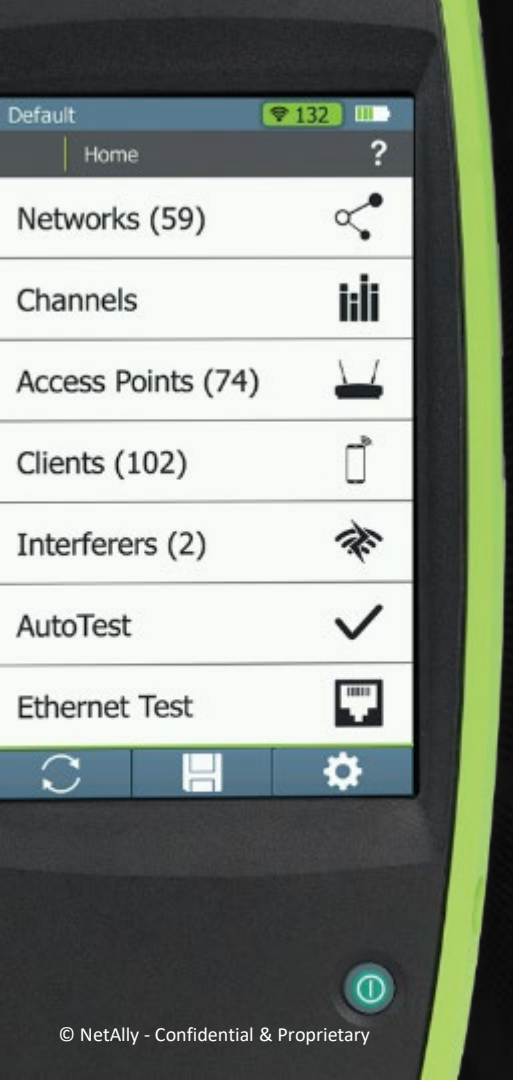


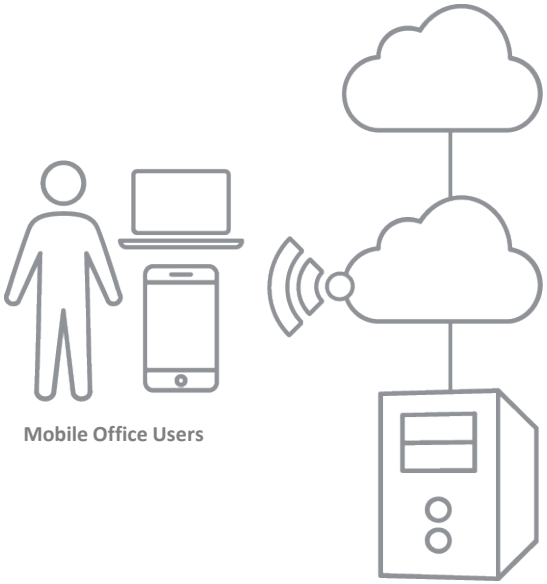
netAlly®

AirMagnet Mobile Software

Wireless is the Access Network

90% of the companies we surveyed stated that they considered their wireless network to be mission critical

There is no off

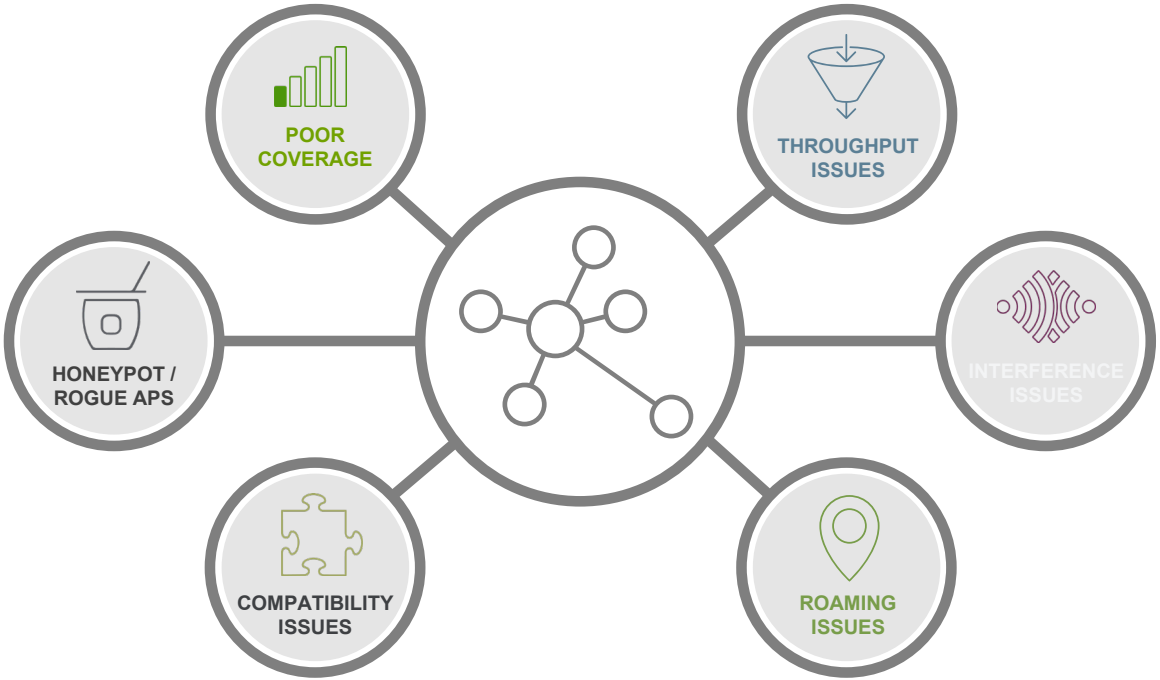


- 71% of all mobile communications flow over Wi-Fi
- 802.11ac saw a much faster ramp than 802.11n
- Last year, almost 75% of mobile handset shipments with Wi-Fi ship with 802.11ac
- Unified Communications platforms rely on constant connectivity

What complaints do you typically get?

- I do not see the wireless network
- I cannot connect to the wireless network
- I get frequently disconnected
- I am suffering from poor application or network performance (video buffering, slow internet browsing, etc.)
- Is my conversation and traffic secure?

