



WiNG 5 WIRELESS LAN OPTIMIZE THE PERFORMANCE OF WI-FI ENABLED SMARTPHONES AND TABLETS

WiNG 5 DELIVERS BETTER QUALITY OF EXPERIENCE



Every day, wireless devices – some approved, some not – come through the doors of your enterprise in the pockets, briefcases and backpacks of your employees and may simply “appear” on your network. While this fact may not surprise you, the challenges to your enterprise IT policy remain. Whether you like it or not, employees prefer to use their own mobile devices for work-related tasks and are doing so in record numbers.

Can your wireless network infrastructure handle the growing numbers of tablets, smartphones, and eReaders taking significant bandwidth bites out of your network? Do you have the right solutions and policies in place to grant more freedom of device choice while securing and optimizing their performance? The choices you make now will directly impact the quality of connectivity you deliver as the number of wireless devices on your network grows. Your infrastructure matters.

POWER IN NUMBERS

- IDC reports that twice as many [smartphones](#) and tablets, nearly all with [Wi-Fi](#), will ship compared to laptops this year.
- The number of Wi-Fi certified handsets in 2010 was almost 10 times the number certified in 2007, according to the Wi-Fi Alliance.
- Apple recently announced it has reached 15 billion downloads from its App Store.
- Google reports that the number of Android apps downloaded now exceeds 4.5 billion.
- A Motorola Solutions survey of IT professionals in companies with more than 1,000 employees revealed that 61 percent of enterprises have seen an increase in employees using their own devices for work-related tasks.
- By the end of 2011, more than 50 percent of the U.S. population will use smartphones – ABI Research.



TO SERVE AND PROTECT

Despite the inherent risks, enterprises in virtually all industries are taking the wireless plunge in greater numbers than ever before. They simply have to. Customer and employee expectations continue to drive this trend as a result of the rich application experiences they've come to enjoy outside the workplace. By the end of this year, ABI Research projects more than 50 percent of the U.S. population will be carrying smartphones and by 2014, 90 percent of them will be Wi-Fi capable. To accommodate this growth, your network will need the intelligence, bandwidth and agility to do more.

The good news is that with smart, cost-effective wireless infrastructure investments, not only can you scale quickly to secure the growing number of devices you serve, but also optimize their performance. To do it right takes advanced planning, proper configuration, enforceable security policies and dynamic network management capabilities. And a cost-effective, easy-to-deploy wireless network solution to make it work.

BUILDING THE RIGHT PATH

Ensuring your network can accommodate increasing demand for wireless access and still deliver reliable coverage and performance takes planning and the right wireless LAN solution. As the use of wireless applications grow, so do your security, reliability and capacity challenges. How you configure your network

is key to the performance of all network devices. Current 802.11n WLAN solutions, like ours, provide higher throughput and better coverage. But fair warning, they are not all created equal and what you don't know, could hurt you.

Our WiNG 5 solution makes it easy to extend your wireless capabilities and users. One WiNG 5 controller can now efficiently manage up to 10,000 APs and reliably connect hundreds of thousands of users. Proper RF planning and network configuration directly impact network device performance and management.

Some important tips:

- **Configure 2.4 GHz for 20 MHz and three non-overlapping channels**

Having three non-overlapping 20 MHz channels provides greater flexibility for access point placement and Wireless LAN design than one 40 MHz channel and one 20 MHz channel. Maintaining three 20 MHz channels will help you better optimize wireless capacity and coverage.

- **Disable lower data rates in 2.4 GHz**

When legacy 802.11b clients communicate on the WLAN, they negatively impact Wireless LAN performance. If you can, consider disabling the lower 2.4 GHz data rates on your Wireless LAN (such as 1 and 2 Mbps). Data rates can be adjusted through the WiNG 5 Wireless LAN controller.

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- **Enable Smart Band control**

Encourage dual-band clients to operate in the 5 GHz frequency. With eight times the spectrum of 2.4 GHz, it is typically less congested. WiNG 5 steers 5 GHz capable clients to use the 5 GHz bands, helping free 2.4 GHz bands for single-band devices such as the Apple iPhone 4, VoWLAN phones and older laptops.

- **Give high throughput client preference in airtime fairness**

This allows client preference to be dictated by higher data rates, such as 11n optimized devices like iPad clients. The WiNG 5 AP keeps track of the capabilities of various clients and their current connection data rates and ensures that clients using lower data rates (which reduces overall performance of the cell) don't impact the clients using higher data rates.

- **Enable accelerated multicast and IGMP snooping**

By delivering higher data rates to one client at a time, WiNG 5 dramatically improves video performance. IGMP snooping helps to prune the multicast traffic in a network by allowing it to be forwarded only to ports and clients that are interested in that particular multicast stream. WiNG 5 also supports accelerated multicast which converts multicast addressed data frames into directed frames to clients. These frames are transmitted at higher data rates and more reliably, ensuring better overall performance. For some applications that depend on pure multicast traffic, the administrator can leave the packets as multicast, but still prioritize them relative to other multicast traffic.

- **User profiles and rate limiting for QoS**

Rate limiting allows you to specify a limit for the aggregate WLAN traffic on a per radio basis. It can be used to make sure that guest WLAN users do not use more air time than is allowed by the WLAN rate limit. This can also work in conjunction with per Mobile Unit rate limiting providing finer control.

