 100 Access Points (additive)

\* No Standalone AP Versions

# Cisco CleanAir Components

Product	Licensing Requirements	Functionality
AP3500	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Multi-interferer Detection &amp; Classification</li> <li>AirQuality Monitoring</li> <li>Self-Healing Event Driven RRM</li> </ul>
Wireless LAN Controller	<ul style="list-style-type: none"> <li>Standard per AP</li> </ul>	<ul style="list-style-type: none"> <li>AirQuality Aware RRM</li> <li>Self-Learning Persistent Device Avoidance</li> <li>Spectrum Expert Connect</li> <li>AirQuality and Interferer Alerts</li> </ul>
MSE	<ul style="list-style-type: none"> <li>Context Aware “endpoints” required for each interferer tracked</li> <li>MSE adds support for 100 interferers when AP3500 present (5 per AP, additive)</li> </ul>	<ul style="list-style-type: none"> <li>Interferer Tracking and Merging</li> <li>Location Calculations</li> <li>History Storage</li> </ul>
WCS	<ul style="list-style-type: none"> <li>Standard per AP count</li> <li>WCS Plus required for MSE</li> </ul>	<ul style="list-style-type: none"> <li>Remote Client Troubleshooting</li> <li>AirQuality Visualization and Mapping</li> <li>Forensics Tools                             <ul style="list-style-type: none"> <li>Location Visualization</li> <li>Impact Analysis</li> <li>History Playback</li> </ul> </li> </ul>

# CleanAir Technology in Cisco Unified Wireless Networks

## Cisco Aironet 3500 Series and Wireless LAN Controller

- Multi-interferer Detection & Classification
- Radio Troubleshooting and Automatic Interference Mitigation
- Air Quality by Access Point
- Air Quality Alarm Threshold
- SNMP Interference Traps
- 3<sup>rd</sup> Party MIB
- Spectrum Expert Connect



## Cisco Wireless Control System (WCS)

- Historical Trending of AQ and Policy enforcement
- Visibility into the performance and security of the wireless network
- Locate Physical DOS Attacks and Hidden Rogues
- Monitor and Alarm when Unwanted Devices are present



## Mobility Services Engine (MSE)

- Location tracking of interferer and Zone of Impact
- Merges and Correlates Interference Data at a System Level
- Historical Reporting and Trending allows Proactive Interference Management





## Cisco CleanAir Features by Device

		3500 WLC	WCS	MSE
Radio Troubleshooting Interference Mitigation	Air Quality for a single AP on WLC UI and CLI interfaces	X		
	AQ Threshold trap (per radio) from WLC	X		
	Device-Type trap (per radio) from WLC	X		
	Rapid Update mode with current AQ charts & interferers for radio	X		
	Spectrum Expert connect mode	X		
	Spectrum MIB on WLC, open to 3 <sup>rd</sup> Parties	X		
	Event Driven RRM, Persistent Device Avoidance	X		
Network Air Quality	WCS CleanAir Dashboard showing APs with worst AQ		X	
	AQ history tracking and reports		X	
	AQ Heatmap & aggregated AQ (per floor) on WCS floor map		X	
	Top N devices for AP shown as hover option on WCS floor map		X	
	CleanAir-enabled WCS RRM Dashboard		X	
	CleanAir-enabled WCS Security Dashboard and reports		X	
	CleanAir-enabled WCS Client Troubleshooting Tool		X	
Location	WCS CleanAir Dashboard with Top N devices with severity			X
	Merging interference devices across APs			X
	Interference device history tracking with reports			X
	Location of interferers including zone of impact			X



# CleanAir Deployment Recommendations

## Customer Needs/Has:

- New or Upgrading to 802.11n
- New areas for ongoing 802.11n deployments
- Networks severely impacted by non-WiFi interference

## Deploy:

**Pervasively deploy  
3500 in local mode**

- Self Healing
- Troubleshooting
- Location

- Do not 'sprinkle in' local mode 3500s. Local mode 3500s scan data serving channel only.

## Customer Needs/Has:

- Existing 802.11n deployments 1140, 1250
- Competitive Installed 802.11n deployments

## Deploy:

**Sprinkle In  
3500 in monitor mode  
(1 monitor AP for 5 data APs)**

- Self Healing
- Troubleshooting
- Location

- CleanAir Technology required in AP for Self Healing

# Cisco Aironet 1260 Series

- Think “Ruggedized 1140 with antennas”
- Dual band 802.11n performance under 802.3af PoE standard
- Leverages current antenna portfolio including new 11n MIMO options
- AIR-LAP1262N-x-K9
  - Note new regulatory domain –B primarily for Canada
- Easy retrofit to installed 1130/1240 mounting brackets
- Standalone option target Q4CY10
- No immediate plans to EOL 1250
- **Not upgradable to CleanAir**



**Industry Leading 802.11n  
Performance**

**Proven, Modern and  
Lightweight Form Factor**

**BandSelect**

**ClientLink+**

**VideoStream**

# Aironet AP1262 Series Ordering & Pricing

Dual Band		US \$	Deployment	Antenna
	AIR-CAP1262-x-K9	\$1,195	Ruggedized	External
Single Band				
	AIR-CAP1261-x-K9*	\$995	Ruggedized	External

- **x = Regulatory Domain (A,C,E,I,K,N,Q,S,T)**
- **\* Single Band availability planned for Oct 2010**

**Standalone AP Version  
planned for Q4 Cal 2010**

# Limited Lifetime Warranty on 11n APs

New!

- Effective April 27, 2010
- New 11n APs covered with LLW
- Cisco Aironet 1140 and 1250 Series Access Point products purchased by customers on or after January 27, 2010 will also be covered by a Cisco LLW.
- Changes are not retroactive aside from the above grace period.
- RMA replacement products inherit the warranty of the returned product.
- Non-802.11n Access Points will continue to be covered by the standard 1 year warranty.
- TAC support and NBD replacement require a support contract