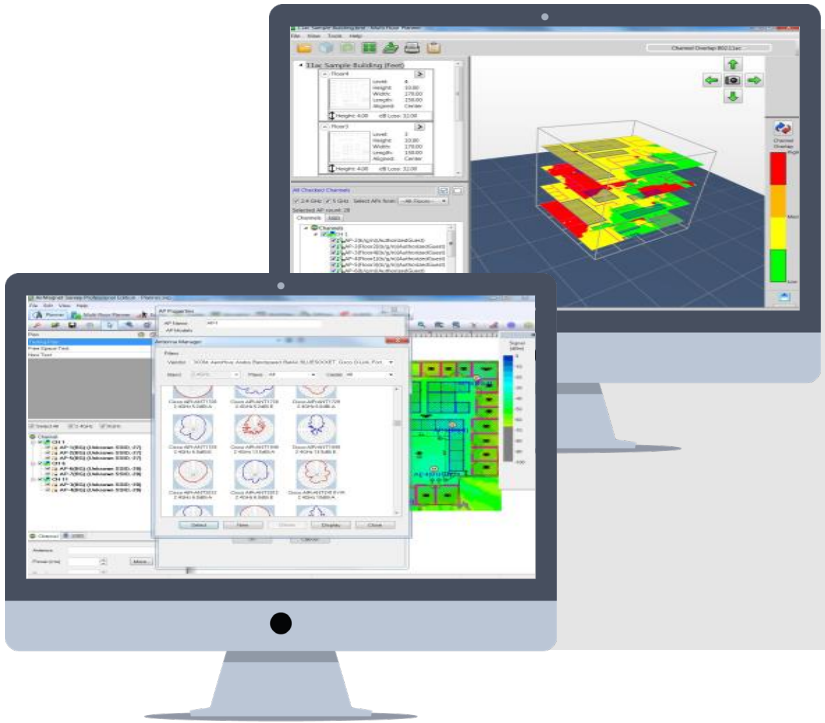
The network could be experiencing



PLAN FOR SUCCESS

Planning in AirMagnet Survey PRO

Plan the network right

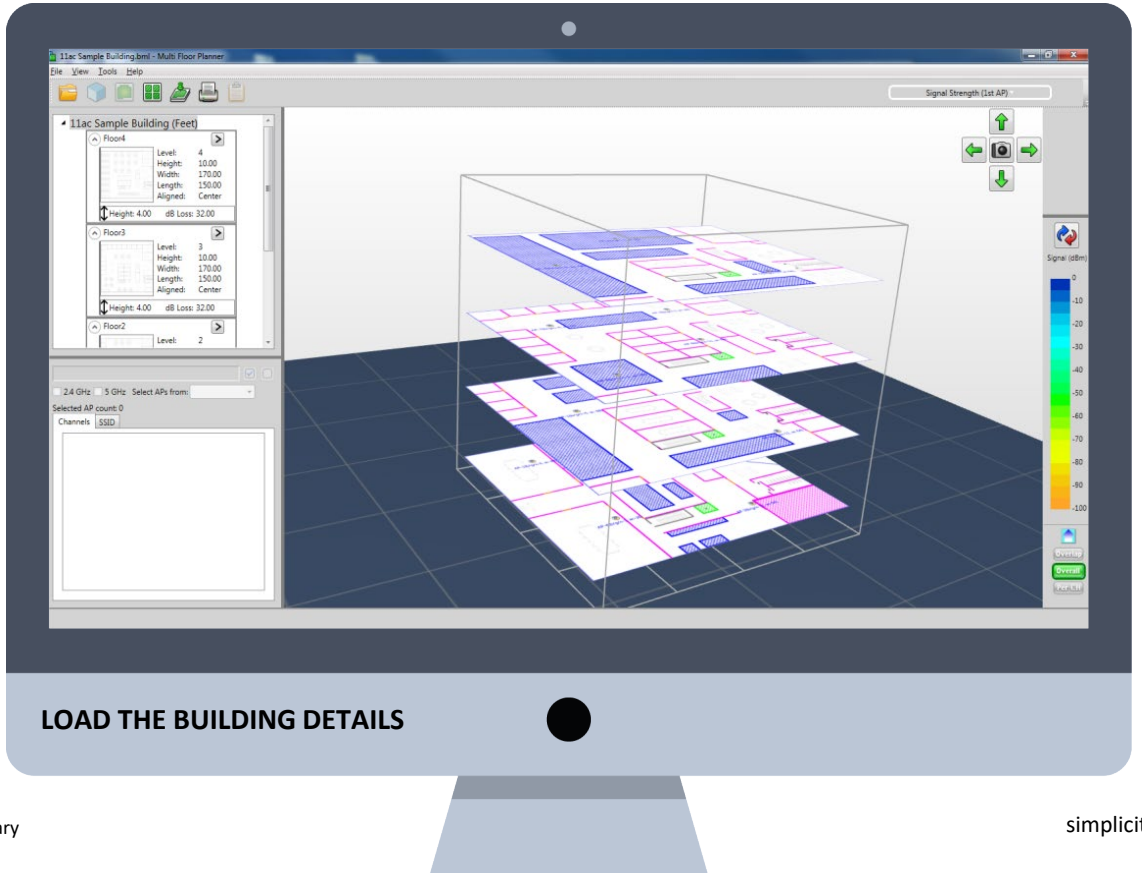


- Design 802.11a/b/g/n/ac WLAN networks before rolling out any APs physically
  - Optimize AP count and layout for maximized coverage and performance by modeling building construction materials/obstructions and APs
  - Design Networks for any WLAN Infrastructure vendor with built-in library of APs
  - Reduce spend on WLAN infrastructure by reusing services of APs across multiple floors with multi-floor visualization
- Estimate WLAN deployment budgets and make go/no-go decisions
- Generate installer-ready Bill of Materials Reports
- Plan your migration strategies as new users or technologies are introduced

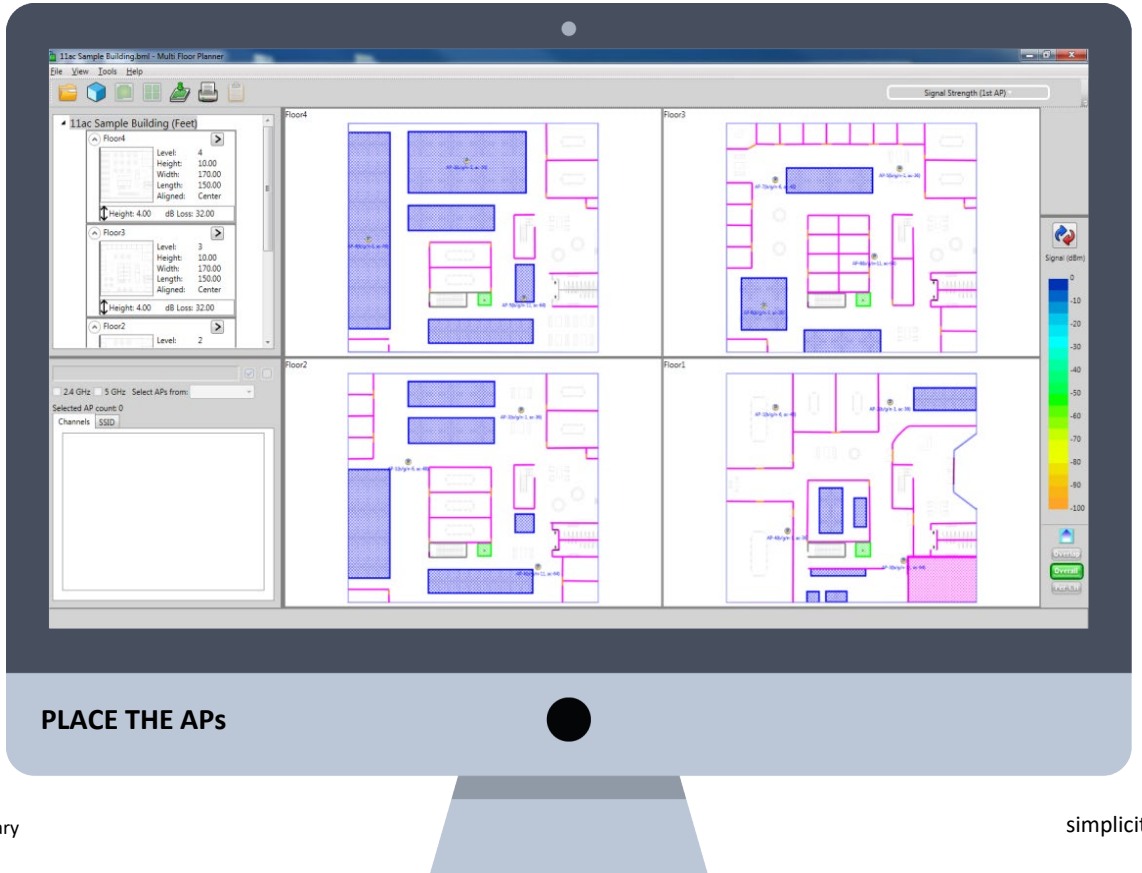
How does planning help?

