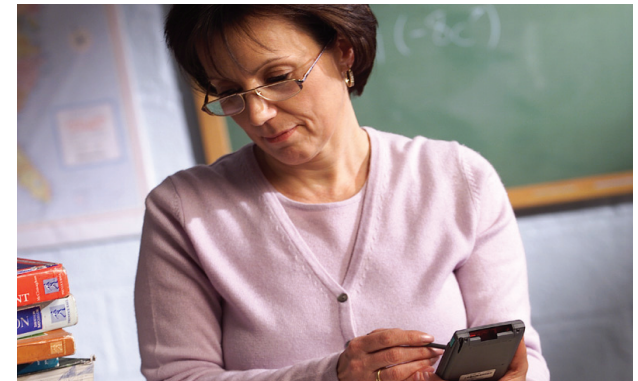# AIRDEFENSE SOLUTIONS
IMPROVE WLAN RELIABILITY AND REDUCE MANAGEMENT COST
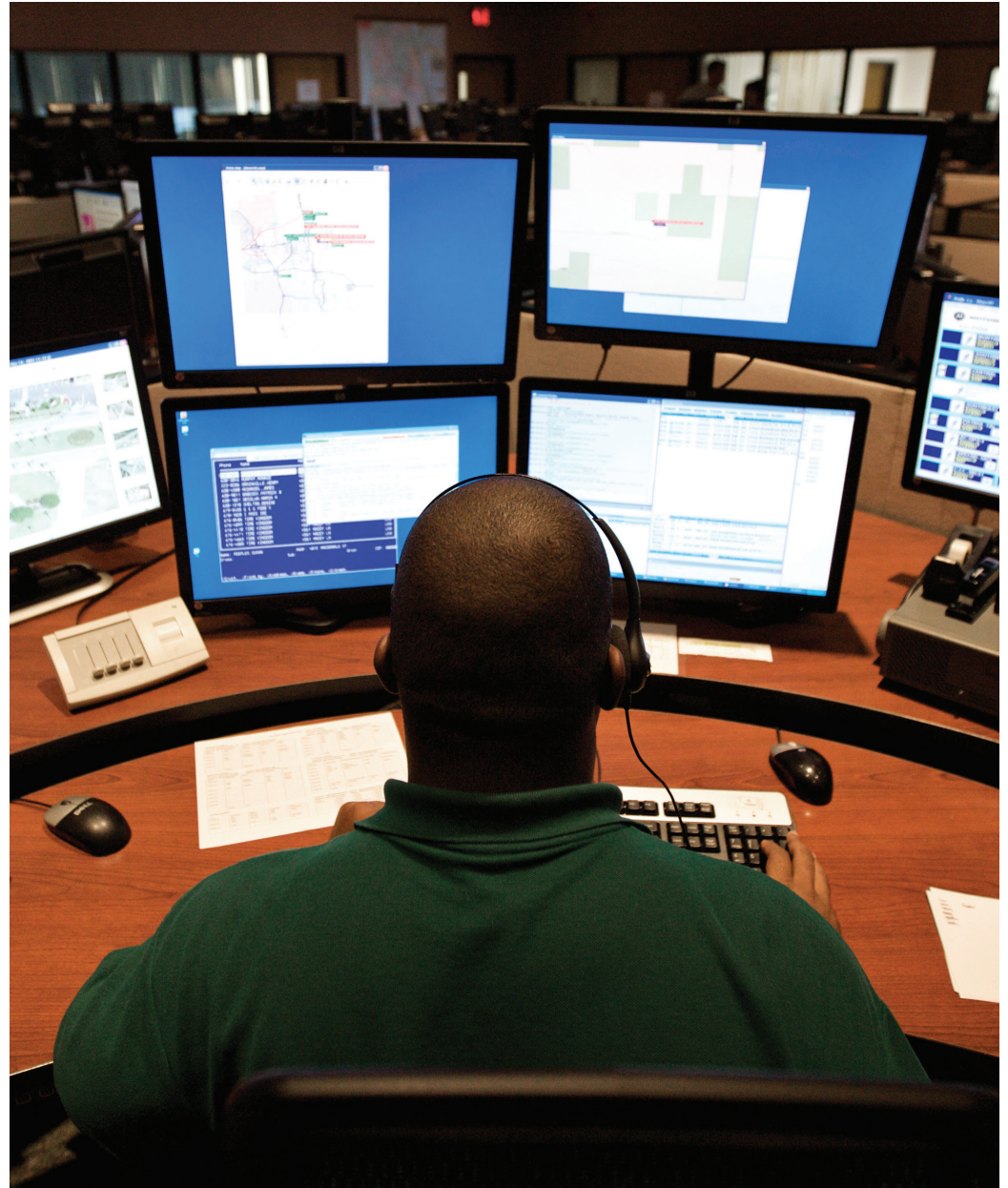
NETWORK ASSURANCE