# Indoor AP Portfolio



**11abg**

**11n**

**11n + CleanAir**



Limited Lifetime Hardware Warranty

Ruggedized



\$899



\$1299

\$1195

New



\$1495

New



Carpeted



\$699



EcoPak Promo = \$995/AP



\$1295

New



Cisco Confidential - NDA

Required

# AP-3500i Series...

*Similar in Physical Design as 1140*



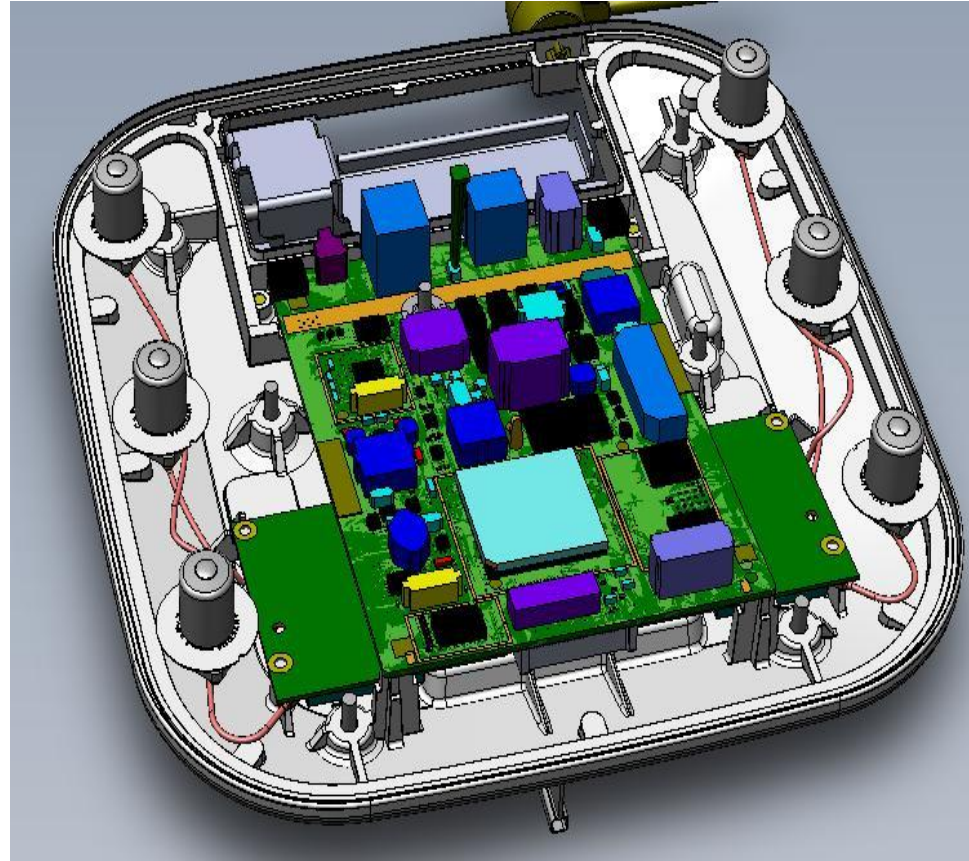
**More sensitive receiver – integrated Spectrum Intelligence**



# Differences AP-1140 ver. AP3500

The following components are different from the Cascade design and will cause changes in the software:

- Newer Microprocessor
- This processor draws less power (allowing us to stay within 802.3af) and has an improved processor packet rate.
- AP-3500 can do 360 MB per second due to increased L1 & L2 Cache – The older AP-1140 used an earlier processor which lacked L2 Cache and topped out at approx 300 MB per second.
- Broadcom BCM54610 Gigabit PHY
- Marvell 88W8364C 802.11n MAC/PHY (SC1)
- Integrated Spectrum Intelligence (SAGE)
- Marvell 88W8063RF (Raven)



# Connectorized AP-3500e

*Support for dipole and monopole antennas*

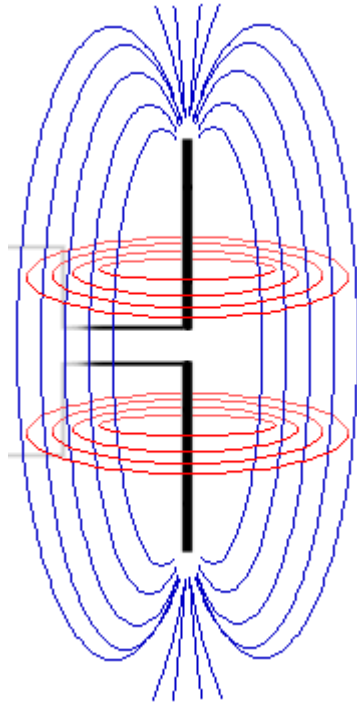


**AP-3500e with monopole antennas (also supports dipoles)  
Use swivel dipoles when wall mounting this device.**

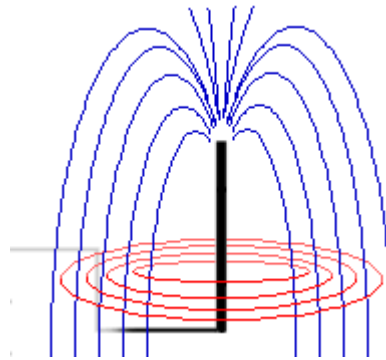


# Antenna theory (Dipole & Monopole)

Dipole



Monopole



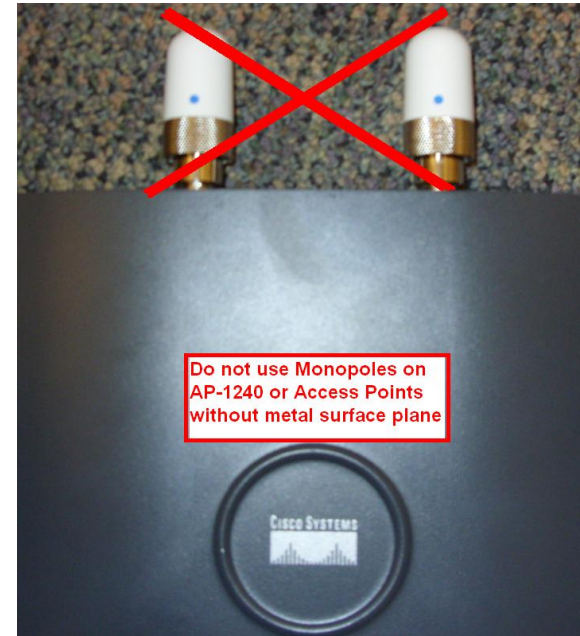
A Monopole requires a ground plane  
– (conductive surface)

Dipole does not require a ground plane  
as the bottom half is the ground  
(counterpoise).









Monopole (left) is significantly smaller

# Antenna theory (dipole & monopole)



Monopoles were added to our antenna line primarily for aesthetics but requires that the AP have a metal surface area.

**DO NOT USE monopoles on Access Points without metal surface area such as the AP-1240 where the connector is on the ends of the Access Point.**

Product ID	Description		Gain	List Price*	Orderability Date*
AIR-ANT2452V-R=	2.4 GHz 5.2 dBi Diversity pillar mount ant,RP-TNC Connectors		5.2 dBi	\$209	<b>Orderable Now</b> (Aug-17-2009)
AIR-CAB005PL-R=	5 ft low loss plenum cable, RP-TNC connectors		-	\$90	<b>Orderable Now</b> (Aug-18-2009)
AIR-ANTMNTGKIT=	Antenna Mount Clip Adapter for ANT2430,2451,5140,5145,5959		-	\$39	<b>Orderable Now</b> (Aug-21-2009)
AIR-ANT2451NV-R=	2.4 GHz 3 dBi/5 GHz 4 dBi 802.11n dual band omni antenna		3 dBi/4 dBi	\$475	<b>Orderable Now</b> (Dec-07-2009)
AIR-ANT2460NP-R=	2.4 GHz 6 dBi 802.11n directional antenna		6 dBi	\$350	<b>Orderable Now</b> (Dec-07-2009)
AIR-ANT5160NP-R=	5 GHz 6 dBi 802.11n directional antenna		6 dBi	\$350	<b>Orderable Now</b> (Dec-07-2009)
AIR-ANT2422SDW-R=	2.4 GHz 2.2 dBi Short white dipole antenna, Qty 1		2.2 dBi	\$35	<b>Orderable Now</b> (Dec-14-2009)
AIR-ANT5135SDW-R=	5 GHz 3.5 dBi Short white dipole antenna, Qty. 1		3.5 dBi	\$35	<b>Orderable Now</b> (Dec-14-2009)
AIR-ANT2450NV-R=	2.4 GHz 5 dBi 802.11n Omni wall mount antenna		4 dBi	\$355	Mid CY2010
AIR-ANT5140NV-R=	5 GHz 4 dBi 802.11n Omni wall mount antenna		4 dBi	\$355	Mid CY2010

**\*Subject to change until orderability date.**

**Orderability date target shown with 90% confidence. FCS typically 1-2 weeks after orderability date.**

# Enhanced Migration Program (CTMP)

- Up to \$100 trade-in credit for any competitor's AP
- Up to 30% trade-in credit for EOS WLAN APs
- Enhanced trade-to credit of 15% for 11n APs

