

Making the Right Wireless Choice

Wireless installs boost the bottom line and set home builders in a new class

By Victor Pak

The family is all together, sharing stories and enjoying their new home. With seamless home controls, they can relax in any part of the house and let the wireless system do the work. People enjoy the freedom that wireless brings, such as being able to use the computer or other electronics in any part of the home without being limited by access to wires.

In the last decade wireless has grown from an obscure and expensive curiosity into a practical and necessary networking technology for the home. Customers ask for wireless and we need to be able to deliver.

In the past, wireless installs had significant hurdles. Most builders and custom installers recognize the unreliability and low profit margins associated with Residential-Class wireless products and are looking for solutions.

Unreliable "Big Box" Equipment

One of the main hurdles is the equipment. Custom installers are accustomed to using "big box" networking brands from well known retailers. While they are reluctant to put their reputations behind

unreliable mass volume products, there were, until recently, few better options.

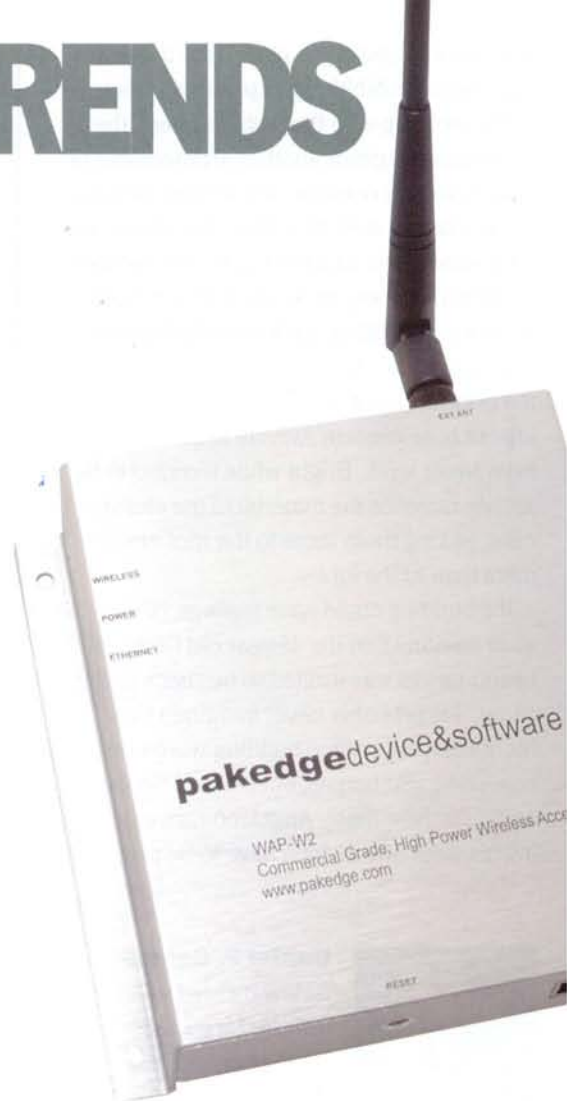
As noted by Martin Seelos, president of Creative Concept Sound Solutions, "Clients expect wireless, but often do not know the range of options and results that can be expected from a professionally designed wireless home network." Most consumers are used to paying

"In the last decade wireless has grown from an obscure and expensive curiosity into a practical and necessary networking technology for the home."

\$100 for a wireless access point and as a result, custom installers feel obligated to sell big box networking products with low margins. Service calls increase costs to both the installer and client when the network goes down or the equipment fails.

Enterprise-Class vs. Residential-Class

In contrast to the residential market, products for the commercial/enterprise market are designed and built to



be more reliable because businesses can't afford to be down. Considerably more testing is done on an Enterprise-Class product to ensure it meets certain performance levels. This is especially important for wireless devices, where RF characteristics can vary from unit to unit. Nevertheless, manufacturers can only perform cable testing on a mass volume product and attempt to simulate RF characteristics, hoping the majority of these mass volume products will meet user expectations.

Enterprise-Class products also have a



Why go with WAP-W2?

- 1) It is a commercial grade, in-ceiling wireless access point.
- 2) Utilizes the highest power rated wireless access point for use in residential homes.
- 3) Utilizes "Power-over-Ethernet" or POE, enabling the unit to be powered and networked by a single Category 5e or equivalent cable.
- 4) Eliminates the need for separate power cables and electrical outlets near the access point, resulting in lower installation costs.
- 5) Its configuration's transmission power output can be increased or decreased after installation.

longer life span. The chipset/semiconductors are more stable because the manufacturer wants the product to be predictable and hence reliable. Enterprise-Class manufacturers don't constantly change chipsets to take advantage of a cheaper chipset source. With Residential, competitive pricing pressure forces mass product manufacturers to constantly switch to less expensive components to stay cost competitive.

Many consumers don't really understand the benefits of higher grade Wi-Fi and remain reluctant to pay higher prices. Residential-Class products are sold with very low margins because the pricing assumes high volumes and marginal quality. These products are not designed to be "fail safe," but rather to have an attractive price. Businesses, on the other hand, are used to spending ten times as much as homeowners for wireless connection devices. Smart builders, however, know that quality pays off.

Plan it Out

Of course, it is possible for a wireless network to be less reliable than a wired network. Wireless networks come with an inherent set of problems ranging from security (anyone can pick up the signal) to varying coverage quality (interference in the environment at a particular time). These problems can be exacerbated if the wireless access points are not selected properly, placed in the right location, or configured correctly. Fortunately, these limitations can be overcome if they are considered when planning and installing a wireless network.

The key factor in planning out the network is where to locate the wireless access points. In most homes the optimal



place to install a wireless access point is in the ceiling. If the finishing aesthetics of the wireless access point are discrete and attractive, the wireless access points can be placed at optimal locations for performance, rather than in good hiding places. As with a quality audio system in which the number of speakers depends on the amount of space the sound needs to fill, the number of wireless access points installed should be based on the desired coverage area.

The problem inherent in an all-in-one Wireless Broadband Router is that it is

designed to be placed next to the broadband connect entry point, with the expectations that the wireless will cover the entire home. Just as you would never place a speaker in the middle of the house and blast it to cover the entire home with sound, the same caveat holds true for a wireless access point.

A variable high output power rating is another important feature. The higher output power rating is not so much for broadening coverage as it is for providing quality coverage and security. Just as with a stereo amplifier, if you push the amplifier to its limits, undesirable characteristics, such as distortion, appear. The variable power aspect of the wireless access point allows the installer to limit power to the intended area of coverage (i.e., within the house). After all, if no signal is present outside a house, perhaps on public sidewalks or streets, there is virtually no chance that the wireless network will be penetrated by unauthorized users.

The Sky is the Limit

Installing wireless in the home is just the beginning for ambitious home builders. While installing several networks in the same area, one can configure the radio frequencies to eliminate interference, thus ensuring a powerful network. For master-planned communities, one can take it to a whole new level by providing wireless access in public areas, parks, pools, and recreation centers. The sky is the limit for builders who want to get an edge by providing wireless innovations to home buyers.



Victor Pak is President of Pakedge Device & Software. He can be reached at vic@pakedge.com.