THE CHALLENGE: ENSURE WIRELESS NETWORK PERFORMANCE AND AVAILABILITY

Wireless LANs help organizations like yours provide employees with the constant voice and data connection they need to maximize efficiency and productivity. As a result, the quality of the wireless connection and the performance of the wireless network are key to business continuity. But maintaining maximum WLAN performance generally requires a lot of manpower.

IT staff must closely monitor the network. When issues arise, staff must be able to identify and remedy wireless network issues before they impact users — initiatives that are difficult, expensive and for remote locations, sometimes physically impractical.

In addition, many variables make client connectivity problems difficult to troubleshoot. Pinpointing problems can take many hours, especially when the dispatch of a technician to a site is required. And with each new user, application and network modification, the hours involved in managing the performance of your wireless network increase — along with your support costs.

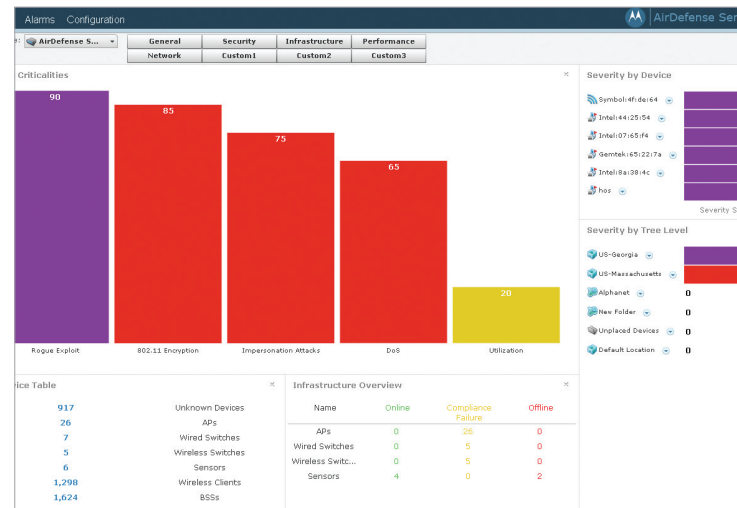# THE SOLUTION: PROACTIVE WIRELESS TROUBLESHOOTING

Motorola's AirDefense Network Assurance Solution is a set of vendor agnostic tools that give you full control of your WLAN operational performance, providing the solid network reliability and uptime required to fully realize the benefits of mobility. This powerful product suite provides the unmatched remote network and RF monitoring and troubleshooting capabilities required to proactively optimize wireless LAN performance. Rapidly analyze thousands of metrics and mountains of data to uncover trends that reveal network problems with rich reporting tools. And automate WLAN management to protect and improve performance with the ability to set and monitor performance policies.

Now, you have the visibility you need to spot and resolve issues before users are impacted. When user issues do occur, the same toolset enables rapid, remote identification and resolution of the problem — without dispatching a technician. The result? The real network assurance you need to maintain maximum network availability and performance — with less effort and cost.