Trade-In

Trade-To

Final Credit



**Aruba AP125**  
List Price: \$995  
CTMP: \$100



**AP1140**  
List Price: \$995 (eco-pak)  
CTMP (15%): \$149

**\$100**

~10 points incremental discount



**AP1120**  
List Price: \$599  
CTMP: \$180



**AP3500i**  
List Price: \$1295  
CTMP (15%): \$194

**\$180**

~15 points incremental discount

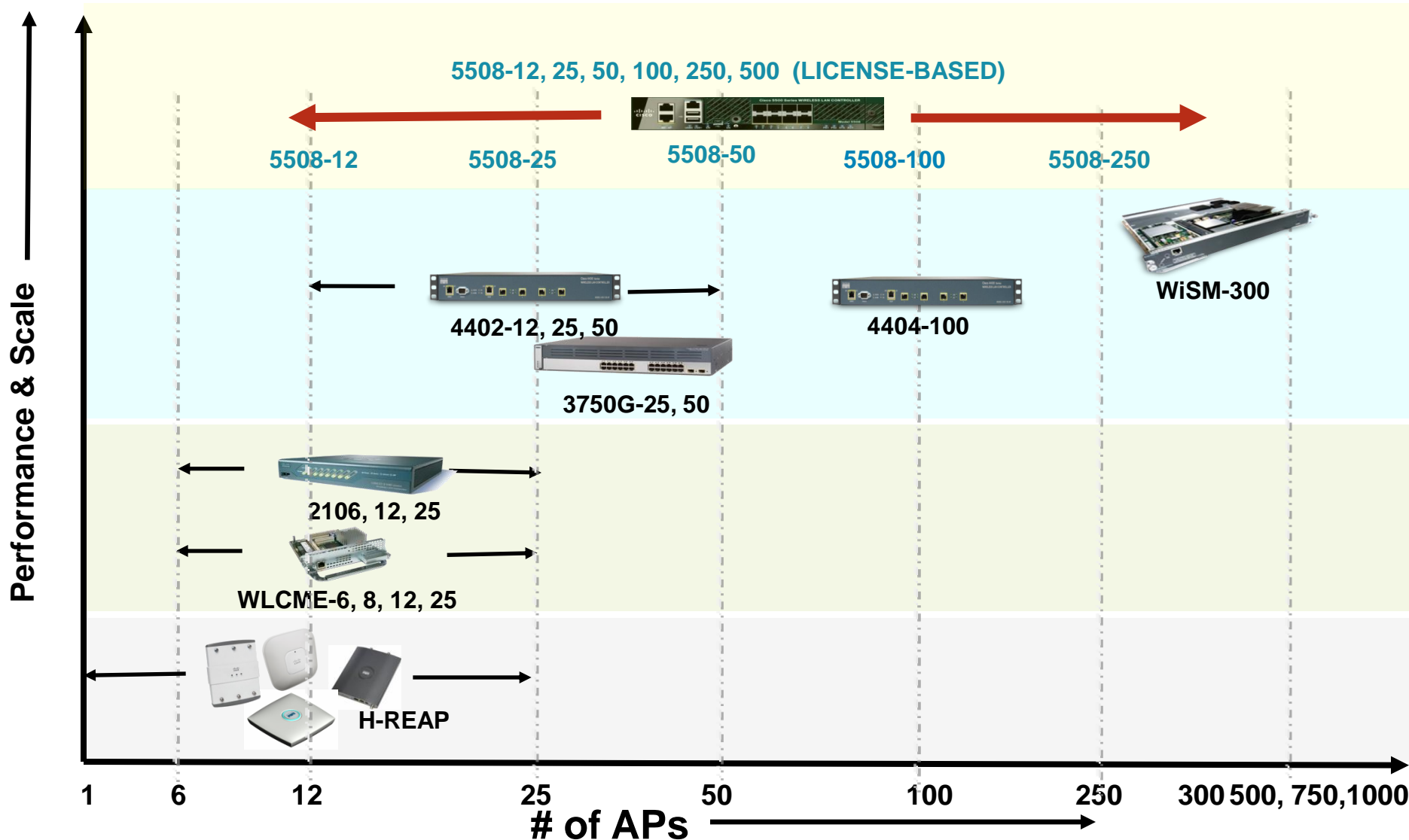


# Cisco Unified Wireless Network Release 7.0

## Cisco Wireless Controller features and enhancements

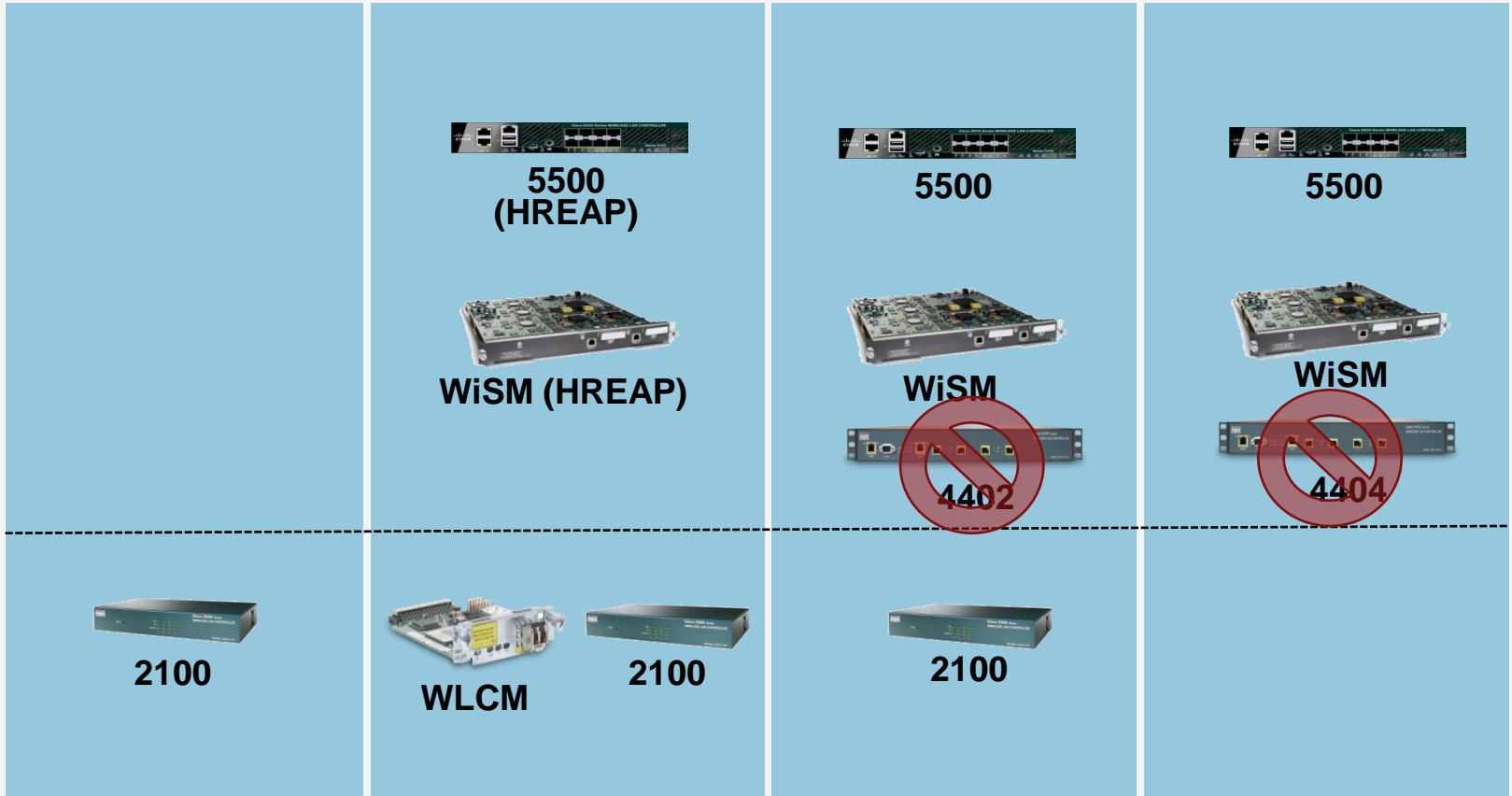


# Wireless Controller Product Portfolio



# Current: Wireless Controller Portfolio

Performance & Scalability ↑



Deployment →

# CUWN 7.0 Release

## Key Controller Features

- **5500 Series Wireless Controller**
  - **Support for up to 500 Access Points**
  - **Simplified Licensing**
  - **Enhanced Access Point Update and Joining Capability**
- **Clean Air**
- **Cisco VideoStream Technology**
- **Passive Client Support**
- **FIPS**
- **Voice-over-WLAN Troubleshooting Enhancements**
- **SIP Call Admission Control**



# Cisco 5500 Series Wireless Controller Enhancements Optimized for 802.11n

- Supports new 3500 Series Aironet Access Points with CleanAir
- New licensing allows for enhanced scale-as-you-grow and feature flexibility
  - Upgrade 500 APs simultaneously
  - Supports OfficeExtend, DTLS Encryption and Wireless Mesh in base license
- Integrates seamlessly into the Cisco Unified Wireless Network
- Control plane scalability
- Supports innovative technology including VideoStream and Cisco M-Drive, BandSelect and ClientLink

**Introducing:  
500 AP Support**