- Ensures business / usage goals match the design
- Models and predicts performance before spending a dime on deployment
- Generates a BOM to help estimate the cost of deployment
- Exports configuration settings to simplify network settings later
- AP height is modeled, so coverage shown will be for clients

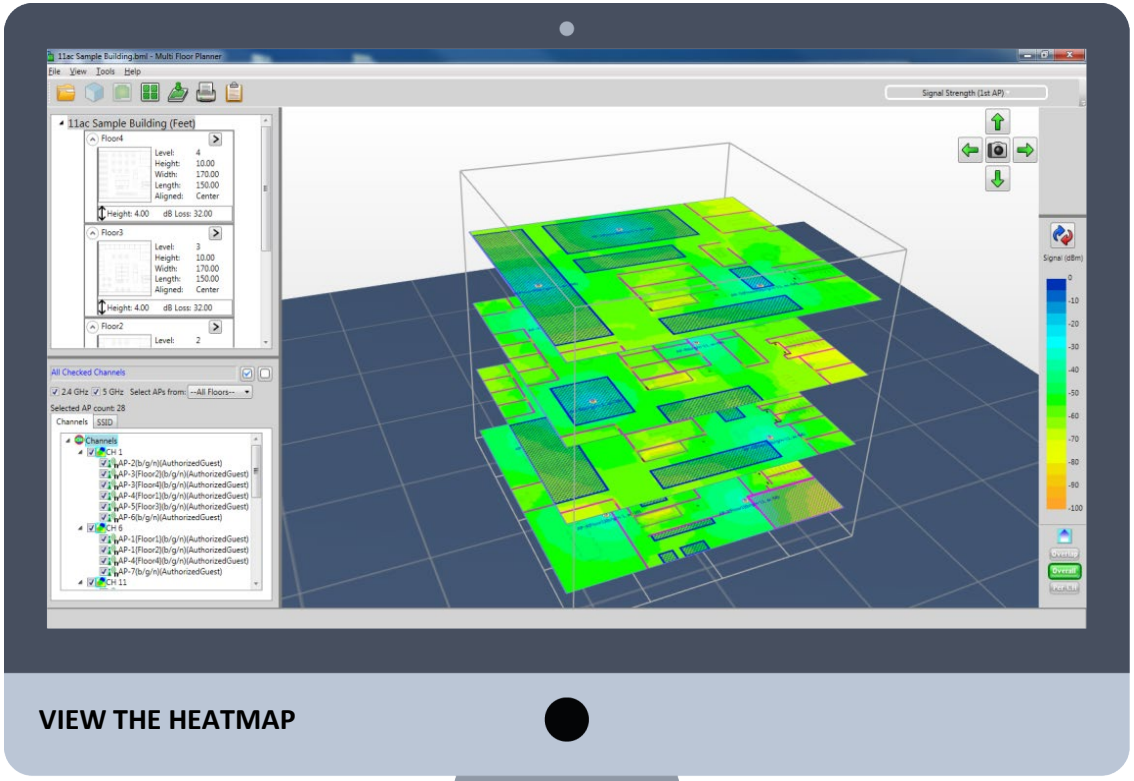
Using Planner is simple



Using Planner is simple

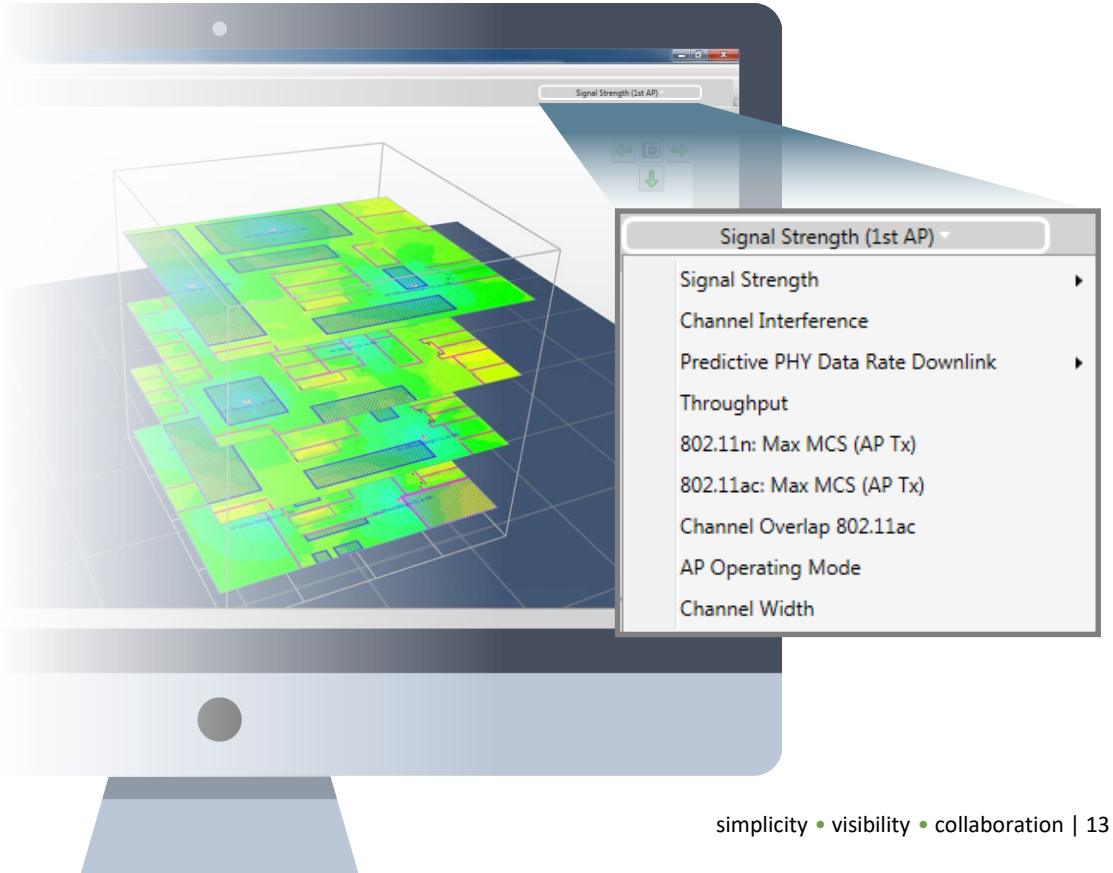


Using Planner is simple

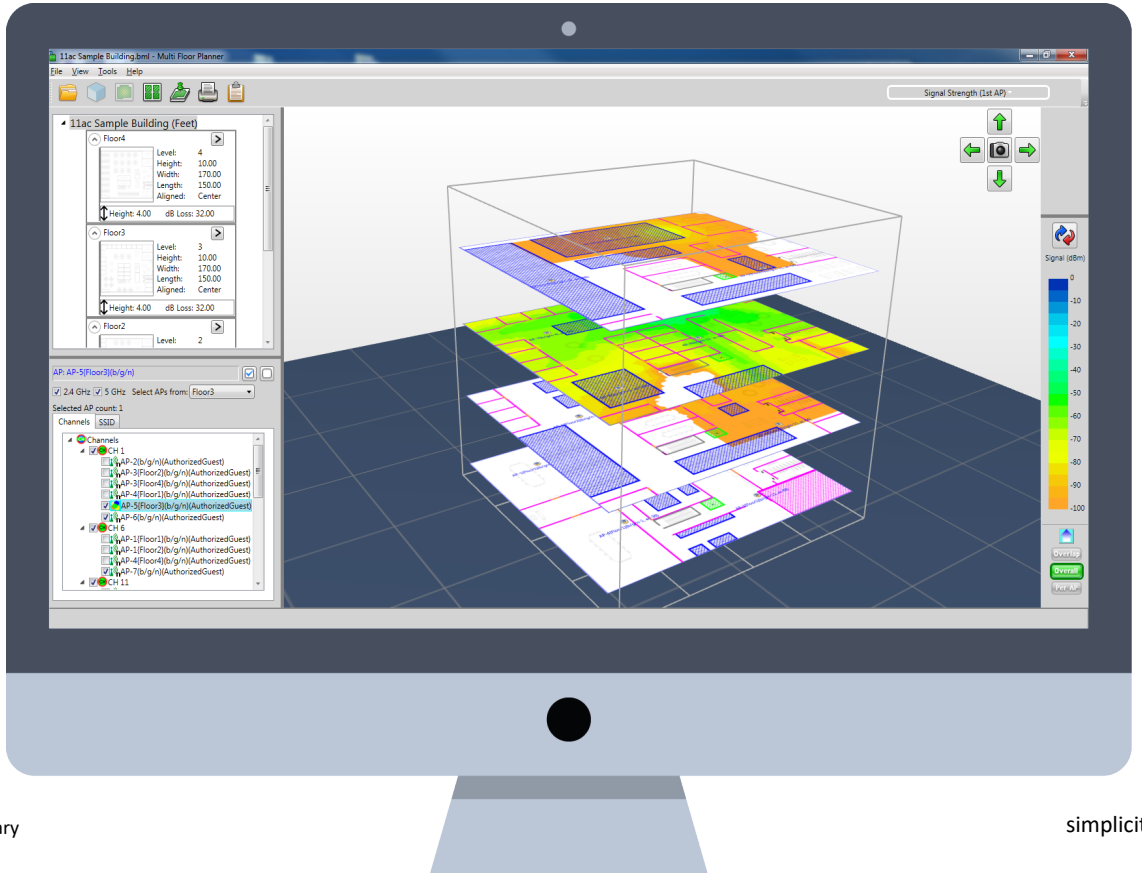


All the data you need

- **Heatmaps with more RF information than signal strength**
  - Co-channel interference
  - Predicted throughput
  - Predicted data rates
  - Overlapping channels
- **Heatmaps can also show config information**
  - AP operating mode
  - Channel width



3D Modelling helps analysis

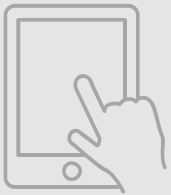


Remember

A SUCCESSFUL NETWORK WILL NEED TO BE PLANNED

Don’t rely on your infrastructure to figure it out

DON’T TRUST OLD PLANS



Technology and use changes

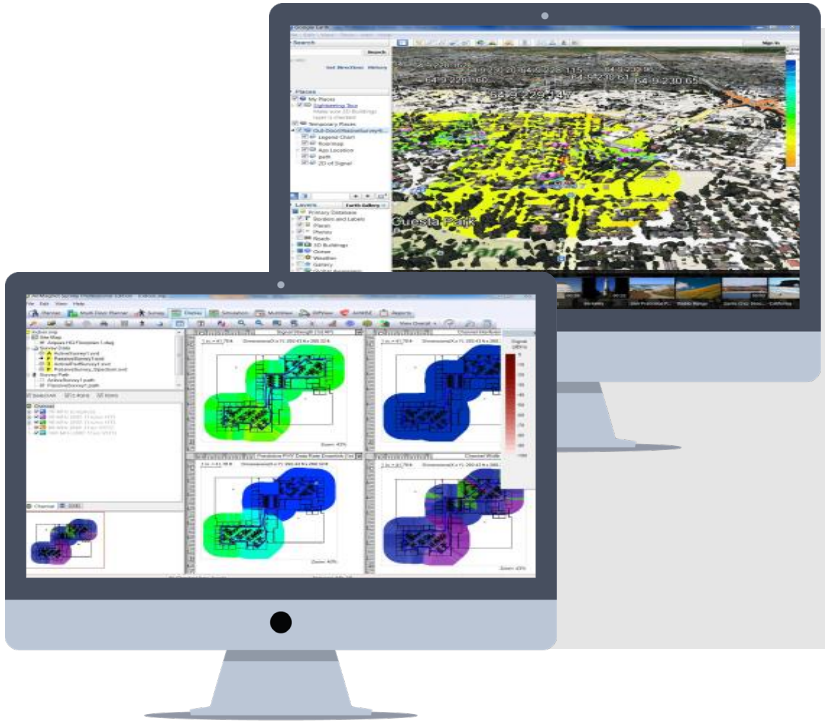
ANALYSIS SHOULD GO BEYOND SIGNAL STRENGTH

Model for all aspects of the network, from expected throughput to possible interference

