You don’t need me to tell you that the custom installation market has changed dramatically over the past years. While new constructions once dominated the landscape, today’s reality involves more retrofits, which translates into smaller-scale projects and tighter budgets.

Luckily, we’ve seen shifts in technology as well, as the home theater is increasingly turning to IP-connected solutions. From HDTVs to set-top boxes and gaming consoles, more devices are shipping from manufacturers equipped with Ethernet ports—all ready to deliver an exciting world of IP-based premium content and consumer applications.

But there’s just one problem. Where are the Ethernet jacks in the home? Few existing homes are actually wired for CAT 5 Ethernet. And re-wiring a retrofit project tends to push costs out of the budgetary range for many homeowners. As a result, installers are faced with the challenge of finding a reliable way to distribute high-definition IP-based content to all the places in the home, without opening up the walls.

Formed from the Multimedia over Coax Alliance (MoCA®), this technology was designed to distribute extremely fast IP over existing coax cables. With MoCA, installers can use existing coax lines as a digital backbone that can IP-enable any connected device for applications like HD video and automation.

The beauty of the solution lies in the fact that 90 percent of North American homes already have coax in place. And best of all, a coax connection is typically located right by a TV. As a result, connecting the home for ‘whole home’ entertainment is easier and more affordable than ever.

MoCA Is the Multimedia over Coax Alliance (MoCA®) technology right for you?

By Mike Ehlenberger, Actiontec Vice President, North America Channel Sales

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MoCA in the Home

MoCA was developed from the ground up to support the rigorous requirements of transporting digital HD video in real-world environments (and not just the perfect conditions found in the lab). Fortunately, the technology was designed to work in environments with impedance, and works with RJ59 as well as RJ6. So, even homes and buildings that are wired with the less robust RJ59 are able to support uncompromised multi-room HD video distribution.

A MoCA network is extremely easy to install since it uses the same RF connector, splitters and coax as the existing cable installation. Virtually any coax cable and outlet are capable of carrying MoCA. In addition, you can inject MoCA anywhere in the home or building; it doesn’t have to be initiated at the multi-tap.
Also be aware that while the coax home system has been ‘vertical’ (from the multi-tap to the outlet), MoCA now enables simultaneous ‘horizontal’ communications between outlets. With this architecture, data can jump between splitters, so it’s possible to transmit data from any coax outlet to any other coax outlet. As a result, MoCA breaks down the traditional ‘islands’ of digital entertainment and enables new content sharing, such as multi-room DVR.

MoCA: IP Over Coax

MoCA essentially provides an IP network over the coaxial in-home plant. For IPTV services, digital video (SD and HD), and IP-based apps like home control, MoCA provides a seamless IP connection to any device in the home. Of course, it’s important to remember that video is an application riding on top of the IP network—and a MoCA adapter bridges Ethernet and coax, not HDMI and coax.

Applications in the MoCA Multimedia Home Network

MoCA is a digital backbone that connects entertainment devices throughout the home. Simply put, it’s an Ethernet connection at every coax outlet. Potential applications include:

- Whole-home DVR: consumers can watch, record and share HDTV programming simultaneously throughout the home, from a single set-top box
- Connect all Ethernet-ready devices to the Home Network/Internet
- Multi-room, multi-player gaming: Consumers can run and play games from any room in the home
- Computer/media server-to-TV sharing: Consumers can share content easily across their PC, TVs and home stereo
- Extension of home WLAN network: MoCA can be used to extend the coverage of a home wireless network—for example, to the second floor, garage or basement

Field-Proven Technology

MoCA is not new technology. MoCA 1.0 was ratified in February 2006, as was the first certification wave of MoCA products. There are currently more than 70 certified MoCA products, including set-top boxes, home routers and Ethernet-Coax bridges. MoCA 1.0 and 1.1 products have been deployed in millions of North American households. This solid history gives installers peace of mind about the solution’s ability to reliably address their demanding connectivity in a real-world situation.

Open a Broader Target Market

MoCA eliminates the need to pull new long wires throughout the home. As a result, its price tag is accessible to more homeowners, enabling you to address a broader market than just high-end custom installs alone. Additionally, considering a MoCA install entails minimal labor (connections can literally be set up in minutes), you can scale your business far more easily. MoCA lets you take on more projects without having to bring added resources on board.

Limitations of MoCA Networks

Like any technology, MoCA is not without its limitations. Understanding these limitations is key to successful installations. Ethernet-coax bridges will pass through ATSC broadcast and cable TV signals, but do not allow satellite frequencies. For homes with satellite broadband, consider other distribution technologies such as HomePlug and HPNA. MoCA signals also cannot pass through in-line amplifiers.

Getting Started

If you’re interested in using MoCA for your retrofit projects, check with your vendors to see if they offer MoCA bridges like the ECB2200, and routers in their product assortment. Remember, MoCA network adapters can connect any Internet-enabled device with an Ethernet port to the MoCA/coax network.

For more information on the technology and participating vendors, go to www.mocalliance.org. and www.actiontec.com. Electronic systems contractors specifically can go to http://www.actiontec.com/esc/