

# Draft 802.11n Solutions for Small Business

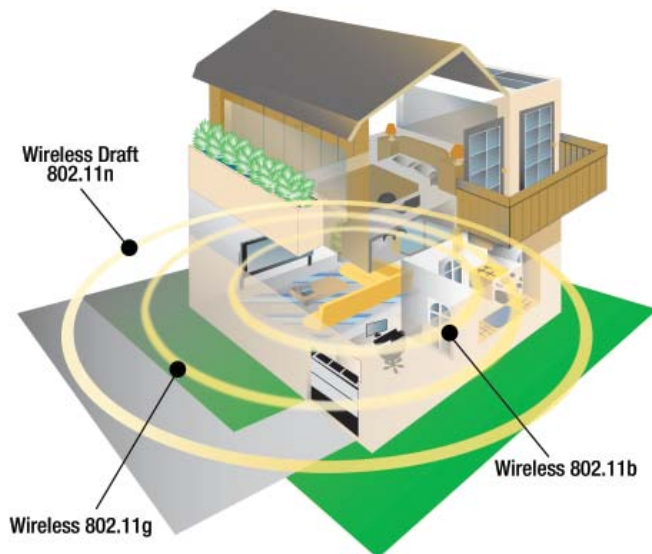
Solution Brief  
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## Abstract

Small businesses that are considering wireless to expand network coverage and add connectivity and flexibility need to consider new draft 802.11n wireless equipment. New draft 802.11n products enable faster performance and longer connectivity range. They are perfectly suited to small organizations needing a more robust wireless solution. Draft 802.11n wireless solutions are much faster than traditional 802.11g, 802.11b and 802.11a equipment. Draft 802.11n technology also expands coverage much further than previous 802.11 technologies. The implications for small businesses and home offices are clear. VoIP telephony, large file sharing and streaming, and numerous other performance-dependent applications are now much easier to maintain without delays or network traffic hiccups.

## New Draft 802.11n Wireless Technology Improves Bandwidth Speeds and Coverage Ranges for Small Businesses While Enabling Next Generation Internet Applications Like VoIP

Advances in wireless technology are increasing bandwidth, accelerating wireless network performance and expanding Wi-Fi coverage ranges. With significantly faster throughput speeds and longer ranges than 802.11b/g and 802.11a equipment, draft 802.11n wireless solutions enable truly flexible mobility, robust, high-speed infrastructures, and a variety of leading-edge applications, like seamless roaming, VoIP telephony, wireless video conferencing, integrated high-definition surveillance, and much more. For many small businesses, draft 802.11n technology will complement the traditional wired network.



*802.11n provides a larger range of coverage than 802.11b or 802.11g.*

Draft 802.11n is an enhancement to the 802.11 wireless network standard. The technology employs multiple transmitters and receivers to increase transmission speeds. With draft 802.11n, businesses can add secure wireless coverage that boosts productivity significantly and deploy robust networks with performance capabilities that rival those of larger, IT-intensive companies. New draft 802.11n equipment helps you grow your business and stay flexible while assuring full 802.11n compatibility once the standard is ratified.

This solution brief describes the new draft 802.11n wireless protocol, details performance, coverage and flexibility advantages, and offers a brief overview of D-Link's draft 802.11n products and solutions.

## Who Needs Wireless-N?

Increases in mobile user populations and wireless network upgrades aimed at improving network capabilities are driving wireless infrastructure upgrades. Draft 802.11n's faster performance and wider coverage ranges enable all kinds of new capabilities. At a very basic level, organizations that share large files (like audio, video or detailed graphics) or use bandwidth-intensive applications stand to gain a lot by deploying draft 802.11n solutions. As sophisticated, database-driven applications based on Java and Asynchronous JavaScript and XML (AJAX) technologies proliferate, more bandwidth is necessary. More calls to the server and more users require more bandwidth. Web 2.0 is driving a lot of this new development and code-bloat. Web 2.0 is an umbrella term that refers to the second iteration of the World Wide Web. Generally, it describes more sophisticated, Web-based applications that use the "thin client" model, where the Web becomes one big application server. As these programs become more sophisticated and numerous, the pipe needs to handle more traffic. 802.11n simply widens the pipes and expands the infrastructure – wirelessly. Typical bandwidth-intensive applications include collaboration solutions; Enterprise Resource Planning (ERP), business intelligence and Customer Relationship Management (CRM) systems; software development platforms; and Computer Automated Design (CAD) tools. Online gaming and the rapid proliferation of VoIP phones are also driving draft 802.11n adoption. Common draft 802.11n settings include campuses, warehouses, office parks, hospitality, restaurants, small businesses and retail malls. With the right environmentally protective housings, draft 802.11n networking gear can be installed just about anywhere – under almost any conditions.

## Draft 802.11n Technology Advantages

### *MIMO Boosts Range and Improves Throughput*

New draft 802.11n access points and routers utilize MIMO (or Multiple Input/Multiple Output) radio transmission to generate faster throughput and boost range. The devices transmit two or more unique radio streams simultaneously to deliver more data per channel. Transmissions are broken into multiple parts which are sent separately to each client via multiple antennae. The client re-assembles the transmission upon reception.

