MOTOROLA

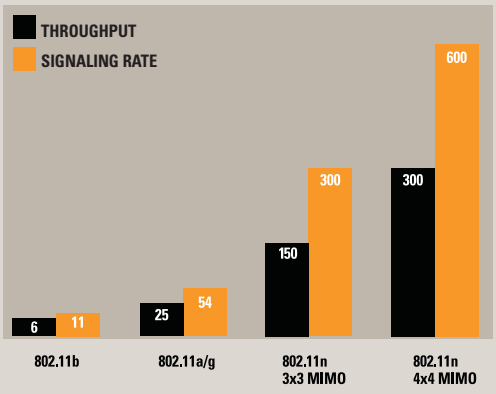
WiNG 5 WLAN SOLUTIONS
AND HOW THEY WORK

GROWING YOUR BUSINESS TO THE nth POWER

WIRELESS NETWORKING IS NO LONGER JUST A MATTER OF CONVENIENCE.

With VoIP, real-time shared information, streaming video and data-intensive applications, wireless networking is the way business gets done today, delivering mobility that users have come to expect.

The dawn of the 802.11n wireless standard can help you meet this ever growing demand with five times the data capacity and a ramp up in speed of up to 600 Mbps…providing the right supporting architecture is in place. Deploying 802.11n on existing legacy network architectures could be problematic, as high bandwidth applications could choke wireless controllers and the wired network – a situation that impacts the user experience.



Wi-Fi Performance Progression
With 802.11n, the wireless performance dramatically increases which may lead to congestion on dependent hub and spoke architectures.

GETTING READY FOR A NEW WIRELESS ERA

YOU NEED 11n POWER, NOT 11n CONGESTION.

That's why we've developed a new approach to network architecture. Our WiNG 5 Wireless LAN solutions distributes intelligence between controllers and access points and extends QoS, security and mobility services directly at your access points. Now your wireless network can be resilient to outages and prevent wireless controller bottlenecks. Each access point is network-aware and knows which routes are best given the network's load so you're ensured your download time is always rapid, your VoIP audio quality is always crisp and clear and your streaming videos are always smooth, no matter how high the network volume.

LESS WORRY. MORE TRUST.

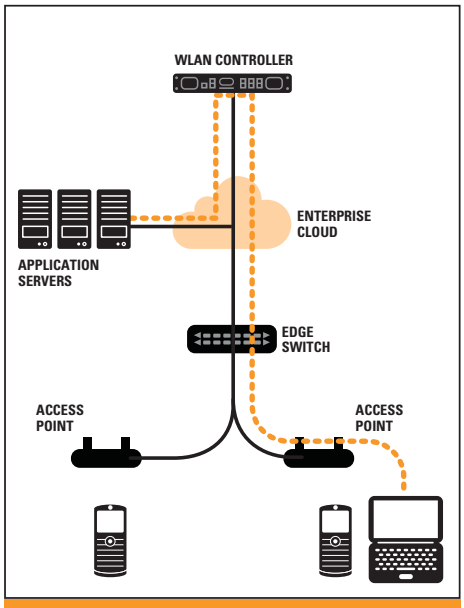
UNLIKE THE CENTRALIZED HUB-AND-SPOKE APPROACH, WING 5 WIRELESS LAN SOLUTIONS PROVIDE THE IDEAL ARCHITECTURE FOR OPTIMAL 802.11n PERFORMANCE.

That's because our third-generation infrastructure automatically adapts to meet your end-users' need for connectivity, quality and security. Traffic no longer has to make the unnecessary journey to a central controller, which means you can virtually cut in half the additional load 802.11n places on your network. The marked difference is in your experience: great application performance, solid security, and trusted connectivity, even at peak times.

