The Second Wave

by Deborah L O Mara

Keep your eyes on the residential market

When residential low-voltage systems first came on strong due to mass marketing in the late 1970s and early 1980s (think Brink's Home Security), the focus was similar to today's—security, lighting and automation. But the key difference was that little could communicate, and integration among competing products was nowhere to be seen.

Now, integrated residential systems are at the cusp of adoption for middle America on up, mostly as a migration from the commercial side at a lower price tag, with more options. It's courtesy of continued computer, microprocessor and related software innovation as well as other factors.

Take these cues from recent statistics and reports:

Of the starter homes built in 2005, nearly 50 percent contained structured wiring, meaning they have a network-ready infrastructure. For move-up homes, nearly 60 percent are network ready; for luxury homes, more than 65 percent. (Source: GE Security)

According to **Electrical Contractor** magazine's 2006 study: Electrical Contractors' Roles in the Residential Market conducted by Renaissance Research & Ccurrently doing this type of work expect their volume of residential to increase the next three to five years. In addition, about one-quarter of consulting Inc., New York, 60 percent of firms currently doing residential work and 25 percent of firms not electrical contracting firms that do not currently perform residential work predict they will in the near future.

With 15 million households moving annually and 35 percent doing so primarily as an upgrade over their current residence, the population is a prime consumer segment for new digital systems and services, according to the consumer study, "Households on the Move: Acquiring Digital Systems and Services," conducted by Parks Associates, Dallas.

By 2010, about 30 million U.S. households will have a connected entertainment network that allows them to stream digital content to multiple rooms and across multiple platforms. (Source: Parks Associates)

Interconnectivity in the home is nothing new, but what is emerging is a convergence of interrelated applications as opposed to functions being separate, according to Vic Flagello, product manager, HomeSelect home networking system, Hubbell Premise Wiring, Milford, Conn.

Fiber forward

"What is also interesting is that Category 5e and especially the jacks are used as a common component to integrate devices. For example, using Cat 5e to merge surveillance cameras with the cable or digital television system is more common," Fagello said. In the future, he said, fiber optics may make it to the home as well.

"I'm seeing a fair amount of builders putting in composite cable with fiber embedded for future use. They still terminate with copper, but when ready, they can change to fiber. This is the future proofing required for five years out," he said.

Creating the ultimate residential low-voltage system is something builders and developers are doing to leverage their homes against the competition, especially as interest rates rise. The children of baby boomers, who are beginning to buy their first homes, want all the technology they are accustomed to at the office in their homes as well.

As such, integrated systems and services are serving up to the residential market an astounding number of choices and linking security, audio, surveillance, controls, lighting and much more. In structured residential wiring, hybrid cables, central controls, smart distribution, common platforms and interoperability are designed for the electrical contractor who wants easier connections, intuitive systems and, best of all, less time to install. The depth of product available and the level of integration are both astounding, and often whole-house controls and lighting leads the way.

Wire and cable

It all starts with structured wiring, and those new houses that don't have it are dinosaurs. Many housing developments offer structured cabling, Cat 5 for sure, while others have made the leap to Cat 6 to fend off future upgrade challenges and ease into emerging technologies.

"Residents of our 230-unit community at Eagle Pointe will have a cutting edge electrical wiring infrastructure in place that supports high-speed Internet access and computer networking, cable and satellite television hook ups and music, streaming audio and video throughout their home," said Don Anderson of Anderson Homes, Newport, Mich. "We consider this built-in technology a distinguishing feature of our homes."

The systems are based on wiring lighting control technology by Leviton Mfg. Co., Little Neck, N.Y. The structured cabling system consists of direct runs of Category 5/5e and coaxial to a central structured media center that manages and distributes voice, data, audio and video signals. Many residents will also have a digital home entertainment and network system that uses the structured-wiring infrastructure to distribute digital image, music and video content room to room.

With prices coming down on so many gadgets and electronics, many are finding their way to the residential market. And with the right cabling system, these homes can handle anything from streaming MP3 players to nanny cams and more.