## Specifications At-a-Glance

Access Points	12 – 500
Devices	7,000
Mobility Scale	36,000 APs in Mobility Domain
Form	1 RU Appliance
Interfaces	8 GigE Ports

# Simplified Licensing

## Base AP License

Base Count: 12, 25, 50, 100, 250 and 500 Access Points + Adder AP counts of 25, 50, 100, 250 (up to a total maximum of 500)

### Now Includes

- OfficeExtend Access Point support
- Enterprise Wireless Mesh Access Point support
- CAPWAP Data Encryption

- **Single License Type: “Base License”**
  - WPLUS Features now part of “Base License”
  - **WPLUS Licenses not required any more**
- **Licensing model supports “Capacity Adder Licenses”**
  - 25, 50, 100, 250 AP capacity Adder Licenses which could be added to any of the base count licenses

# New 5500 Controller Licensing Scheme

## Access Point Capacity Adder Licenses

### AP Capacity Starting Point

12 APs	AIR-CT5508-12-K9
25 APs	AIR-CT5508-25-K9
50 APs	AIR-CT5508-50-K9
100 APs	AIR-CT5508-100-K9
250 APs	AIR-CT5508-250-K9

+ n x

### AP Adder Capacity License

25 APs	LIC-CT5508-25A
50 APs	LIC-CT5508-50A
100 APs	LIC-CT5508-100A
250 APs	LIC-CT5508-250A

500

- Adder SKU's could be added to any of the base SKU's upto a maximum capacity of 250 AP's
- Delivery method for adder SKU's: email or paper
  - LIC-CT5508-X => Paper License
  - L-LIC-CT5508-X => eDelivery
- Adder Licenses are procured as spares similar to upgrade license SKU's

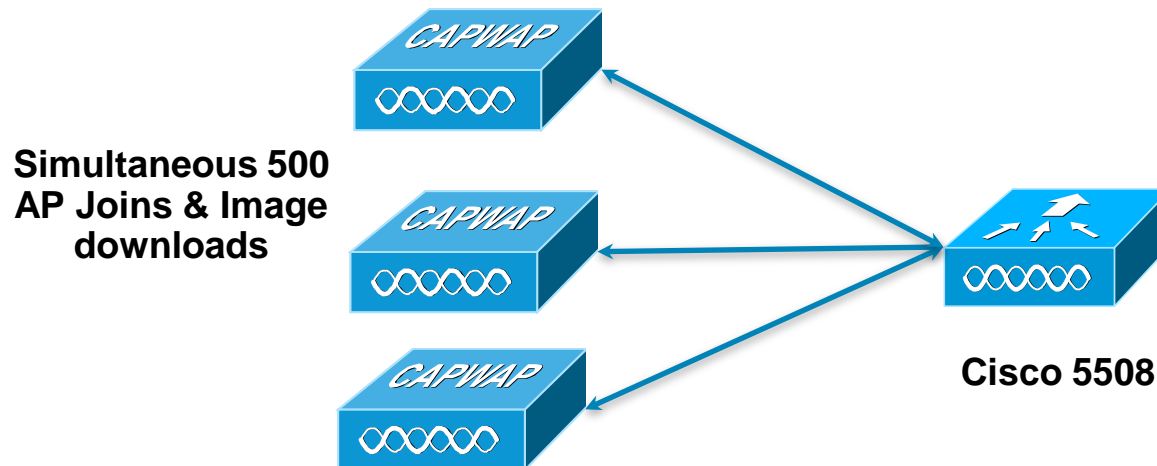
# Enhanced AP Update and Joining Capability

## Feature

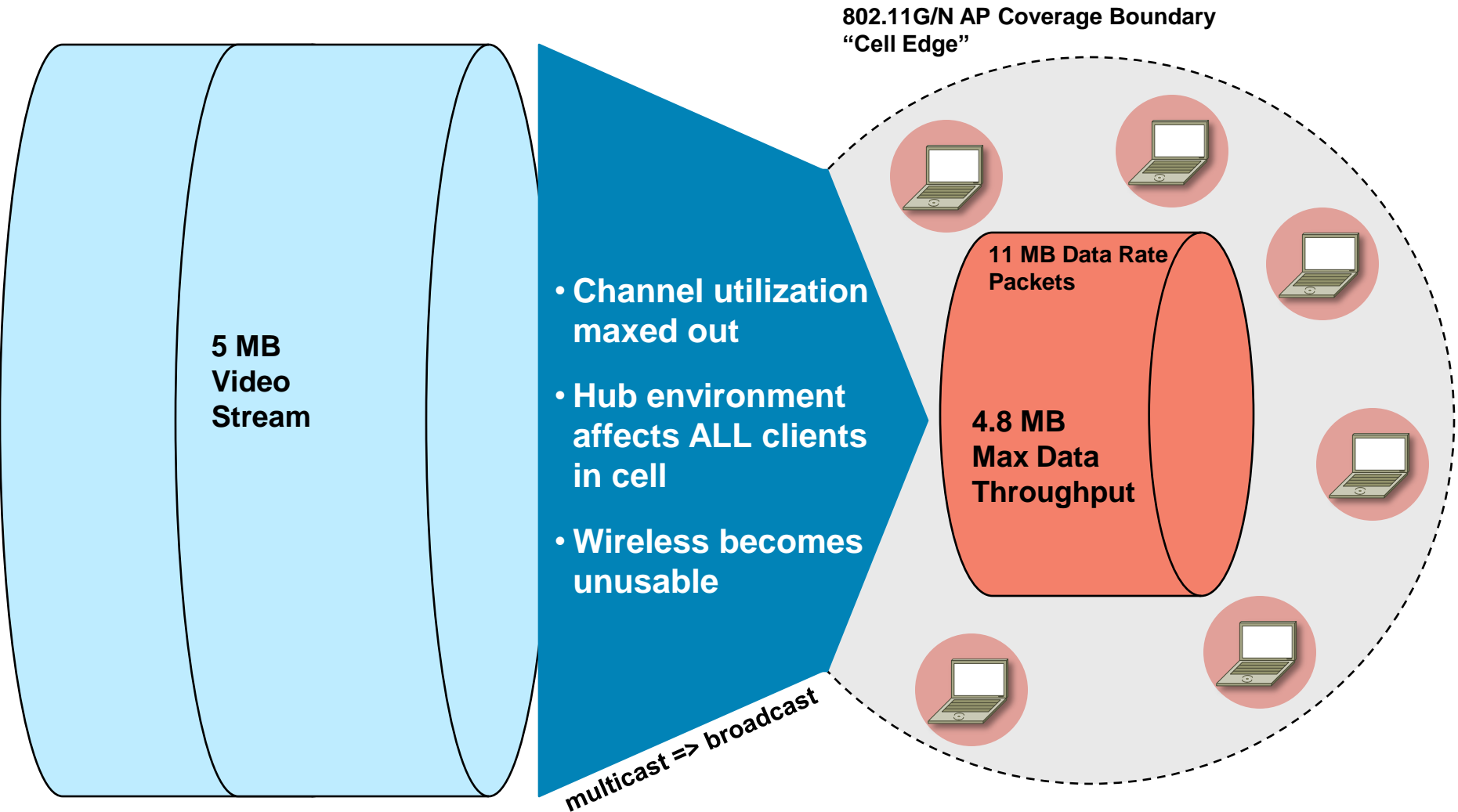
- Ability to handle up to 500 simultaneous AP joins and AP image downloads