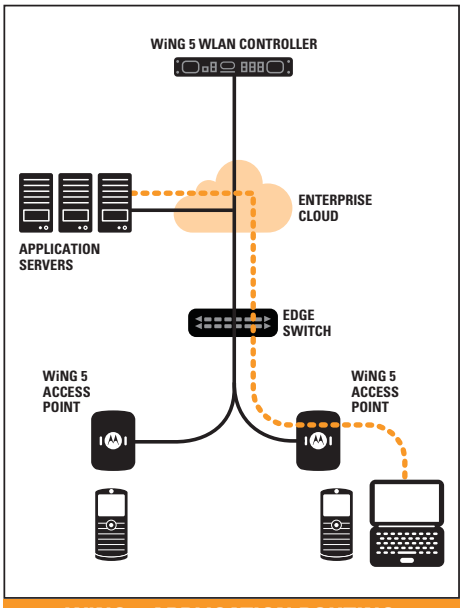
CAPACITY AND SPEED

Hub-and-Spoke WLAN:
Routing all traffic, QoS and security through the wireless controller burdens your wired network and limits the performance of your wireless network, especially during peak usage periods.

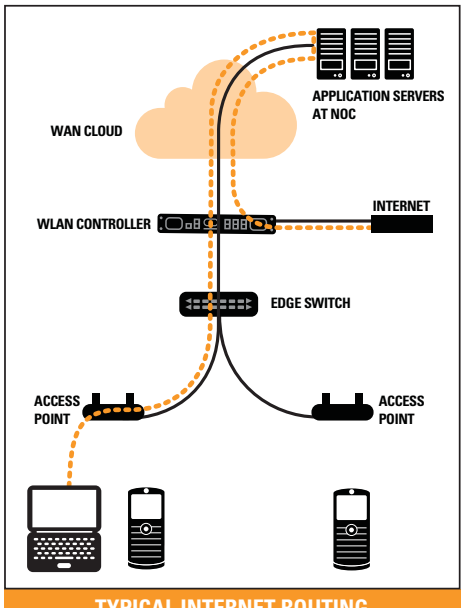
WiNG 5 WLAN:
Our network-aware access points collaborate to determine the optimal routing paths to avoid bottlenecks, jittery videos, or poor voice quality, while never sacrificing network security or mobility services.



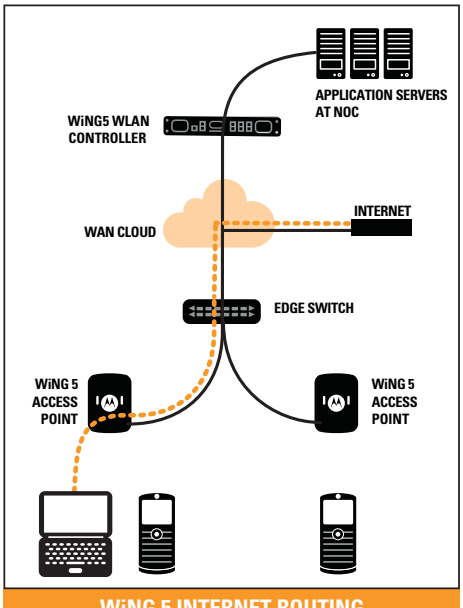
NETWORK CONGESTION



WiNG 5 APPLICATION ROUTING



TYPICAL INTERNET ROUTING



WiNG 5 INTERNET ROUTING

RELIABILITY AND QUALITY ASSURANCE

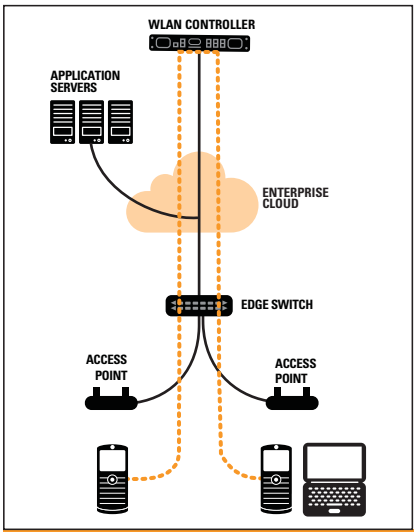
Hub-and-Spoke WLAN: The network depends on a single path for routing and control, making it vulnerable to single points of failure. Maintaining quality of experience remains a challenge during extreme conditions when users are competing for network resources.