WiNG 5 role based firewall enables administrators to group users in various categories based on a number of parameters such as their type of access or type of device. Different user groups can then be assigned varied levels of access, enforced by the firewall. This allows administrators to not only control different levels of access for guest and corporate users, but fine grained control even within the pool of corporate users.

- **Manage guest access**

WiNG 5 can help the administrator segregate guest user traffic from corporate traffic. Devices that have not been authorized by corporate are detected and automatically placed on a restricted network vlan. The Administrator can then restrict traffic on this network based on either network addresses, or choose to rate-limit the traffic so it does not impact the resources available to corporate devices.

WELCOME MORE DEVICES IN, BUT KEEP NETWORK THREATS OUT

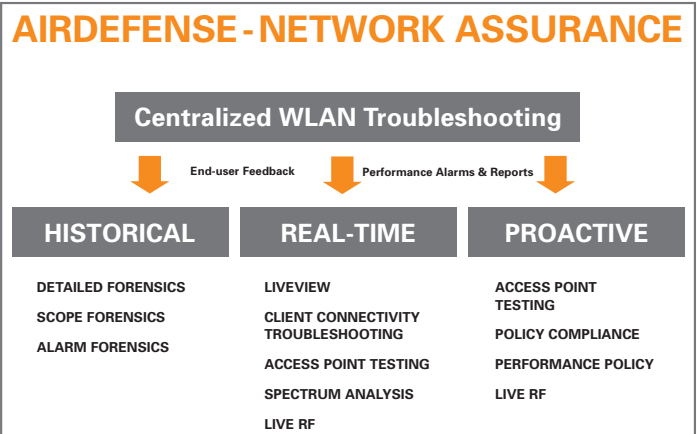
While your own enterprise network device policies may be moving toward a more inclusive model, security concerns still likely keep your entire IT team awake at night. And for good reason. Because as your network perimeter continues to grow beyond the four walls into the cloud, invaders await. They sit in parking lots, along roadways and on hilltops using crude technology to find gaps in your defense systems. They are using Netstumbler, Kismet, Aircrack-ng or others to beat WEP, WPA, intercept communications or even associate as a rogue AP. They want in and you need to ensure unprotected employee devices don't become the means to that end.

Hackers are smart. Enabling iPhones and Android devices on enterprise servers is risky because cybercriminals are sneaking Trojan-embedded apps onto the various marketplaces, which users are downloading to their devices and right into your networks. Integrated with our WiNG 5 architecture, our AirDefense solution prevents network intrusions by identifying potential threats and immediately dropping any data packet that appears suspicious. With a firewall right in the access point, AirDefense controls network access and enforces security policy even for sessions that originate and terminate in the same domain. Every Packet is analyzed and rules for how to deal with that package are applied, which not only achieves better video, voice and application performance, but exceptional threat detection and prevention.

INTELLIGENCE = OPTIMAL DEVICE PERFORMANCE

It bears repeating that when it comes to wireless capabilities, infrastructure matters. Intelligent solutions like ours:

- **Enable SMART RF** to first calibrate your network correctly and then dynamically respond to changing RF conditions – without device users being any the wiser. Seamless connectivity is achieved effortlessly with centralized troubleshooting and real-time integrated network management capabilities.



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- **Use real-time Spectrum Analysis** to view interference as it occurs on the network, identify and fix sources of interference, move channels and more.
- **Test APs to ensure client connectivity**, establish device and data prioritization and allow better bandwidth utilization for voice and multimedia traffic. This is all possible because WiNG 5 APs can talk to each other, lowering latency rates and dramatically improving device performance.

Unconnected devices mean unproductive employees and lost revenue. Our advanced troubleshooting tools take the guess work out of network management – not to mention the legwork of IT staff who would have to physically walk around to identify interference issues. Our system identifies and fixes connectivity issues before a user is even aware of them. If an AP goes down, traffic automatically reroutes to ensure no calls are dropped or applications are interrupted.

WiNG 5 WLAN BENEFITS

- **Distributes intelligence** between controllers and access points
- **Handles more** network traffic by avoiding controller bottlenecks
- **Keeps running** when localized wired or wireless network problems occur
- **Recovers quickly** and automatically from RF interference or coverage problems
- **Delivers flexibility** and choice in creating the right wireless network



IF YOU CAN'T BEAT THEM...

...plan, configure, secure and optimize their performance with our WiNG 5 Wireless LAN network solution. Will your network be ready for the next Wi-Fi device surge? Find out why less is more here.

ABOUT WIRELESS NETWORK SOLUTIONS

We deliver seamless connectivity that puts real-time information in customers' hands. Our proven solutions provide the agility needed to grow business or better protect and serve the public. Working seamlessly together with world-class devices, our portfolio includes indoor WLAN, outdoor wireless mesh, point-to-multipoint, point-to-point networks and voice over WLAN solutions. Combined with powerful software for wireless network design, security, management and troubleshooting, wireless network solutions deliver trusted networking and anywhere access to organizations across the globe.

For more information on wireless LAN solutions, please visit:

www.motorola.com/wlan.

For news and comments on the industry, join the conversation at

wirelesspulse.motorola.com.

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