## Benefit

- Increased availability of the network by reducing the network downtime significantly



# Broadcasting Multicast Video Affect on AP Channel



Multicast video stream works fine on wired

Video stream choppy on wireless  
Entire WiFi cell consumed with video

# VideoStream Technology

## Features

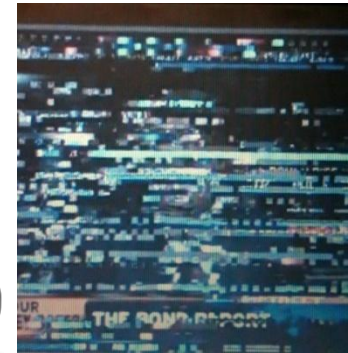
- Video Streaming with Reliable Multicast
  - Improves quality and scale of streaming content
  - Stream Prioritization ensures important video content takes precedence over others
  - Resource Reservation Control used to prevent channel oversubscription

## Benefits

- Improved video delivery to Wi-Fi endpoints by providing
  - Reliability for streaming
  - Quality of Service
  - Channel capacity management
  - Prioritization and protection
  - Better scalability



vs.



# VideoStream – Scalability Guidance

Video Stream	No. of Video clients	Quality
500kbps	25*	Excellent
1500kbps	25*	Excellent
5000kbps	23	Good

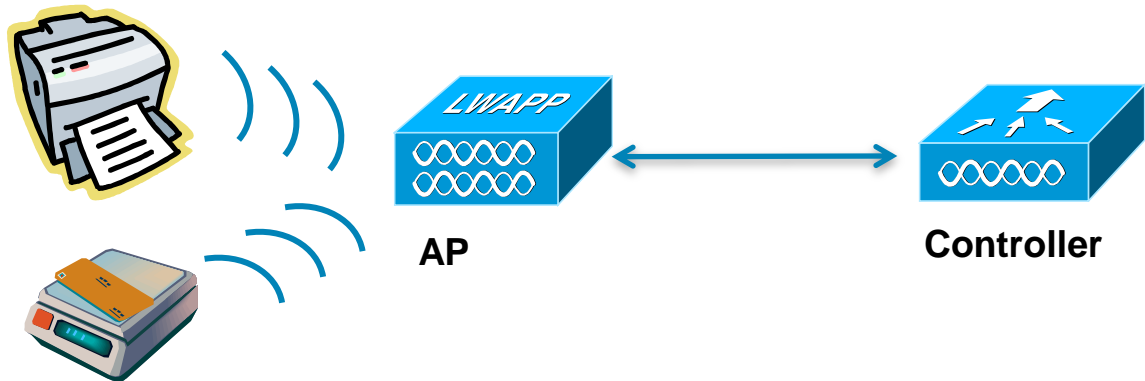
**Media CAC = 85%**

**Voice = 5%**

**Video = 80%**

**\* Awaiting Solution Performance Nos. for 7.0**

# Passive Client Support



## ■ Problem:

- Client devices such as Zebra Printers, Hobart Scales etc.. Are deployed using static IP addresses
- Information regarding the presence passive devices is not available from the network

## ■ Solution:

- The new “Passive Client “ feature will allow ARP requests and ARP responses to be exchanged between wired and wireless side on a per VLAN /WLAN basis



# Voice over WLAN Troubleshooting Enhancements

## Feature

- **Cisco Voice Troubleshooting Tool**
  - Enhances voice connectivity from the device to the controller for roaming clients
  - Debugs calls sessions between two end points and monitors call activity on a per AP, multiple AP or controller basis

## Benefit

- Simplifies and accelerates voice troubleshooting with centralized diagnostic features
- Helps identify and resolve client device and voice call issues more easily

## Feature

- **SIP Call Admission Control**
  - Bandwidth reservation for SIP based voice calls

## Benefit

- Supports delivery of high performance SIP based calls
- Enables high quality user experience



# Cisco Unified Wireless Network Release 7.0

## Cisco WCS New Features and Enhancements



Wireless Control System

Username

Password

Login



# Cisco WCS – 7.0 Software Release

- **Support for Cisco CleanAir Technology**
  - New CleanAir dashboard
  - Enhancements to existing tools and dashboards to include CleanAir (maps, security dashboard, reports, client troubleshooting, search, RRM and AP radio details)
- **New Features**
  - Maps Import/Export for Cisco WCS Servers and Third-Party Tools
  - Northbound Alarms and Events API
  - Enhanced Auto-Provisioning Feature Suite for WLAN Controllers
  - Scheduled WLAN Controller Image Upgrades
  - Scheduled Migration of Standalone APs
  - Serviceability Program
  - TAC Attachment Tool
  - Enhanced Web Browser Support
  - Cisco Secure Access Control Server 5.1

# Cisco WCS – 7.0 Software Release

- **New Enhancements**
  - **Ease-of-Use**
  - **Reporting**
  - **Rogue Device Management**
  - **Voice Audit Tool**
  - **Serviceability**

# Support for Cisco CleanAir Technology

## New CleanAir Technology Dashboard

### Features

- Customizable Cisco CleanAir dashboard displays current and historical information about:
  - Air Quality
  - Network areas with the worst RF conditions
  - Recent security risk interferers
  - Threshold alarms
  - Interferer counts

### Benefits

- Easy-to-use Cisco CleanAir dashboard assists with viewing, prioritizing, and managing RF interference issues that occur anywhere on the wireless network.