WiNG 5 WLAN: With collaborative direct routing and QoS, security and mobility services delivered at the access point level, the network keeps users up and running, despite wireless controller or wired network problems.

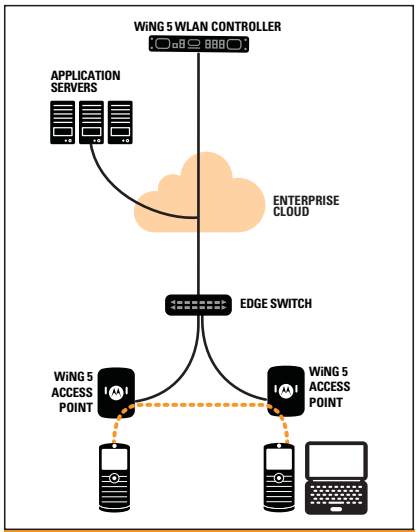
LATENCY

Hub-and-Spoke WLAN:
Latency-sensitive and bandwidth-hungry multimedia applications may experience jitter and poor quality, especially at peak usage periods.

WiNG 5 WLAN:
Shorter direct network paths with full QoS prioritization mean lower latency.



LATENCY FROM TYPICAL PEER TO PEER APPLICATION ROUTING



DIRECT PEER TO PEER CONNECTIONS

MAKING A DIFFERENCE WITH BETTER WIRELESS

As cloud based services and new critical wireless applications gain acceptance, it will be even more important to keep pace with a network that has the capacity and the resilience your users need.

WiNG 5 WIRELESS LAN SOLUTIONS CAN DELIVER ALL THAT AND MORE.

HEALTHCARE

In hospitals, constant connectivity is an absolute must. Everyday tasks, such as administering medicine or checking on patients, are crucial and in some cases, a matter of life or death.

WiNG 5 Wireless LAN Solutions provide rock-solid reliability so that your medical staff can fully trust their network connection at all times. Even in cases of WAN outages, it has the ability to switch over to 3G backhaul, so your users will still be connected. As an added bonus, it provides quick download times so that your staff can review medical images and other data-intensive files seamlessly.

EDUCATION

Classrooms are becoming more and more dependent on high-bandwidth applications like video, as lessons take advantage of multimedia content. Teachers may use conference applications to share their screen with an entire classroom or with a remote location.

Thanks to its rapid application delivery, WiNG 5 Wireless LAN solutions ensure that video and other applications work seamlessly, even on multiple machines. All students in the class will have the same high quality of experience.

RETAIL

Quick, helpful customer service can be a differentiator for retail outlets. Stores where sales associates can look up information for a customer or even complete a transaction on the spot will have an advantage.

Because of its distributed architecture, WiNG 5 Wireless LAN solutions can support any number of mobile devices on the network, providing the same application speed to each. Retailers can have confidence that they are offering the highest level of customer service even during the busiest shopping times, such as the holiday season.

TRANSPORTATION

Shipping and logistics warehouses depend on a rapid and smooth flow of pallets and packages. With your workers constantly on the move and dependent on data applications for real-time pick information and shipment data, a solidly reliable and fast wireless network is essential.

WiNG 5 Wireless LAN solutions deliver better resilience and site survivability so you can keep your operations flowing, even when storm damage or flooding threatens to shut you down.

GOVERNMENT

Government agencies need to be able to respond quickly to successfully manage expectations. Communities have become highly mobile, and people now expect immediate answers.

WiNG 5 helps government agencies respond faster by enabling them to share real-time information between people and departments, eliminating unnecessary delays and backlog. WiNG 5 improves office efficiency and ensures continuity of government services, even during emergency situations.