Academia is also getting in on the explosion in residential integrated building systems. The Massachusetts Institute of Technology and Research Consortium, Walpole, N.H., and Bensonwood Homes are building a series of four prototype homes as part of the Open Prototype Initiative. Construction of the homes, which began in June 2006, will continue through 2010. A key component of the structure is the Core Wall, where installations of HVAC, filtration, dehumidification, radon mitigation and fire protection services are all centralized.

With such slogans as "Every Room Connected" companies such as Crestron Electronics Inc., Rockleigh, N.J., focus on inherent opportunities in control and connectivity for every room, every application and every budget, according to Craig D. Gulley, CTS and regional manager, Residential Channel Sales, Crestron Midwest, Arlington Heights, Ill.

Lighting shines

"One of the hottest trends in residential connectivity is centralized lighting control," Gulley said. "Lighting is the largest infrastructure in the home, and with the size of homes increasing, the need for the ability to control and monitor lights from anywhere in the house is essential. Houses are becoming too large to manage manually."

Gulley said lighting control now addresses the worst aesthetics, like the wall “acne” that arises from multiple light switches in one location.

“With a lighting control system, even rooms with many loads of lighting, such as kitchens, are easily managed with a simple keypad that is both elegant and engraved, letting everyone know which button works which lights,” he said.

He added that integration is accomplished through a control system, which is the brain or clearinghouse for all the electronic traffic in the house.

“The control processor speaks the languages of all the different subsystems in the house, audio-video products, lighting, HVAC, security, sprinkler systems and even some appliances. Control processors can speak to the various products in a number of ways. Infrared control is the control we know mostly from audio and video remotes; contact closures and relays are triggers that can make things happen when doors open and close or motion is detected. RS232 control is a computer language that allows products to communicate in two directions, which means they can give you information about what they are doing. TCP/IP control is the way we communicate over the Internet and is also a two-way language. A good control processor speaks all these languages and should not be a PC. While PCs have their uses, they are not robust enough to control the infrastructure of the home,” Gulley said.

What’s hot

If you want to know what’s hot in residential systems, it is anything and everything the customer wants. Common platforms, interoperability, whole-house distribution, slim speakers, downloading/updating capabilities and software intuitiveness are some of the buzzwords of integrated home systems.

Video surveillance and video for entertainment is also part and parcel of an integrated residential building system.

“Historically, video is not something that homeowners may have looked at, but that is changing, especially as technology advances and prices continue to be pushed downward,” said Steve Birkmeier, director of Marketing, Arteco Vision Systems Inc., St. Louis. The company recently unveiled the Smart-Home, an intelligent video solution designed specifically for the residential setting.

“We continue to see market indicators that residential CCTV will grow,” Birkmeier said. “Our residential system builds on the digital video recorders you would see on the commercial premises, which use intelligence to record events as programmed. It looks for a specific event and can record before that event when programmed with specific time parameters. Input/output boards can integrate with other systems, such as burglar alarms, access control or lighting. There are so many different applications for video in residential.”

Entertainment and music, and especially the needs of Generation X and even younger offspring, are driving homes to have extensive audio experiences within their walls. And, let’s not forget the importance of video, streaming, in nearly every room.

“Some of the hottest, newest trends are the use of mounted LCD and plasma displays in the home,” according to Viktorya Maryan, media contact, Peerless Industries Inc., Melrose Park, Ill. “Mounting these displays enables the homeowner to save space and add extended viewing capabilities and functionality to the flat panel. With the added functional benefits of mounting a flat panel for the homeowner, electrical contractors will be part of the ‘wow’ factor that a mounted screen adds to any room.”

Maryan said electrical contractors can easily get more involved by knowing what mounting options and placement solutions are available, so they can lay out the electrical in the room to accommodate for flat panel screens in various locations.

Also according to Maryan, electrical contractors can pass along to their customers the ideas that they might place video outside a pool or patio, inside a bathroom, in the kitchen, with a space-saving mount, in the home gym or garage or as living art. In the high-tech home, flat panel televisions can display Renaissance paintings, modern art or other images.

Consider all the current possibilities of an integrated home and get ready to sell to this rapidly growing market. Your commercial customers are a great place to start.

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