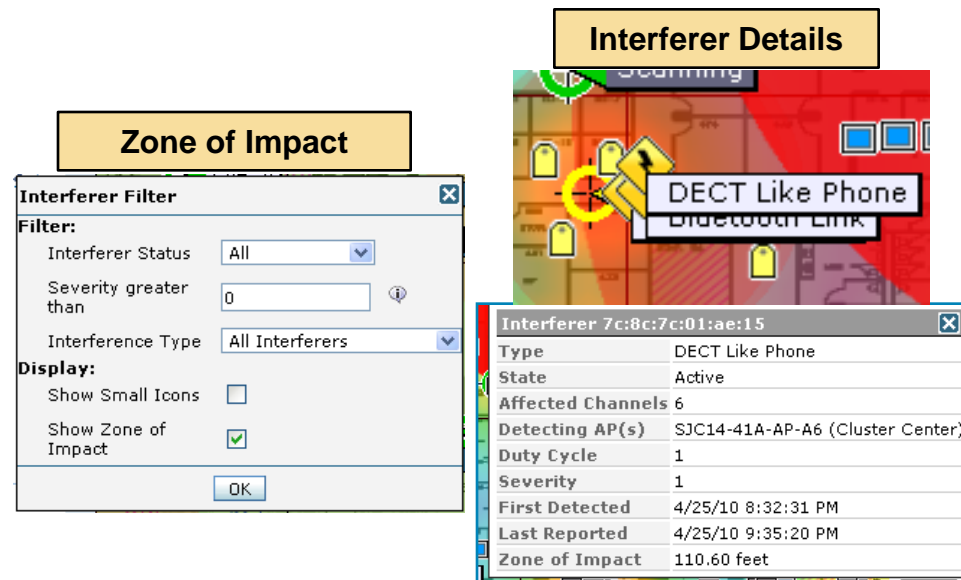
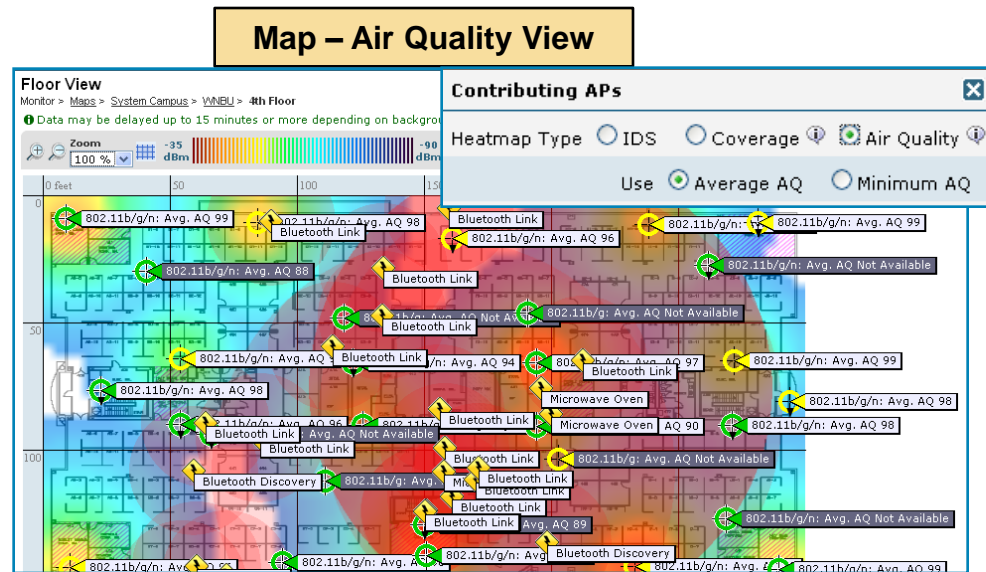
# Support for Cisco CleanAir Technology Heat Maps

## Features

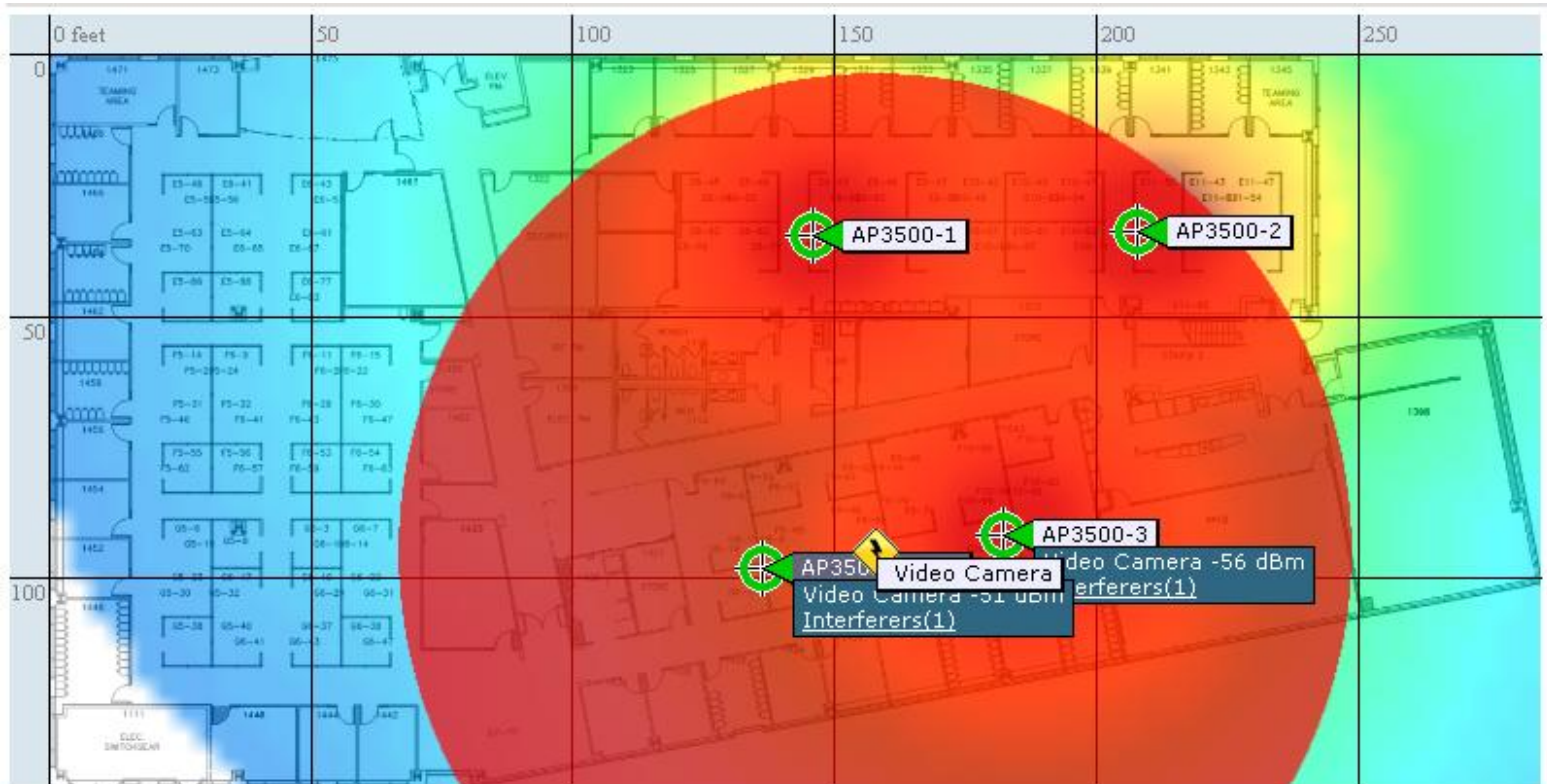
- A variety of existing tools are enhanced to include Cisco CleanAir

## Benefits

- Heat Maps - Air Quality tools, heat map options, and device detail information including:
  - Display real-time network air quality and zone of impact by access point, floor, building, or campus
  - Adjustable display for average and minimum air quality for each location
  - Mouse-over details about each interferer, including type of interferer, active or inactive status, detected and reported dates, zone of impact, and 10 top interferers.



# Interference Location Provides Quick Mitigation



- Beyond providing actionable information regarding the type of interference – the location is also provided to track down the actual source.
- Motorola only records what sensor classified the interference.