LESS CONGESTION.
MORE INTELLIGENCE.

WiNG 5 WIRELESS LAN SOLUTIONS PLACE THE BRAINPOWER OF A WIRELESS CONTROLLER INTO EVERY ACCESS POINT TO BETTER ROUTE DATA AND DELIVER SECURITY, MOBILITY SERVICES AND QUALITY OF SERVICE.

Since controllers are not needed for individual data transmissions, there are no bottlenecks at times of peak usage, which could slow things down for everyone. On a WiNG 5 network, users get crisp audio, clear streaming video and smooth application use, regardless of how many others are on the network.

It's an architecture that simplifies your IT job. You'll need less hardware and fewer controllers to build a fully functioning network and less time to deploy it, given our advanced tools such as LANPlanner which can optimize access point locations and AirDefense Infrastructure Management that can help you manage complex multi-vendor networks.

TRAFFIC OPTIMIZATION

Imagine a virtual surge protector for your data. Large bursts of data are intercepted and balanced so that no part of the network – and no end user devices – get overwhelmed. WiNG 5 Wireless LAN solutions recognize traffic patterns in real time and adapt to deliver the best performance.

APPLICATION-AWARE SELF-HEALING

WiNG 5 access points understand when network coverage is impacted by RF interference, dueling APs, heavy client load, clients at the edge of the coverage area or a congested channel.

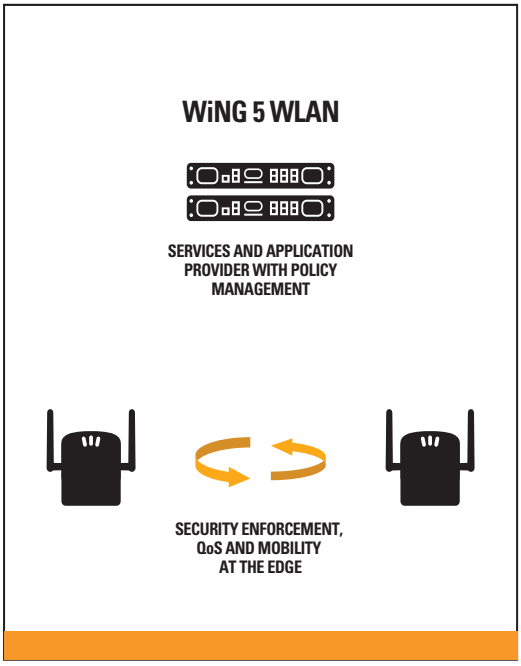
If there's a problem, the application-aware WiNG 5 SMART RF system makes smooth adjustments to power and channel settings to fix it while minimizing the impact to sensitive voice and video applications.