FOUR EXTRAORDINARY TOOLS
One of the most advanced toolsets available today for wireless network performance management, the AirDefense Network Assurance Suite provides comprehensive visibility into the airspace throughout your entire network, including branch offices across town — or around the globe. With these four modules — Advanced Troubleshooting, Spectrum Analysis, LiveRF and Advanced Forensics — network administrators can:

- Remotely troubleshoot the connections, from the client device all the way to the application server
- Remotely identify sources of interference
- Visualize real-time wireless coverage heatmaps to troubleshoot specific applications
- Uncover trends that reveal complex or intermittent problems, and easily provide the data required for government and industry regulatory compliance
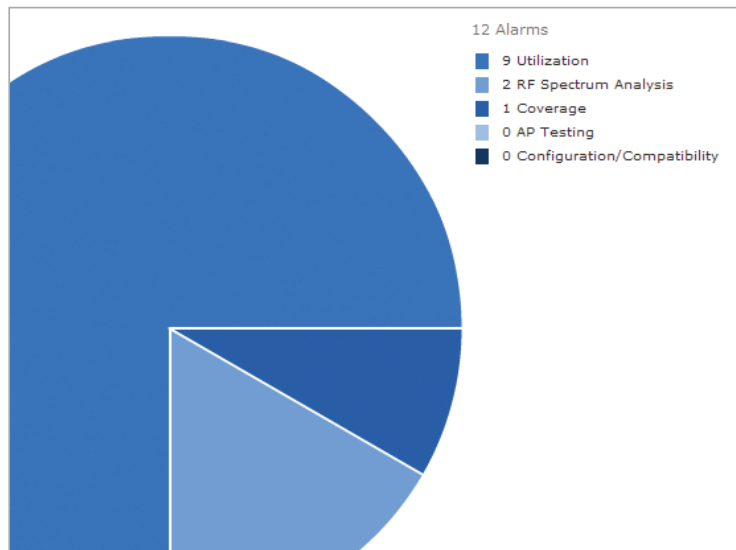
DELIVERING VALUE IN RETAIL

With our AirDefense Network Assurance Solution, retailers can make sure their WLAN is always available to support the solutions that help better serve customers, grow sales and reduce costs. For example, wireless Point of Sale (POS) technology — from mobile handheld computers to cash registers — allows retailers to easily and cost-effectively add and reconfigure POS stations as needed to address daily and seasonal traffic fluctuations. The result? Customers never need to wait long to complete their transaction, preventing abandoned sales. Wireless bar code scanning and RFID help retailers track the location of every article of inventory at any time, providing the inventory visibility and trending information required to ensure that customers find the product they are looking for on the shelves of the store. And with a mobile handheld computer, store associates can virtually address every customer need — without ever leaving the customer's side.

ADVANCED TROUBLESHOOTING

When users encounter network performance issues, finding the problem can be time consuming and costly. The trouble can be anywhere — the mobile device, the wireless network or the wired network. But the longer it takes to identify and resolve problems, the more your business is impacted, and the less confidence your users will have in your network.

The Motorola AirDefense Advanced Troubleshooting module is the industry's first and only toolset to perform expert analysis of wireless connectivity issues and end-to-end network testing from a remote location. This tool allows dedicated radios in Motorola access points to act as AirDefense sensors. The sensors actively test the entire communication path from the mobile device to the wireless access point through the network and into the application server, either verifying access or localizing the breakdown.