# Support for Cisco CleanAir Technology

## Security Dashboard and Reports

### Features

- A variety of existing tools are enhanced to include Cisco CleanAir

### Benefits

- Security Dashboard – Display of RF interferers that are potential security risks. In combination with other Cisco WCS security features including WIPS, Cisco CleanAir helps create the industry's only integrated security solution with immediate visibility of security issues at both the logical and physical layer of the WLAN.
- Reports - View and report on current or stored information about RF interference and air quality.

**Security Dashboard**

WCS Home

General Client Security Mesh CleanAir

Security Index

Score: 34.82%

Top Security Issues | [View All](#) | [Devices](#)

- Telnet is enabled on the AP (633)
- SSH is enabled on the AP (205)
- "MFP Client Protection" is set to "Optional" for WLAN (47)
- "Client Exclusion" is disabled for WLAN (43)
- No CIDS Sensor configured on the controller (28)

Footnotes:

Security index is calculated as part of 'Configuration Sync' background task.  
Last execution time: Fri Apr 23 02:16:37 PDT 2010

CleanAir Security

CleanAir Security	Last Hour	24 Hours	Total Active
Security-risk Devices	0	0	17

**Reports**

Report Launch Pad

Reports > Report Launch Pad

Clean Air

- [Air Quality vs Time](#) New
- [Security Risk Interferers](#) New
- [Worst Air Quality APs](#) New
- [Worst Interferers](#) New



# Support for Cisco CleanAir Technology

## RRM, Advanced Search, and Client Troubleshooting

### Features

- A variety of existing tools are enhanced to include Cisco CleanAir

### Benefits

- RRM – Display of current and historical actions taken by Cisco RRM in support of RF interference alerts and CleanAir
- Advanced Search - Quickly and easily search for RF interferers across the entire WLAN
- Client Troubleshooting – Client troubleshooting tool is enhanced to include identification of interferers that may be affecting client devices

The screenshot displays three main interface components:

- RRM (Radio Resource Management):** A stacked bar chart titled "Channel Change Reason [a/b/g/n] (Last 24 Hours)" showing the percentage of channel changes for two channels: 802.11 a/n and 802.11 b/g/n. The legend includes Signal, WiFi Interference, Load, Radar, Noise (CleanAir), Persistent Non-WiFi Interference (CleanAir), Major Air Quality Event (CleanAir), and Other.
- Advanced Search:** A search interface with fields for Search Category, Detected By, Search By, Interference Type, and Detected within the last. A dropdown menu for Interference Type is open, showing options like 802.11FH, 802.15.4, Bluetooth Discovery, Bluetooth Link, Canopy, Continuous Transmitter, DECT-Like Phone, Jammer, Microwave Oven, Radar, SuperAG, TDD Transmitter, Video Camera, and WiFi Invalid Channel.
- Client Troubleshooting:** A table for troubleshooting client '30:7c:30:0c:b9:a2'. The "CleanAir" tab is selected. The table shows details for the client and a list of detected interferers.

Interferer Name	Affected Channels	Detected Time	Severity	Duty Cycle (%)	RSSI (dBm)
Bluetooth Link	6	04/02/2010 13:22:24 PM	1	1	-68

# Support for Cisco CleanAir Technology

## Access Point Radio Details

### Features

- A variety of existing tools are enhanced to include Cisco CleanAir

### Benefits

- Access Point Radio Details – Display of RF information about each CleanAir access point's radios including Air Quality Index, interference power, non-Wi-Fi channel utilization and a listing of active interferers



# New Features

## Maps Import and Export for Cisco WCS Servers and Third-Party Tools

### Features

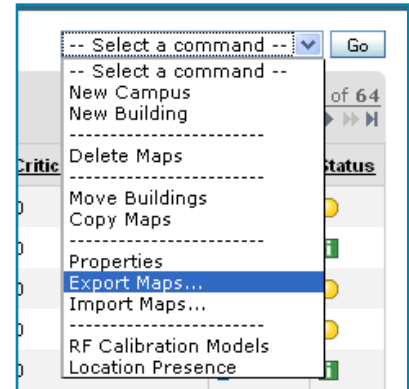
- Import and export Cisco WCS maps, hierarchies, map-related data, and network designs between one or more Cisco WCS servers
- Easily import and integrate information from leading third-party site survey tools into Cisco WCS to aid in WLAN design and deployment

### Benefits

- Re-purpose Cisco WCS mapping information and network designs across one or more Cisco WCS servers
- Facilitate more detailed wireless LAN designs by importing RF data from third-party site survey tools

Path to New Feature....

Monitor -> Maps ->  
Right Pull Down  
Menu



### Import Map -- Choose map format

Monitor > Maps > Import Map -- Choose map format

- AP/WiFi TDOA Receiver/Chokepoint Placement
- WLSE Map and AP Location Data

Next Cancel

### Export Map

Monitor > Maps > Export Map

- Include Map Information
- Include Calibration Information
- Calibration Information for selected maps
- Select All Maps
- Site-4 Safety & Security
  - SkyCaptain
  - System Campus

# New Features

## Northbound Alarms and Events API

### Features

- Forward alarms and events to third-party, northbound receivers and applications that have FCAPS capability, such as HP OpenView or IBM Tivoli Netcool
- Notifications are sent via SNMP and are customizable by category and severity

### Benefits

- View and manage Cisco WCS events and alarms from Cisco WCS or a centralized third-party, northbound receiver of your choice

Path to New Feature....

Administration -> Settings -> Click on "Notification Receivers" in Left Side Menu

Notification Receivers

Administration > Settings > Notification Receivers

<input type="checkbox"/>	IP Address	Name	Notification Type	Receiver Type
<input type="checkbox"/>	<a href="#">172.19.27.85</a>	172.19.27.85	UDP	North Bound
<input type="checkbox"/>	<a href="#">172.19.27.84</a>	172.19.27.84	UDP	North Bound

Notification Receiver

Administration > Settings > Notification Receivers > Notification Receiver > 172.19.27.85

IP Address: 172.19.27.85  
Name: 172.19.27.85  
Receiver Type:  North Bound  Guest Access  
Port Number: 162 (UDP)  
Community: public  
Criteria

<input checked="" type="checkbox"/> All	<input checked="" type="checkbox"/> Adhoc Rogue
<input checked="" type="checkbox"/> Access Points	<input checked="" type="checkbox"/> Controllers
<input checked="" type="checkbox"/> Clients	<input checked="" type="checkbox"/> SE Detected Interference
<input checked="" type="checkbox"/> Coverage Hole	<input checked="" type="checkbox"/> Mesh Links
<input checked="" type="checkbox"/> Context Aware Notifications	<input checked="" type="checkbox"/> Performance
<input checked="" type="checkbox"/> Mobility Service	<input checked="" type="checkbox"/> RRM
<input checked="" type="checkbox"/> Rogue AP	<input checked="" type="checkbox"/> WCS
<input checked="" type="checkbox"/> Security	

Severity:  All  Critical  Minor  Clear  Major  Warning

Save Cancel

Footnotes:

- By default only INFO level events will be processed for selected Category.
- Only SNMPV2 traps will be considered for northbound notification.