VERIFY THE DEPLOYMENT

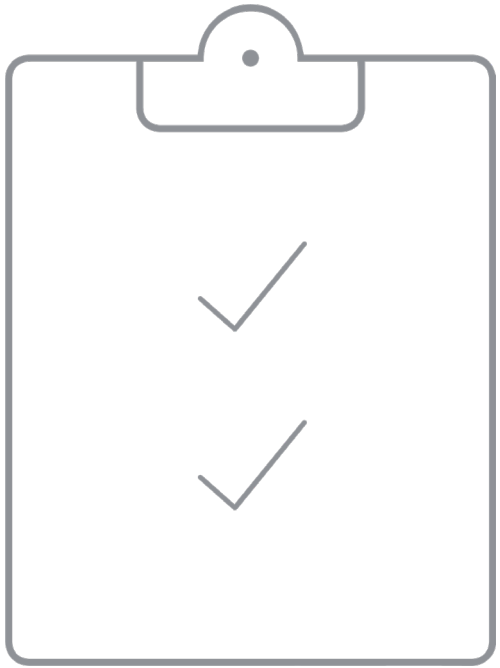
Surveying in AirMagnet Survey PRO

Validate the Network



- Design and deploy the most accurate indoor & outdoor wireless LAN network (802.11n/a/b/g/ac) correctly the first time and prevent costly rework & IT complaints
  - Collect real-world data by performing unique true end-user experience measurements
  - Minimize expensive wireless LAN performance impact due to RF interference sources by identifying interference sources in a single walk through
  - Simulate “What-if” scenarios to prevent or minimize costly repeat survey walks
- Confidently certify the network for any design/application requirements using AirWISE pass/fail assessment reports
- Customize reports enabling efficient hand over of results based on WLAN design/application requirements
- Free Android-based app for smartphones and tablets to design and validate BYOD-ready networks

Types of survey



Passive

- Records all APs heard
- Good for knowing the whole environment

Active

- Attaches to a specific network and passes data
- Good for validating network performance