The robust solution is comprised of two key functions: the Connection Troubleshooting Wizard and Access Point Connectivity Testing.
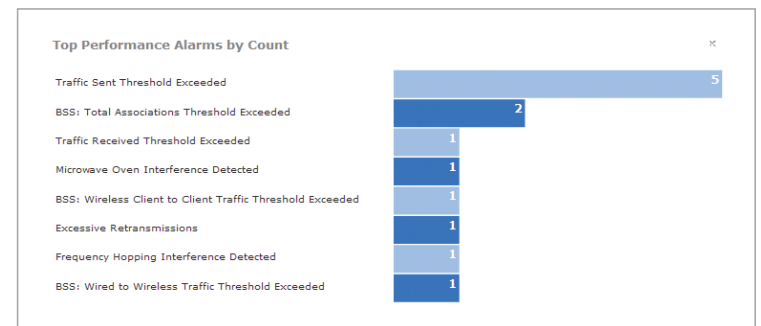
THE CONNECTION TROUBLESHOOTING WIZARD

This function allows helpdesk personnel with limited wireless networking expertise to easily identify the exact connectivity problem, and either resolve the issue or escalate the case to the right network engineer. The robust client connectivity troubleshooting analysis engine can quickly identify device level problems, wireless network health, wireless network availability, wireless network or client configuration and wired network connectivity issues. As a result, more network issues are resolved at the Tier-1 level, speeding up trouble call response times and reducing network support costs.
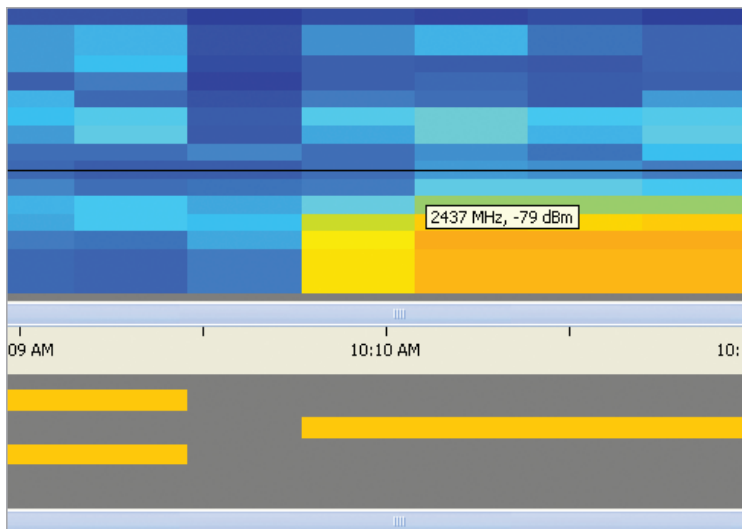
THE ACCESS POINT CONNECTIVITY TESTING

This flexible function examines the entire datapath of a specific wireless application by utilizing the radio of the wireless sensor to simulate a wireless client. Connectivity tests can be customized to verify the specific wireless and wired network configuration as well as application server availability. Tests can be run on a predefined schedule to keep your network up and running without exception — configuration changes that affect wireless applications are automatically identified and your network engineers instantly notified, before the impact on your users is widespread. Tests can also be run on demand to assist helpdesk workers in troubleshooting a specific user issue.

12 Alarms
- 9 Utilization
- 2 RF Spectrum Analysis
- 1 Coverage
- 0 AP Testing
- 0 Configuration/Compatibility

Top Performance Alarms by Count

Traffic Sent Threshold Exceeded	5
BSS: Total Associations Threshold Exceeded	2
Traffic Received Threshold Exceeded	1
Microwave Oven Interference Detected	1
BSS: Wireless Client to Client Traffic Threshold Exceeded	1
Excessive Retransmissions	1
Frequency Hopping Interference Detected	1
BSS: Wired to Wireless Traffic Threshold Exceeded	1