# 802.11n Access Punkt Jämförelse

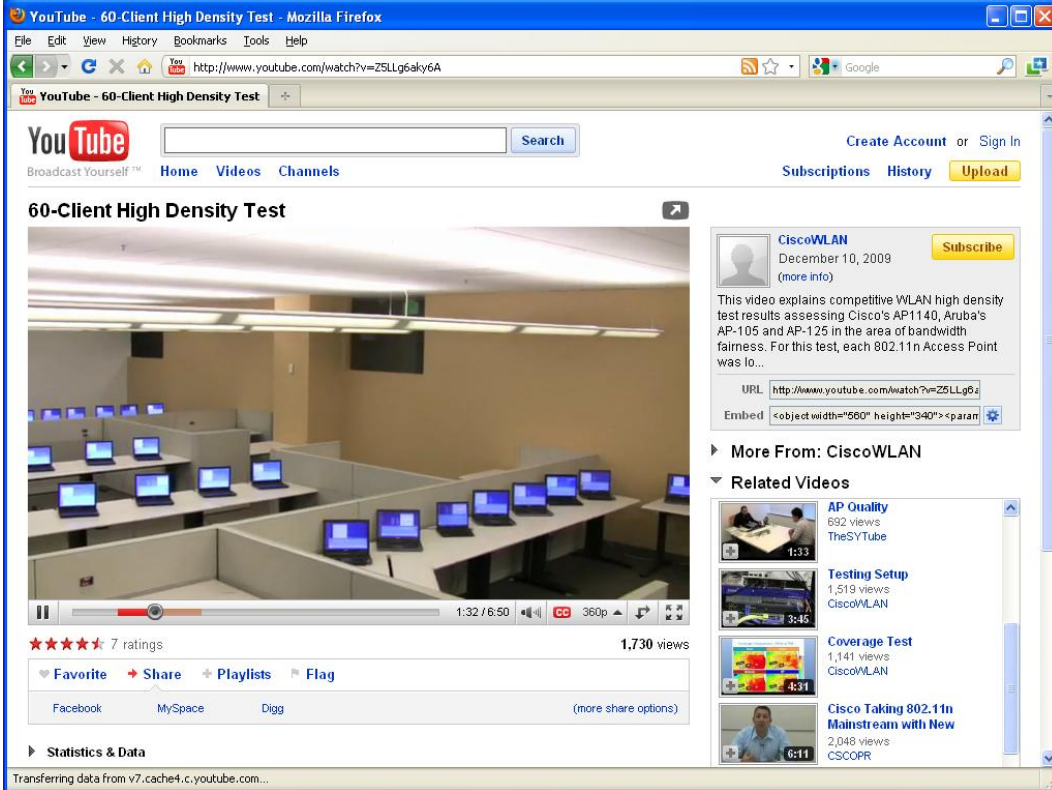
Mer om 802.11n jämförelse tester som Cisco utfört Del 1:

<http://www.youtube.com/watch?v=AYfITp6VEQ&feature=Playlist&p=06D46D1F4B116BDB&index=0>

Del 2-3 länkas i playlist fönstret till höger när du klickar på länken ovan.

Där finns också ett prestanda test med 60 klienter anslutna till samma AP1142 “klassrums test”

<http://www.youtube.com/watch?v=Z5LLg6aky6A>



The screenshot shows a YouTube video player in a Mozilla Firefox browser window. The video title is "60-Client High Density Test". The video content shows a classroom or lab setting with multiple rows of desks, each with a laptop. The video player includes a progress bar, a search bar, and a sidebar with related videos and channel information for CiscoWLAN. The video has 1,730 views and 7 ratings.

YouTube - 60-Client High Density Test - Mozilla Firefox  
http://www.youtube.com/watch?v=Z5LLg6aky6A

YouTube - 60-Client High Density Test

60-Client High Density Test

CiscoWLAN  
December 10, 2009  
(more info) [Subscribe](#)

This video explains competitive WLAN high density test results assessing Cisco's AP1140, Aruba's AP-105 and AP-125 in the area of bandwidth fairness. For this test, each 802.11n Access Point was 10...

URL: <http://www.youtube.com/watch?v=Z5LLg6aky6A>

Embed: `<object width="560" height="340"><param`

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1,730 views

7 ratings

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# Wireless Promotions

## Cisco Trade in Migration Program

The installed base migration program (CTMP) will be revised on a few fronts to incent 11n migrations to Cisco (Cisco to Cisco and competitive to Cisco). Three main changes:

- Up to \$100 trade-in credit for any competitor's AP
- Up to 30% trade-in credit for EOS WLAN Cisco APs
- Enhanced trade-to credit of 15% for 11n Aps

## PROMOTIONS: New Promo:

Eco Pack: Listprice:

AIR-CAP3502I-x-K910 \$12.950

AIR-CAP3502E-x-K910 \$14.950

- Eco Packs for reduced packaging, lighter for cost effective shipping.
- Ruggedized AP Bundle ( 3502 E ) will have a popular dipole antenna as order option.

Alternate antennas available as spares.

- Includes WCS PLUS Upgrade ( software license key ) for 100 Access Points ( additive )

# Wireless Promotions - links

## Wireless Product Promotions

### 802.11n AP1142 Eco-Pack Promotion

– 23% discount on the 5-pack and 10-pack AP1140 Eco-Packs (\$995 per AP) (expires 31 Jul 2010)

### 802.11n 5508 Controller + AP1140 Bundles

– 15% discount on 5508 controller + 1140 AP bundles (expires 31 Jul 2010)

### 802.11n Catalyst Switch + AP1140 Bundles

– 10% discount on Catalyst 3560G/3750G + 4 Cisco 1140 APs (expires 30 Sep 2010)

### 802.11n Smart Business Architecture Bundles

– 10% discount on 11n solutions in the SBA Deployment Guide (no expiration)

### 2 x 5508-250 Bundle

– 10% discount on two WLC5508-250 controllers (expires 31 Jul 2010)

## Wireless Trade-In Programs

### WLAN Controllers Enhanced CTMP

- trade-in old Cisco WLAN Controllers to receive up to 40% credit towards the purchase of 5500 WLAN Controllers (expires 31 Jul 2010)

### Wireless Competitive Equipment Exchange Program

- includes most major Wireless LAN competitive products, including an extra 50% credit on Symbol gear (expires 31 Dec 2010)

### Wireless CTMP

– trade in old Cisco WLAN products to receive up to 10% credit towards the purchase of new WLAN products (no expiration)

## Wireless Channel Partner Programs

[http://www.cisco.com/global/EMEA/promotions/1\\_tier/current/index.shtml](http://www.cisco.com/global/EMEA/promotions/1_tier/current/index.shtml)

Europe Channel Incentive Programs: <http://www.cisco.com/web/partners/pr11/incentive/euro/index.html>

Global Promotions: <http://www.cisco.com/web/partners/sell/promotions/index.html>

# Implementing Advanced Cisco Unified Wireless Security (IAUWS)

V 22 | Malmö, 5 dagar.

Du lär dig

- Translate organizational and regulatory security policies and enforce security compliances
- Integrate security on client devices
- Design and implement guest access services on the WLAN controller
- Design and integrate a wireless network with Cisco NAC Appliance
- Implement secure wireless connectivity services on the WLAN controller
- Use the internal security features on the WLAN controller and integrate the WLAN controller with advanced security platforms to isolate and mitigate security threats to the WLAN



Authorized Learning Partner





# Implementing Cisco Unified Wireless Voice Networks (IUWVN)

V 24 | Köpenhamn

Du lär dig

- **Implement QoS for Wireless Applications, both on the wired and on the wireless side**
- **Describe Voice Architecture and Voice over Wireless Specific Requirements**
- **Design and Implement Voice over Wireless LANs**
- **Implement Multicast Support Over Wireless networks**
- **Prepare the Wireless Network for Video and High-Bandwidth Applications**
- **Kontakta anders**



Authorized Learning Partner





**CISCO**