Spectrum

- Records interferers on the map
- Good for finding non-Wi-Fi impacts

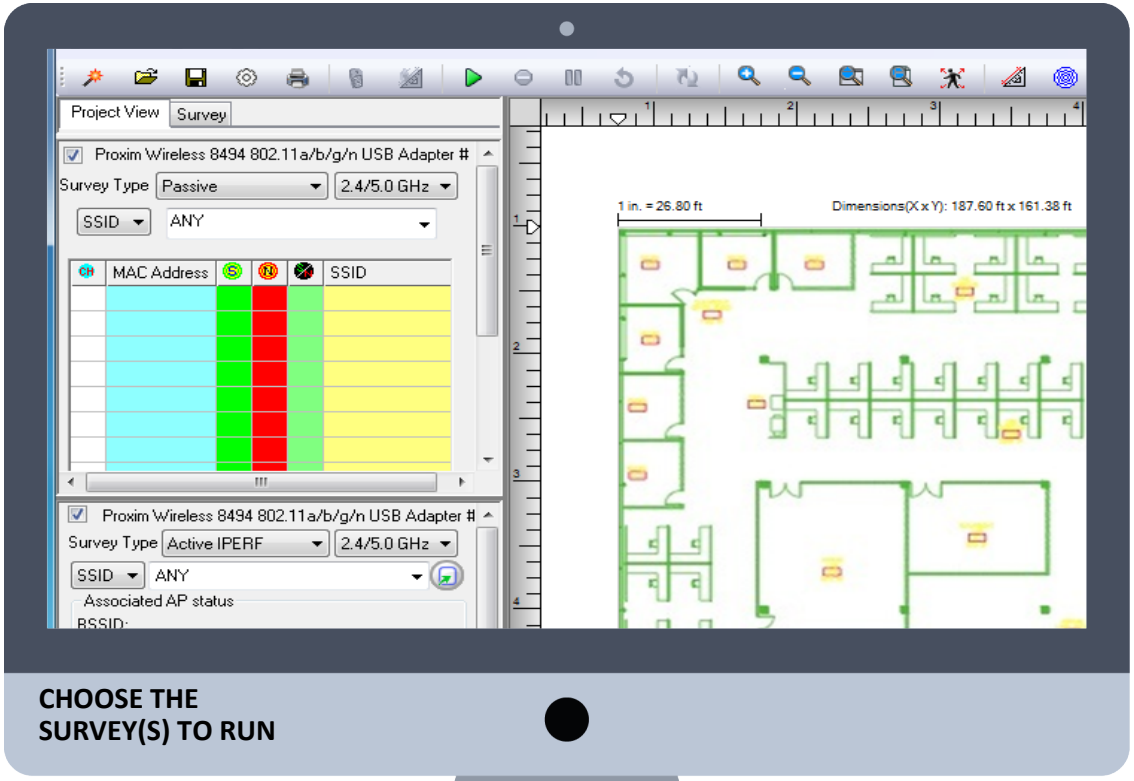
Voice Over Wi-Fi

- Measures the quality of an active call
- Good for validating Voice over Wi-Fi performance

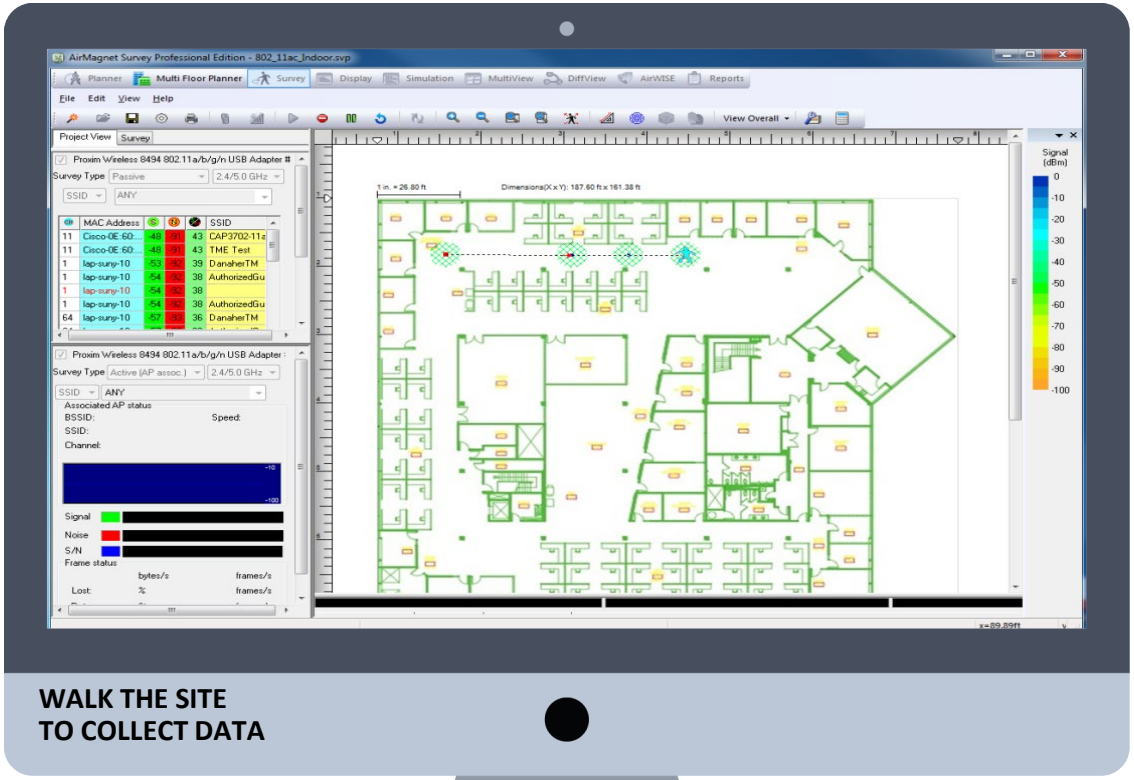
AirMagnet Survey PRO makes it easy

- Collects Passive, Active, and Spectrum survey data all on a single walkthrough
- AirWISE feature breaks down complicated heatmaps into simple Pass/Fail metrics
- View collected data in a variety of different views to fully understand the network characteristics