SPECTRUM ANALYSIS

Interference is often intermittent — and can be one of the most difficult wireless network issues to detect and resolve. The first software-only solution that can leverage existing sensor hardware, the Motorola AirDefense Spectrum Analysis module enables network administrators to remotely view the physical layer of the enterprise WLAN to identify and classify potential interference sources — from cordless phones and Bluetooth headsets to wireless cameras and microwave ovens. The ability to utilize the sensors you already have in place drives the cost of a spectrum analysis solution to a new low.
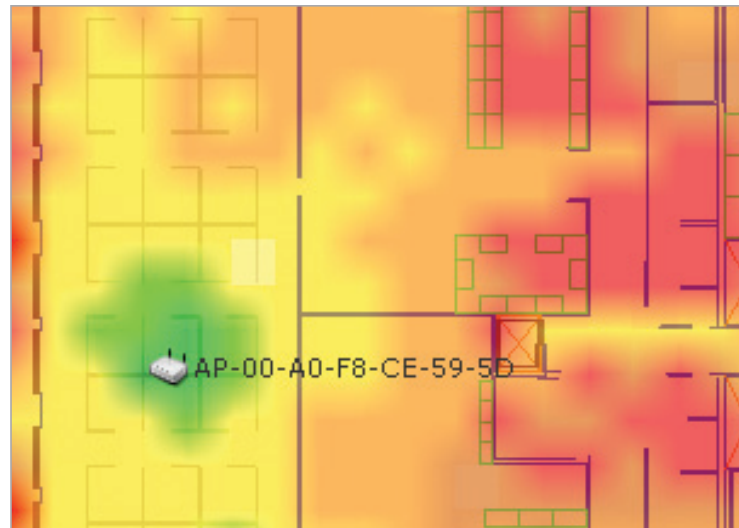
This flexible module offers two modes of operation. Administrators can monitor the spectrum on demand with all sensor resources to help troubleshoot a specific issue. In addition, spectrum analysis can be configured to automatically run at pre-set times to periodically check for interference sources. In the event interference is detected, administrators receive an alert to enable proactive resolution — before users are impacted.

LiveRF

To ensure the availability of the WLAN, administrators must monitor and address the impact of constantly changing utilization levels, transient sources of interference and physical obstructions. To address these challenges, the LiveRF module equips administrators with a remote assessment of network coverage and a real time visualization of the wireless network. Real-time maps of RF signal propagation and application coverage allow administrators to proactively protect performance and troubleshoot issues. Background monitoring and alarms ensure coverage problems are detected prior to impacting end users, while real-time visualizations enable rapid identification and resolution of network issues problems.

As part of Motorola's One Point Wireless interoperability approach, LiveRF is also designed to leverage the plans generated by Motorola LANPlanner during the design and site-survey stages of WLAN deployment. The modeled floor plans can be exported from LANPlanner directly into the AirDefense LiveRF module to enhance visualizations and device locating functionality.