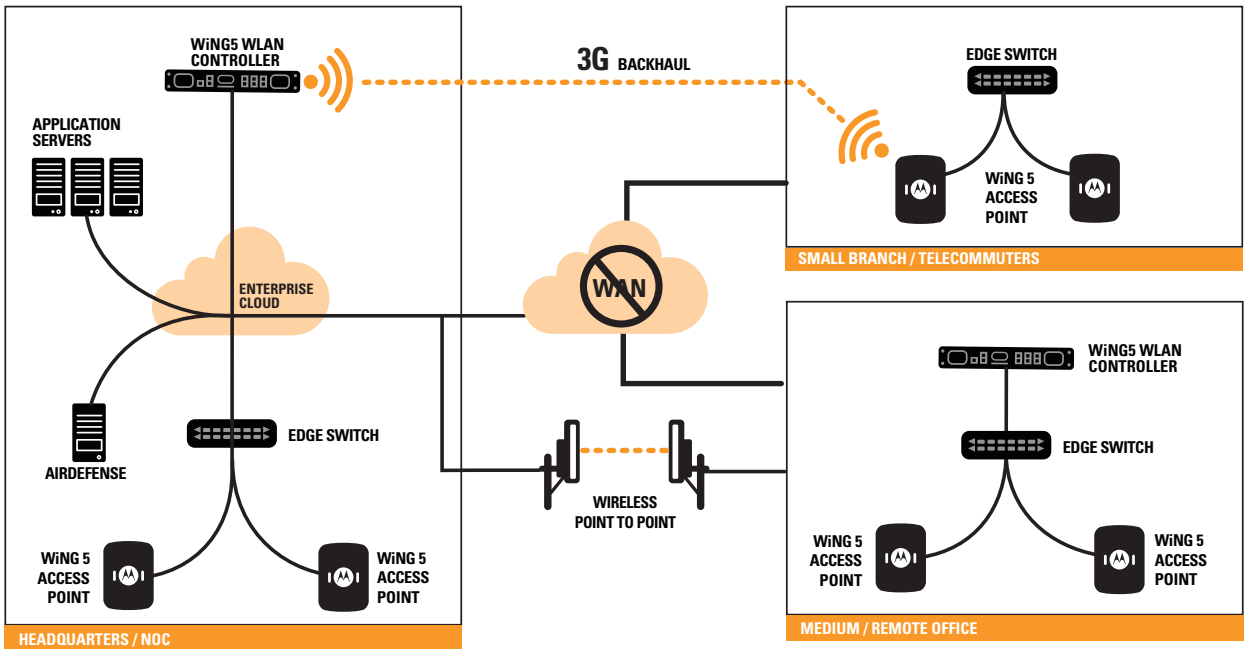
COLLABORATIVE PACKET ROUTING

WiNG 5 Wireless LAN solutions are aware of multiple wired and wireless paths that are available for direct traffic forwarding. The access points communicate with each other to collaboratively choose the best path based on network traffic and the requirements for specific applications, and they are able to quickly adapt power, channels and load to route traffic quickly and reliably. In addition, all the access points provide the same security and quality of service prioritization as a wireless controller.

COLLABORATIVE PACKET ROUTING DOES MORE THAN ENSURE THAT ANY APPLICATION WILL WORK QUICKLY AND SMOOTHLY.

It also minimizes the effects of network outages, because the system routes data around outages so that users typically aren't impacted.





MORE OPTIONS FOR GREATER AGILITY

OUR UNRIVALED WLAN PORTFOLIO GIVES YOU OPTIONS, SO YOU CAN BUILD A NETWORK TO MATCH YOUR NEEDS, EVEN ACCOMODATE DIFFERENT TYPES OF SITES.

The WiNG 5 WLAN architecture allows you the flexibility to decide on a site-by-site basis whether to have a local or remote primary controller or a local or remote back up controller within the same network. That lets you build a wireless network that better fits your infrastructure and your needs, including having small sites that contain only access points with one acting as an RF domain manager, backed up by a controller in the NOC.

The options extend outside the four walls, too. We have access points built specifically for outdoor use, even in the type of harsh environment you'd find at a utility complex or a manufacturing plant. Any size business and any type of industry can design and build a WiNG 5 WLAN to fit their needs.

ACCESS POINTS

All of our access points are built to provide efficient routing of data while still ensuring full network security and control. The access point that's right for you depends on your usage need:

AP 621: A cost efficient dependent indoor access point

AP 650: A multi-purpose, cost-effective 802.11n access point for headquarter facilities or branch offices

AP 6511: An access point designed to work with existing CAT5/6 wiring to easily provide wireless service to hotels, dormitories and settings with large numbers of users

AP 6521: An independent single radio indoor access point with ability to act as a virtual controller

AP 6532: An independent dual radio indoor access point with virtual controller capability; second radio can be used as a sensor

AP 7131: An all-in-one access point that can simultaneously support several functions

AP 7161: An outdoor dual and tri-radio access point with IP 67 NEMA 4X enclosure; second radio can be used as a sensor for intrusion protection

AP 7181: a high performance, multi-radio 802.11n access point, which achieves and maintains maximum data rates by delivering a reliable dual data stream in outdoor environments.

