

Wireless networking specifications were developed for home and office usage where equipment is usually no more than about 50 feet apart. Metropolitan wireless clouds are evolving to connect computers, PDAs and other wirelessly enabled devices located both indoors and outdoors and spaced from 300 to 500 feet from an access point.

Wireless cloud access points are normally omnidirectional, higher powered devices (~1 Watt) while consumer wireless modems built into a computer are usually omnidirectional with much lower power (30 to 50 mW). This many times results in the client computer connecting to a strong signal from the access point, but the access point cannot “hear” the client computers return signal. The industry is responding by developing various types of add-on equipment to improve wireless connectivity from the client computer over longer distances and through obstructions such as buildings and foliage.

The following is a list of some of the types of add-ons available. We do not recommend any specific manufacturers equipment as they are all continually striving to improve their products and remain competitive. This list describes in generic terms the equipment you may find useful to improve your wireless Internet experience.

Wireless Modems

Desktops – Manufacturers are now putting a wireless chip on the motherboards with an omnidirectional antenna on the backside of the computer. If not built into the motherboard, the user buys a PCI card that was inserted into an available slot on the motherboard.

Laptops – Almost all laptops now come with a built in wireless modem which are usually very weak. The first add-on to try for improved reception with a laptop is a PC card. Some cards are available with 200 and 300W radios which should greatly improve connectivity to the wireless network.

Add-on Equipment



The equipment needed to improve wireless reception can be one or more of the following:

Antenna Extensions – external indoor or outdoor, antennas can be either directional or omnidirectional: These devices are



used to replace the removable antennas supplied with most desktop wireless cards and some laptop PC cards. They are manufactured in various signal strengths (rated in db). The higher the db the greater the ability to maintain a strong signal between the access point and the computer. Price range: \$20 to \$200

High-powered PCI/PC Card modems – As mentioned earlier, wireless modems supplied with most computers are relatively weak.



Manufacturers are now producing replacement or add-on modems with power up to 10 times the strength of built-in modems. Price range: \$30 to \$150.



USB high-gain antenna – These antennas are for indoor use and are available in both directional and omnidirectional



styles. They are easy to setup but cannot be combined with other add-on equipment such as higher-gain antennas or boosters.



A particularly handy device is the ZyXel USB Finder and Wi-Fi modem. It has successfully connected to our access point from a 500 ft.

Also available is the EnGenius 200mW shirt pocket size USB radio with a detachable antenna. It can be purchased online from www.WLANParts.com for about \$80.



These devices range in price from \$50 to \$90.

Wireless Bridge – Wireless bridges connect to the computer through the network wired port. They can be used as a direct replacement for a DSL or cable modem. They can be used in combination with a booster and/or a high gain antenna. Some setup may be required but is usually very straight forward by following the directions that come with the equipment. Price range: \$60 to \$150



Signal Booster – Hawking technology has recently introduced a 500mW booster that is inserted between a modem or bridge and its antenna. For difficult reception issues, a combination of a wireless bridge, 500 mW booster and high-gain antenna is usually the best choice. No setup or programming is needed – just plug it in. Price range: \$55-\$85



Our Recommendations

Based on our and our clients experiences, we recommend the following wireless devices for connecting to our network. These device can be purchased online from WLANParts.com using the following part numbers.

Bridge/AP/Router

These devices connect to either your computer or network router with an Ethernet cable. They do require an initial setup to recognize our access point. The bridge can then be plugged into any computer to connect to that access point.

Senao NL-2611CB3 Plus Deluxe Wireless Client Bridge / Access Point 200mW - \$105

Ruckus MediaFlex Adapter - \$62.50

Ruckus Router with Five Ports - VF2825 - \$118

This device is also a router.

USB Wireless Antennas

USB devices require the installation of additional software on each computer to be used.

Engenius 200mW USB EUB-362-EXT - \$45.50