DELIVERING VALUE IN EDUCATION

Schools depend on their WLANs to improve faculty productivity, student safety and the student learning experience. Our Network Assurance Solution makes sure the WLAN provides the high performance and always-available connection these applications require. Students enjoy the same pervasive high-speed Internet access they have at home inside the school campus, able to easily access on-line class materials and student services, check email and even visit with family on a video call. A myriad of applications helps teachers spend more time on teaching and less time on administrative paperwork — such as online testing, grading and attendance applications. Wireless video surveillance cameras allow security personnel to better monitor and respond to incidents on campus. And since the WLAN can remain operational when a disaster might impact service on a cellular network, educational institutes can send emergency messages as needed to faculty and administrators via email, a text message or a push-to-talk walkie-talkie style broadcast call.
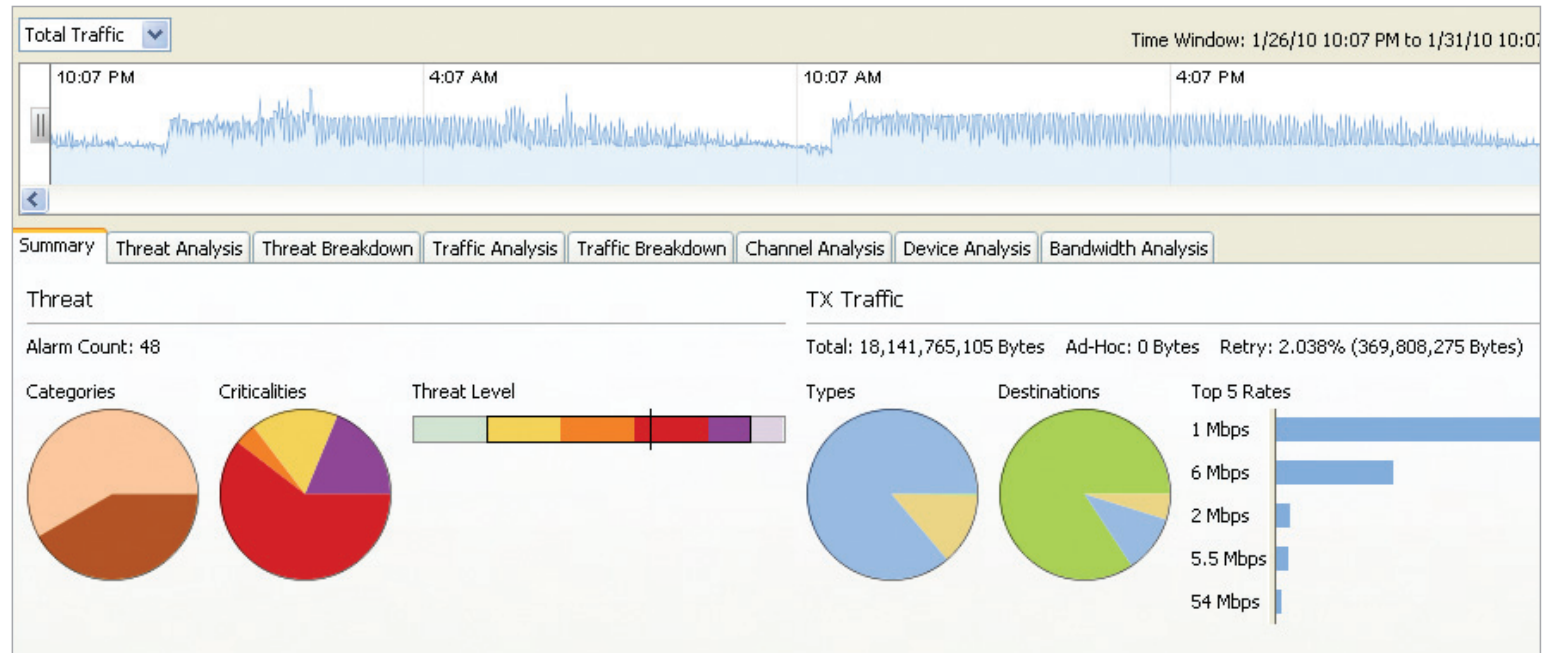
ADVANCED FORENSICS

Wireless events are transient by nature, presenting an enormous troubleshooting challenge. Without granular historical activity records, investigating complex and intermittent performance issues is virtually impossible.

Advanced Forensics provides administrators the ability to rewind and review detailed records of wireless activity, providing valuable historical insights into complex wireless performance issues. Administrators can view the activity of a poorly performing device over a period of days or months, drilling down to minute-by-minute wireless activity.

The system maintains 325 data points per minute for every wireless device. Statistics stored by the system include critical device communication and traffic information, channel utilization, signal and noise characteristics, device activity and traffic flow. Trending and analysis can be executed over

a configurable time window. And the system can re-create a timeline, a sequence of events and specific instances when performance problems occurred. Capabilities include:

- **Historical association analysis.** Easily identify imbalances, including APs that are intermittently over- or under-utilized.
- **Historical traffic analysis.** Quickly isolate and identify the issue driving anomalous behaviors, such as connectivity loss when a microwave oven is in operation.
- **Historical channel analysis.** Determine spare channel capacity to help optimize WLAN frequency planning.
- **Historical location tracking.** Determine the physical location of a device over time, identifying hot zones where the device typically operates, as well as roaming trajectories for mobile clients.
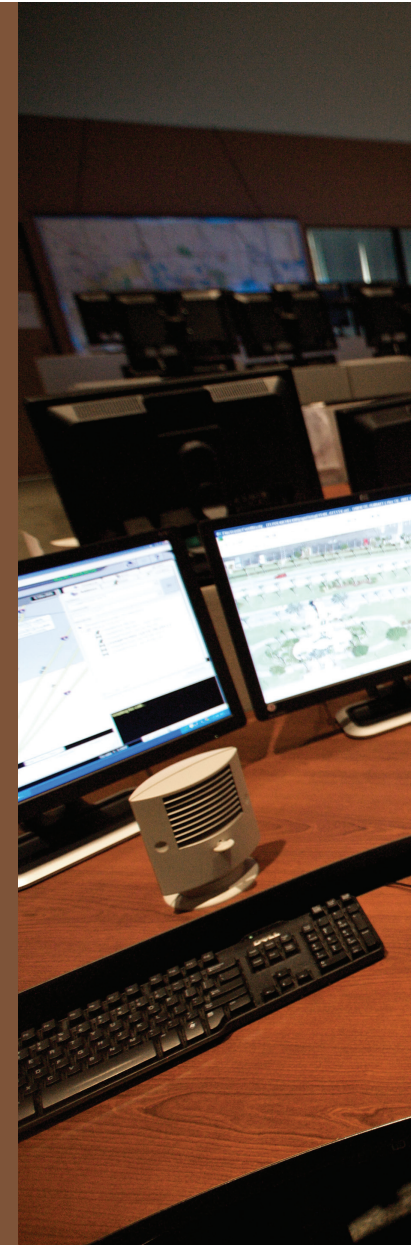
KEEP YOUR INVESTMENT UP TO DATE WITH SOFTWARE SUPPORT

While our AirDefense Network Assurance Solution will keep your WLAN operating at peak performance, our Software Support will help keep this valuable WLAN management solution up, running and current. Instant access to software releases keeps your software up to date with minimal effort — and minimal cost. Priority call handling ensures that your calls are immediately routed to a technical specialist, complete with a defined escalation path, helping you get the answers you need — when you need them. And an online self-service web portal provides around-the-clock anytime anywhere access to essential support tools and resources — including updates and patches, product documentation, release notes and more.

PROTECT YOUR WIRELESS LAN INVESTMENT

Motorola AirDefense provides organizations with industry-leading WLAN security and network management solutions. AirDefense solutions satisfy regulatory audit requirements, provide 24/7 monitoring, simplify management of multi-vendor network deployments and enable remote troubleshooting of network performance. RF sensors or dedicated access point radios work with the intelligent analytics of a central console to provide gap-free security, comprehensive intrusion prevention and automatic threat mitigation. The Infrastructure Management solution ensures consistency in configuration and compliance with policies, while reducing device and model specific expertise required by network administrators. Instead of managing multiple systems, administrators have a centralized management console to update device configurations and firmware, monitor device status, capture faults, as well as to audit and automatically correct device configuration issues. The Network Assurance suite includes analysis and troubleshooting tools that allow organizations to proactively optimize wireless LAN performance as well as remotely troubleshoot RF problems.

GET PROACTIVE

To be truly useful, your network must be ready for business not only wherever you are, but whenever you are. With the AirDefense Network Assurance Solution, you can have the tools you need to manage your network's performance and availability proactively – and keep your business moving forward with less effort, lower cost and greater confidence.

To learn how the AirDefense Network Assurance Solution can help you protect your wireless LAN investment, please visit us online at motorola.com/wms or access our global directory at www.motorola.com/enterprisemobility/contactus.

SYSTEM REQUIREMENTS FOR MOTOROLA SOFTWARE SOLUTIONS

An AirDefense server appliance is required to run the AirDefense Services Platform and all AirDefense modules. The server appliance is a true plug-and-play system with a hardened operating system, optimized database, and application software included.

Current model options include:

* Model 1252
* Model 3652
* Model 4250

Please refer to Motorola AirDefense server appliance sheets for details on specific models.

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