WHEN YOU INSTALL ANY OF OUR ACCESS POINTS, THEY AUTOMATICALLY RECEIVE CONFIGURATION INSTRUCTIONS FROM THE NETWORK, SAVING YOU PRE-STAGING TIME AND MAKING DEPLOYMENTS EASIER.

CONTROLLERS

The RFS 4000, RFS 6000 and RFS 7000 provide central management and security for the network as well as application services, and all are certified to work on 802.11n.

The NX 9000 Integrated Services Controller helps large distributed organizations ensure consistent configuration, management and troubleshooting of their entire WLAN from a single headquarters location. It can support up to 10,000 WiNG 5 access points, helping reduce complexity and CAPEX / OPEX costs by supporting controller-less deployments at the remote sites.

AIRDEFENSE

WHILE KNOWN FOR ITS NETWORK SECURITY & COMPLIANCE SOLUTION, AIRDEFENSE OFFERS TWO OTHER SOLUTIONS ON THE SAME EFFICIENT PLATFORM THAT ENHANCE YOUR OPERATIONAL AGILITY.

• **AirDefense Infrastructure Management:** As migrations occur, you're likely left with a multi-vendor network to manage. Not an issue with AirDefense Infrastructure Management. Our solution allows you to monitor, manage and scan multiple vendor and varied architecture networks from a single management system.

• **AirDefense Network Assurance:** When a network problem occurs, the quicker you find out, determine root cause and take corrective action, the better you can minimize the impact to operations. Our AirDefense Network Assurance solution helps with all three: the LiveRF module gives you a real-time view of the network with alarms for outages, and the Advanced Forensics and Advanced Troubleshooting modules let you localize the problem, access network, wired network or application server without having to send a technician to the site.

• **AirDefense Security and Compliance:** In order to prevent costly data breaches and keep your network protected from denial of service attacks, you need an industry-leading network security solution like Motorola AirDefense that also helps you meet government and industry regulations, including Sarbanes-Oxley (SOX), the Health Insurance Portability and Accountability Act (HIPAA) and the Payment Card Industry standards (PCI).

For more detailed product information, visit www.motorola.com/wlan.

LESS COST.
MORE PERFORMANCE.

WHAT IF YOU COULD GET ALL THESE CAPABILITIES IN 802.11N WLAN AND SAVE MONEY, TOO?

The distributed intelligence of Motorola's WiNG 5 WLAN can reduce your initial capital expenditure as well as save you operating expenses downstream.

- Our access points have higher power and receiver sensitivity so fewer are needed to cover a service area. And fewer wireless controllers are needed for a given number of access points, which translates into even greater capital savings.

- The access points themselves have integrated security and network troubleshooting sensors, so you don't have to buy an expensive dedicated network of sensors.

- Our LANPlanner tool models and predicts your optimum 802.11n WLAN layout, allowing you to build a network with just the right number of access points while still maintaining full, even coverage.

- On the operations end of the budget, the AirDefense Network Assurance suite quickly categorizes and resolves problems, which results in fewer trips by technicians to troubleshoot onsite.

- Many services like Radius, AAA and hotspot features are included in the base solution and no additional back-up controller licenses are required.

LESS IS MORE.

Motorola's WiNG 5 WLAN solutions offer all the benefits of 11n – and then some. Our distributed architecture extends QoS, security and mobility services to the APs so you get better direct routing and network resilience. That means no bottleneck at the wireless controller, no latency issues for voice applications, and no jitter in your streaming video. And with our broad selection of access points and flexible network configurations, you get the network you need with less hardware to buy. Let us show you the less complicated, less expensive way to more capacity, more agility and more satisfied users.

MOTOROLA