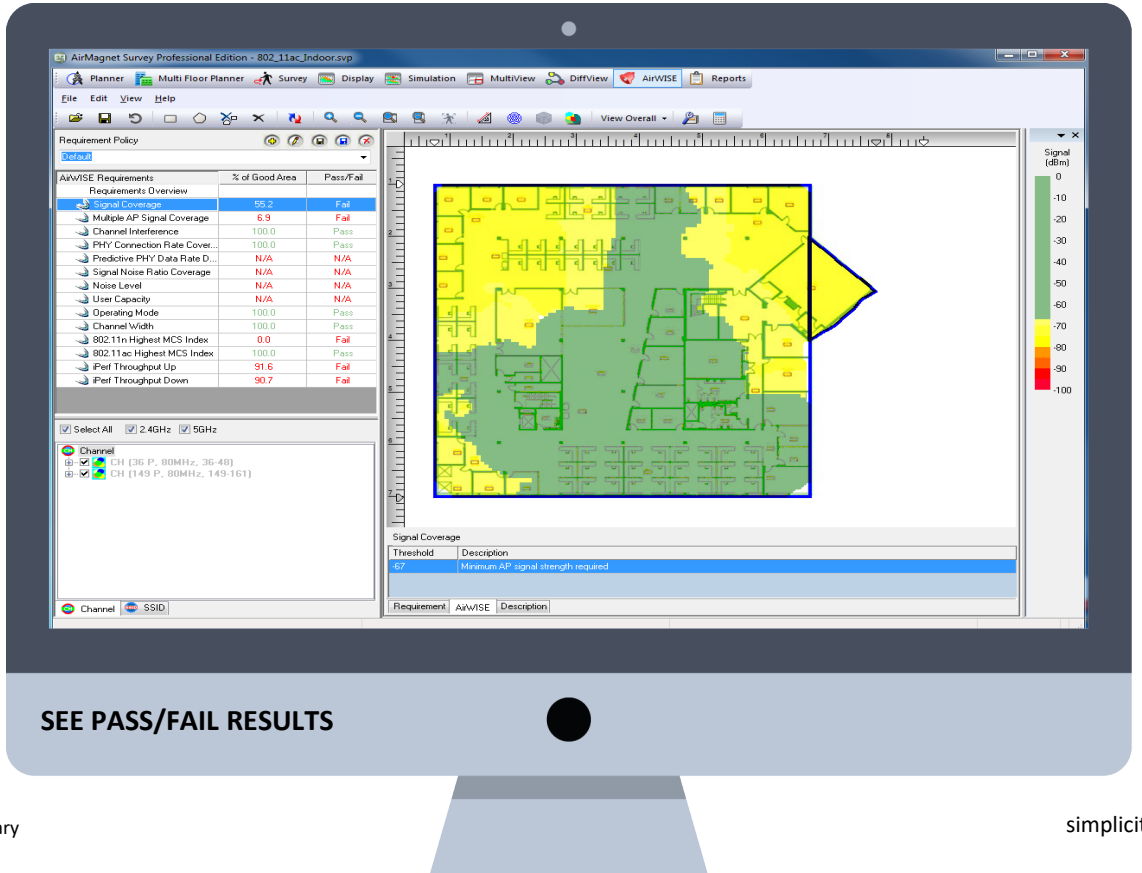
Performing a site survey



Performing a site survey



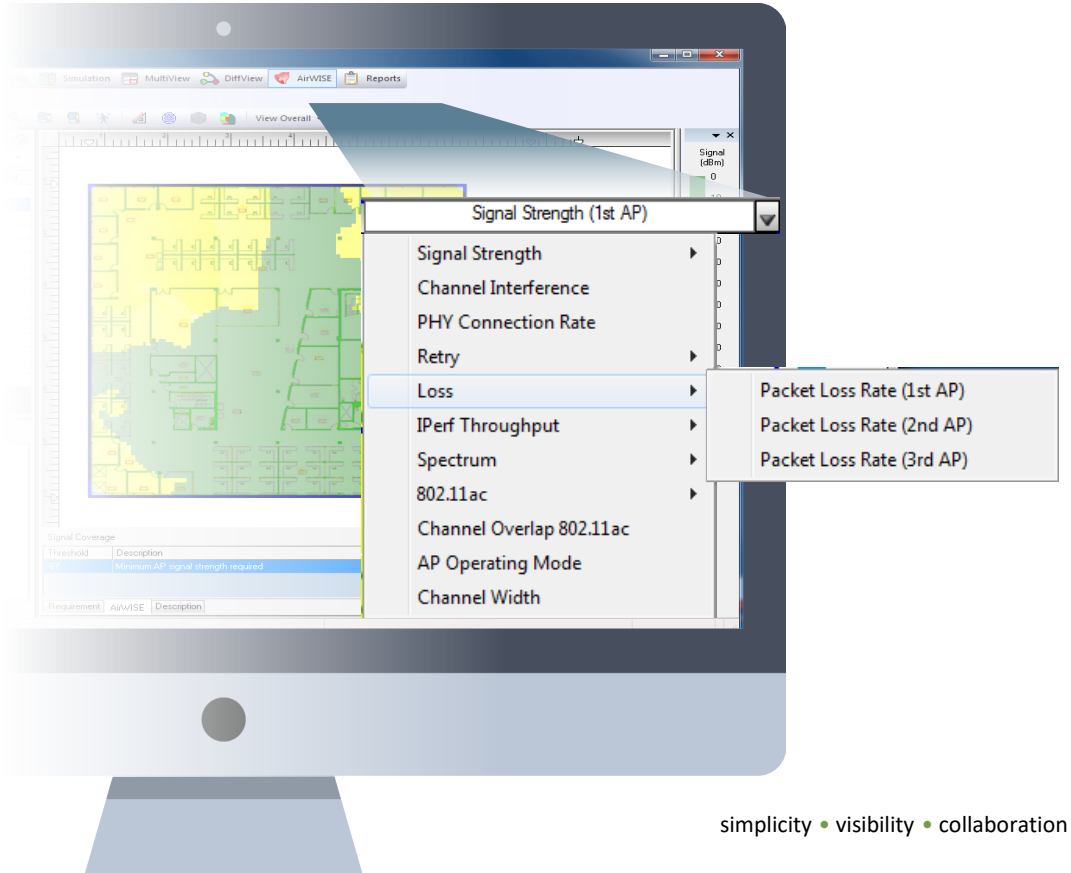
Performing a site survey



SEE PASS/FAIL RESULTS

See heatmaps for all collected data

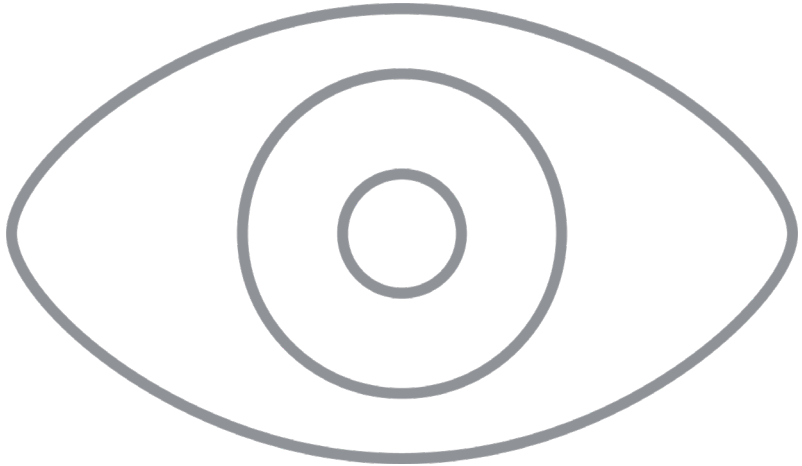
- **Display all the data collected**
  - Signal strength
  - Throughput
  - Spectrum
- **See technology specific maps**
  - AP operating modes
  - 802.11ac rates
  - Wide Channel overlap



TROUBLESHOOT EFFECTIVELY

Wireless Troubleshooting

What level of Network Visibility do you have?



- **At the AP**
  - AP load
  - Aggregate throughput
  - SNR at the AP
- **Everywhere else**
  - Nothing

AirMagnet makes it easy

- The Infrastructure can only guess at what a client is experiencing that may cause issues
- APs in the ceiling are missing out on reality as many common interfering devices are at ground level
- The infrastructure can’t reliably test itself for misconfiguration or installation issues
- The infrastructure only has a few nobs to adjust: Power and Channel, but what if these can’t fix the issue?
- The Infrastructure’s ability to correctly classify non-Wi-Fi interferers is highly limited

AirMagnet WiFi Analyzer PRO

Industry's "de-facto" tool to Troubleshoot, Analyze, and Audit enterprise 802.11 a/b/g/n/ac Wi-Fi networks

Capture all 802.11a/b/g/n/ac traffic

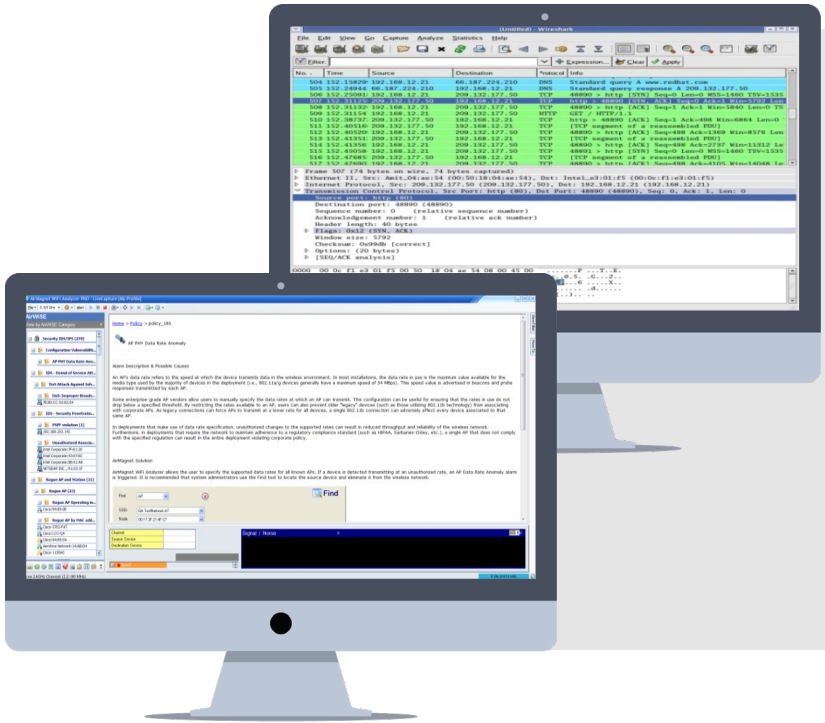
Industry's first 3x3 802.11ac packet capture