MIMO technology also improves spectral efficiency and mitigates multipath, a common cause of 802.11 interference. Multipath describes radio signals that take two or more paths because the signal is reflected off of obstructions, buildings or other structural impediments. Non 802.11n networks typically degrade with multipath. The MIMO design used in draft 802.11n networking equipment, however, dramatically improves performance and reliability when obstructions are an issue.

## D-Link Draft 802.11n Solutions

D-Link offers a wide range of draft 802.11n routers and adapters that are easy to install and simple to administer. Our 802.11n solutions offer the advantages detailed above and more.

### Intelligent QoS

D-Link draft 802.11n solutions come with built-in Quality of Service (QoS) technology that analyzes, separates and prioritizes data into multiple streams. VoIP traffic can then take priority over Web browsing, for example. Conventional 802.11 routers mix VoIP, video streaming, online gaming and Web browsing traffic across a single data stream – without priority consideration. As a result, certain applications can stall or be delayed. D-Link RangeBooster and Extreme N™ draft 802.11n routers solve that problem. Organizations that do not need QoS capability can opt for a lower-cost draft 802.11n solution like the D-Link DIR-615.

### Security

D-Link draft 802.11n routers support the latest wireless security features to help prevent unauthorized access from within the wireless network itself or via the Internet. Support for WEP™, WPA™, and WPA2™ standards ensure the best possible encryption regardless of client devices. In addition, D-Link draft 802.11n routers utilize Dual Active Firewalls (SPI and NAT) to help prevent potential attacks from across the Internet.

### Backwards Compatibility

D-Link draft 802.11n solutions are backward compatible with 802.11g and 802.11b networks and devices, including game consoles and digital media players.

## Investment Protection and Draft-N

All of D-Link's 802.11n routers and adapters are considered "Draft-N." This means that they adhere to the IEEE standardization process for 802.11n equipment and will be compliant when the final standard is ratified. The IEEE is almost finished with the finalization process, and all D-Link equipment will be compliant. Compliance guarantees that our technology will work with other 802.11 equipment – including 802.11b and 802.11g routers and adapters, as well as other 802.11n compliant products.

## New Opportunities for Speed, Productivity and Robust Coverage

New draft 802.11n routers take local high-speed wireless network performance to a new level. You can now share Internet connections across very large spaces and pass around data at unparalleled

wireless speeds. This is good news for every organization that needs to connect mobile users, and efficiently manage large files, back-up and streaming media. A new era of wireless speed is upon us.

## The D-Link Wireless N Product Family

### Fast

The D-Link Wireless N family of routers, like the DIR-615, provide faster throughput than traditional 802.11g technology and extend wireless range significantly. This is an ideal solution for growing small offices, home offices or Internet-intensive homes that want



*Share large data files, graphics, video and more at faster speeds and greater distances*

to share an Internet connection or pass around large video, music, photos or document files. Multiple external antennas on the D-Link Wireless N router family bounce multi-channel wireless signals off of walls and ceilings to work around obstructions and help eliminate dead spots. These units can be used outdoors, as well.

### Faster

D-Link's RangeBooster N™ family of routers such as the DIR-625, deliver unmatched wireless performance, network security, and coverage that is ideal for networking in larger homes and offices. The draft 802.11n compliant device provides up to 12x faster speeds and 4x farther range than 802.11g equipment while staying backward compatible with 802.11g and 802.11b devices. Share photos, files, music, printers, and more, from greater distances throughout your entire home or office. D-Link's award-winning QoS

engine prioritizes time-sensitive online traffic. This is particularly critical for smooth Internet phone calls (VoIP) and responsive gaming. The D-Link RangeBooster N Routers also feature a Good Neighbor Policy that allows it to coexist and not interfere with existing 802.11g and 802.11b networks.

#### *Faster and Farther*

The D-Link Xtreme N™ Gigabit Router family which includes the DIR-655, is powered by Xtreme N™ technology and equipped with three external antennas, this family of routers provides superior wireless coverage for users running bandwidth-intensive applications in a small to medium sized office. This router family also features D-Link's award-winning QoS engine and good Neighbor Policy.

## Wireless N Adapters

D-Link offers a comprehensive selection of wireless adapters for notebooks, desktops and other Internet-connected devices.

Wireless N adapter:

- DWA-130

RangeBooster N adapters:

- DWA-142
- DWA-542
- DWA-642

Extreme N adapters:

- DWA-556
- DWA-643
- DWA-552
- DWA-652

For more information about D-Link 802.11n solutions, please call 1-888-xStack1 or visit [www.dlink.com/products/wireless11n](http://www.dlink.com/products/wireless11n).

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Maximum wireless signal rate derived from IEEE Standard 802.11g and draft 802.11n specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, buildings materials and construction, and network overhead, lower actual data throughput rate. Environmental factors will adversely affect wireless signal range. Wireless range and speed rates are D-Link RELATIVE performance measurements based on the wireless range and speed rates of a standard Wireless G product from D-Link. Maximum throughput based on D-Link draft 802.11n devices.