Capture entire RF sessions for replay and analysis

- Retain as hard evidence for post-capture troubleshooting and analysis
- Saved files can be shared between users for collaborative analysis
- Archive a copy as part of a "trip report" for issue resolutions

Troubleshoot quickly to root cause

Get instant answers with Airwise



No digging around in frames trying to figure out what's happening

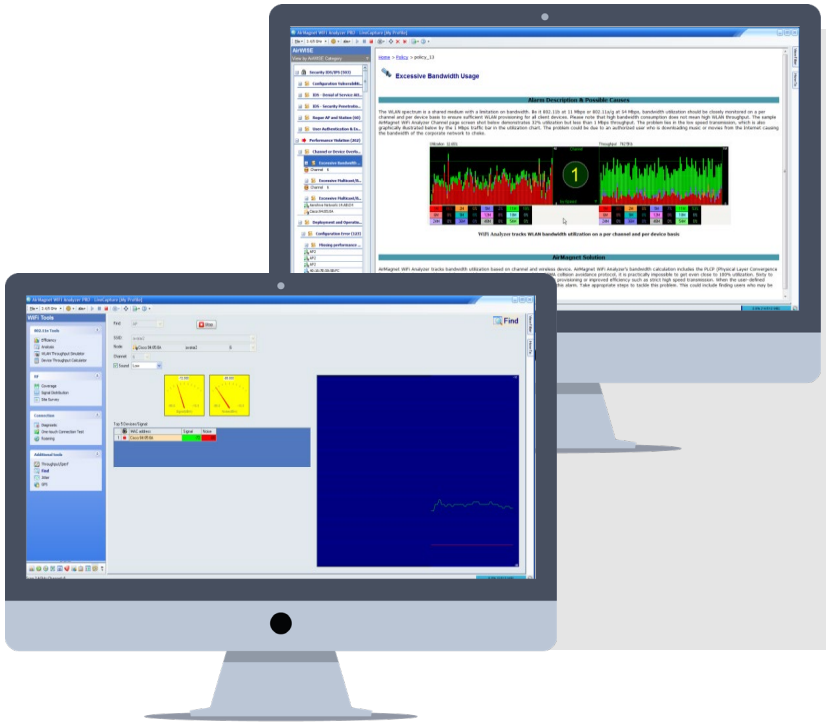
- Very time consuming
- Problems don't occur in contiguous frames
- Frames don't stand out for easy problem detection and resolution

Auto-categorized issue recognition for:

- Channel overload
- Device overload
- Traffic flow issues

Troubleshoot and resolve issues

Resolve issues quickly



AirWISE goes beyond root cause and recommends steps to solve the issue

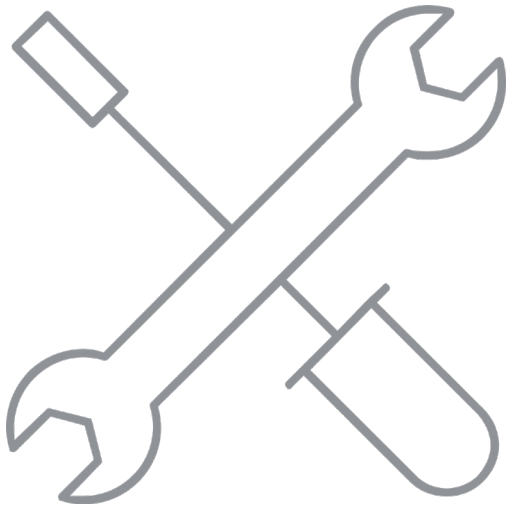
- Resolving issues made easy with clear resolution next steps

Integrated find tool enables a quick and easy way to track down culprit devices or interferers

- Get a rogue off your network ASAP
- Geiger counter method allows for an intuitive interface

Active troubleshooting toolkit

Actively test the network



1-touch connectivity test

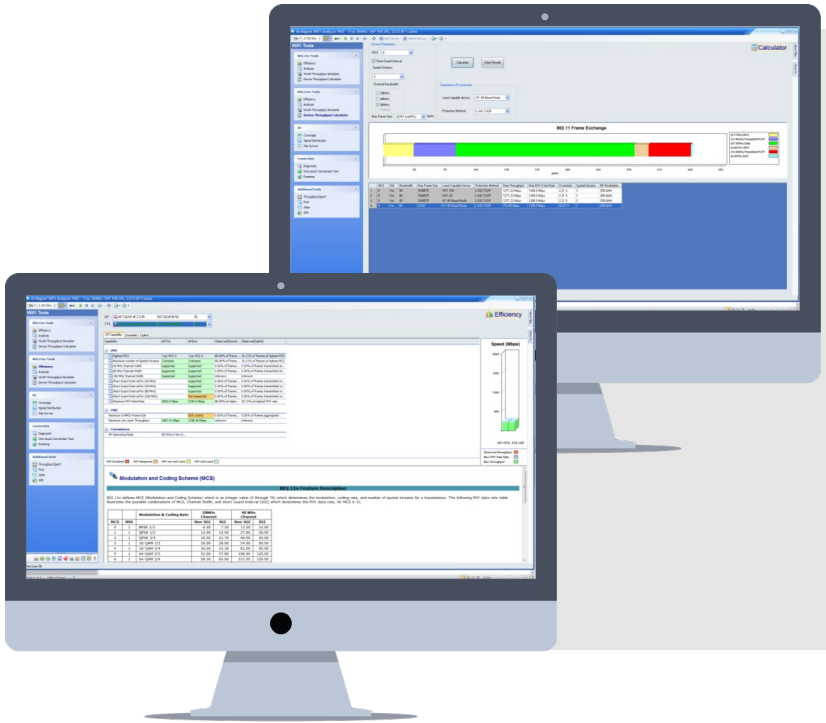
- Act like a client and connect to the network
- Validates network functions beyond the AP
  - DHCP
  - DNS
  - Gateway

Throughput/Iperf

- Load and test the network directly using Iperf
- Test a specific AP or characterize a location

Analyze with built-in calculator toolkit

Wireless tools for every occasion



Throughput Simulator

- Estimate capacity by simulating devices
- Calculate network throughput, utilization, and overhead under selected conditions

Efficiency & Analysis Tool

- Simulate conversations or analyze real time to see if your network is taking full advantage of options in the 11n & 11ac standards

Throughput Calculator

- Compare AP performance based on different types of clients connecting to it

Why is RF interference a threat?

Interference is invisible yet highly impactful

- RF emitting sources are present in every corporate environment
- Commonly implemented inside everyday devices and equipment
- Users don’t realize that many RF sources present in a typical environment operate in the same band as Wi-Fi devices
- Users don’t believe a so-called harmless device can cause problems with their Wi-Fi network

Who are RF interference sources?

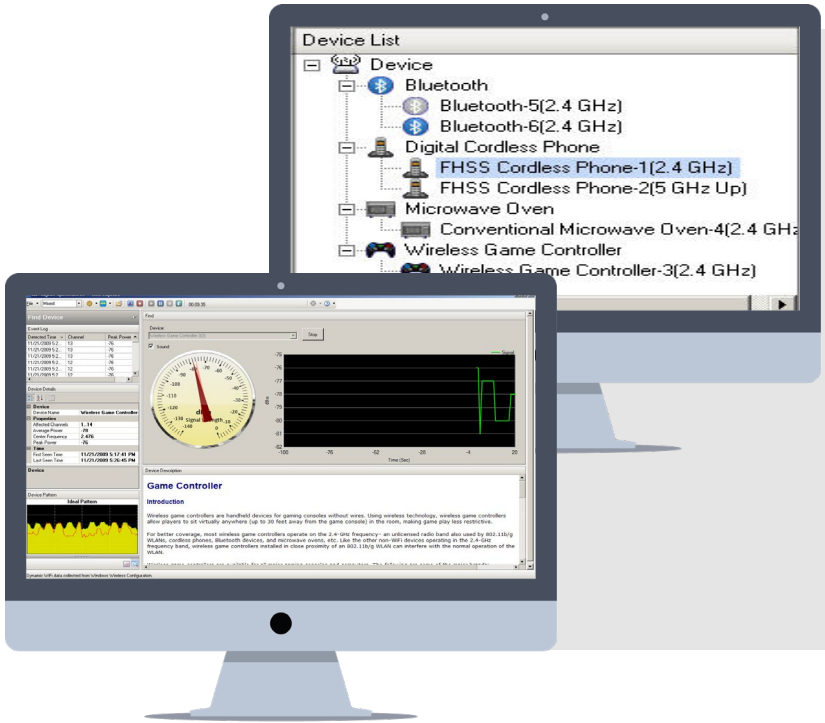
- Bluetooth
- Microwave Ovens
- Cordless phones
- Wireless Cameras
- Game controllers
- Baby Monitors
- Digital video devices
- Zigbee
- RF Jammers
- Many more…

AirMagnet Spectrum XT

Industry’s only USB based Professional Spectrum Analyzer that provides interferer identification for quicker and more accurate troubleshooting of performance problems

Detect, classify & locate

Built-in classification



Large built-in RF interferer detection and classification database

- Bluetooth, ZigBee, cordless phones, microwave ovens, wireless cameras, RF jammers, and many more

Detailed listing of interferer properties

- Peak and average power
- First and last seen time
- Impacted channels
- And many more…

Device locator tool

- Physically locate interference sources

Solving the “New Interferer” dilemma

Interference is invisible yet highly impactful

Spectrum Analyzers need continuous expansion to their RF interferer classification database

- Increase in number and types of RF interferers in the WLAN band on a daily basis
- Users ignore the problem or use “trial and error” methods to classify the interferer on their own

Spectrum analysis tools need to detect and classify any interference source (known or unknown)

- Every environment has its own set of unique interference problems and sources
- It takes time for RF spectrum analyzer vendors to add new classifiers
- When users are unsure, they often ignore it or give up

“Zero-day” detection of RF interferers

No more looking at squiggly lines!

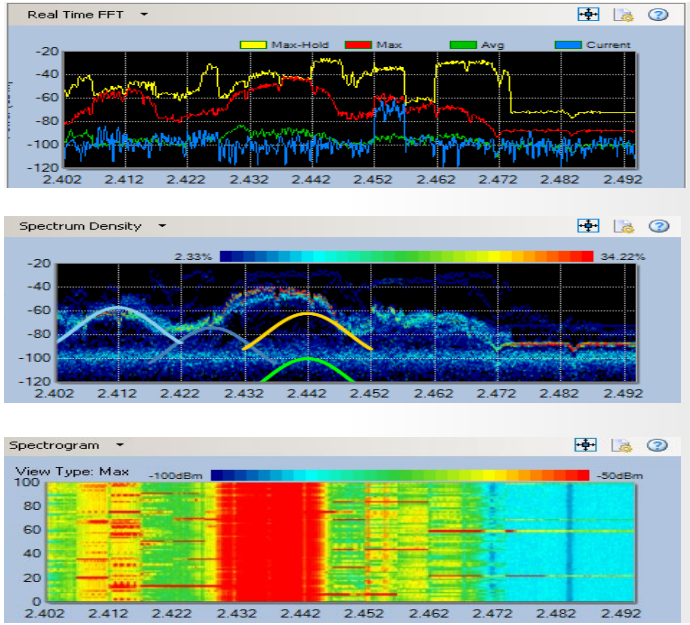
Unique technology to detect repeat RF energy patterns in the environment

- Repeat patterns indicate presence of a potential interferer

Allows users to create customized signatures for future alerting

- Instant response to any interference problem
- Independence from classification updates
- Automatic identification helps IT staff save hours per incident
  - Recover investment in AirMagnet Spectrum XT with just the detection of the unknown RF interferers

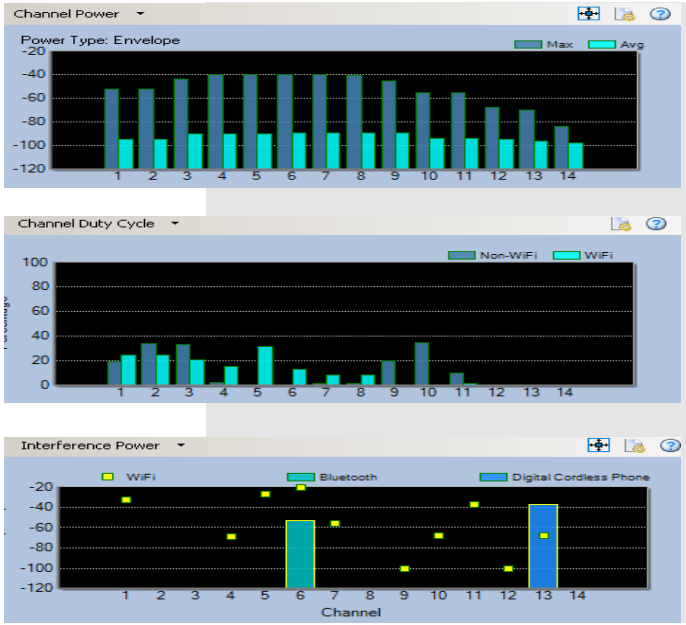
Professional RF spectrum analysis



Built-in set of real-time RF spectrum graphs

- Real-time FFT – The bedrock of any spectrum analyzer
  - Provides a real-time view into the RF energy in the environment with current, max, max hold and average RF energy levels
- Spectrum Density – A longer-term view displaying live information on the signals that have been common
  - Helps identify infrequent transmitters
- Spectrogram – A scrolling history of the RF environment
  - Helps visualize intermittent spikes or bursts of RF energy that may be causing WLAN problems

Professional RF spectrum analysis



Built-in set of real-time RF spectrum graphs

- Channel Power – Shows maximum and average power levels across the band
  - Gives insight into RF energy impact by channel
- Channel Duty Cycle – Tells you just how often an interfering signal is present
  - The higher the duty cycle, the more impactful to the wireless network
- Interference Power – Shows average power readings of interfering devices
  - Gives insight into which devices are contributing to high channel power

Prioritize with Wi-Fi impact analysis

Visualize the impact of Interference on WLAN performance

- Combines RF spectrum analysis with WLAN traffic/device analysis
- Quicker and more efficient troubleshooting of WLAN problems

Built-in unique real-time WLAN charts

- Real-time WLAN charts
  - AP Signal Strength
  - Channels by Speed/Address/Media
  - Top 10 APs by CRCs/Retry
  - Channel SNR, Errors/Retry, Utilization, Occupancy

Session recording

Capture, Record and Playback spectrum data

- Capture entire spectrum sessions for replay and analysis
  - Retain as hard evidence for post-capture investigation and analysis
  - Saved trace files can be shared between users for collaborative analysis and troubleshooting

Quickly navigate to identified interference events during playback

- Look at a list of events and click to move the recording to the event of interest, no more sitting through long capture files

“Pause” Live Capture

Instant Replay

- Play back the most recent spectrum information, as if it were being viewed live for the first time

Integration with Analyzer & Survey

AirMagnet WiFi Analyzer PRO

- View RF interference inside WiFi Analyzer
- Plan channel settings for your current and planned WLAN infrastructure

AirMagnet Survey PRO

- Collect RF spectrum data concurrent with a WLAN survey
- View heatmap of measured channel power levels
- Heatmap of locations on the floor where selected identified interferers are detected
- View RF interference sources during a survey

THANK YOU