

THE SPACE BETWEEN

04/18/2013

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Furniture showroom beams content to 30 screens using white-space channels

As Michigan's Gardner-White Furniture prepared to open its ninth and largest store in 2012, managers faced a digital signage dilemma.

They wanted to be able to deliver pre-recorded content to 30 TV screens located throughout the 70,000-square-foot, 350x242-foot showroom, move TVs periodically to refresh store displays and avoid having to use a DVD player at each TV. And they wanted to accomplish this without long cable runs and high installation costs. The answer was to go wireless, yet even the best wireless content distribution systems on the market at that time had only a four-screen multicasting limit and a maximum signal range of less than 150 feet.

That changed with the mid-2012 introduction of the MELD Technology Pico Broadcaster™ (in cooperation with Perrless-AV) , the first wireless HD delivery system to use over-the-air broadcasting over open "white-space" channels. With a reach of 350 feet—nearly triple the transmission distance of most WiFi-based solutions—this FCC-approved personal broadcast system has the industry-first ability to stream content from a single

transmitter to an unlimited number of digital TVs equipped with an ATSC tuner and over-the-air antenna to receive the broadcast signal on an open white-space channel.

In September 2012, with the help of long-time technology partner Best Buy for Business, Gardner-White's new Auburn Hills flagship store, located north of Detroit, became the first commercial installation of the MELD Pico Broadcaster.

The system is saving thousands of dollars in cabling costs, overcoming the range and scale limitations of earlier-generation wireless digital signage solutions, and eliminating the need for IT intervention to ensure wireless connection whenever screens are moved to accommodate shifting store layouts. It is also paving the way for Gardner-White's marketing department to expand the promotional use of digital signage by allowing seasonal sales, client testimonials and other content to be assembled digitally without burning and distributing DVDs.

Breaking the DVD Habit

Gardner-White stores began using digital signage in 2009 primarily to play commercial movies, add entertainment to select stores and encourage customers to linger. The movies were delivered on DVD or Blu-ray players connected to each TV, avoiding the expense of running cables to each display as well as providing the flexibility to relocate screens as merchandising needs changed without being tethered to hard-wired connections.

Over time, however, the shortcomings of the DVD strategy became clear. With 10 to 30 screens per store, loading new DVDs into players took hours of work. Content running in a given store was always out of sync because there was no way to start all the DVDs simultaneously. The DVD/Blu-ray players had to be replaced regularly because of continuous use. Most painfully, the need to produce and disseminate DVDs discouraged the marketing team from using digital signage for in-store promotions, resulting in lost marketing opportunities.

In 2011, Gardner-White decided to cut the DVD cord by moving to wireless technology. Several stores deployed a Wi-Fi-based wireless system, which was state of the art at the time, enabling one transmitter to broadcast to four receivers. At a store with 12 screens, for example, the installation required

three transmitters, each connected to a source device (in this case, DVD players, since the store was already using them), plus one receiver per display. Nine of the previously used 12 DVD players and multiple copies of DVD movies at that store were eliminated.

This approach lightened the content management load, but key drawbacks remained. First, the technology had a maximum broadcasting reach of only 60 to 130 feet, depending on obstructions. Second, it could support no more than 12 receivers within 260 feet, making it unsuitable for Gardner-White stores with more than 12 screens. Third, transmitters and receivers had to be repositioned by IT technicians whenever a TV was moved to ensure a proper wireless connection.

Broadcasting Breakthrough

The 2012 release of the MELD Pico Broadcaster eliminated all of these sticking points by harnessing the power of over-the-air broadcast technology. Signals are broadcast over the UHF 500-700 MHz frequency to any open local white-space channel left unused when the United States converted from analog to digital television in 2009, unleashing never-before-possible wireless content distribution capabilities with HD-broadcast-quality resolutions of up to 720p or 1080i.

The MELD Pico Broadcaster's over-the-air broadcasting strategy removes the point-to-point distribution restrictions and signal interference problems of Wi-Fi and the associated limits on scalability, enabling content to be sent to any number of screens within the system's 350-foot radius. Using the 500-700 MHz spectrum instead of higher-frequency Wi-Fi solutions lengthens the signal range and improves through-the-wall transmission.

Another benefit is simplicity. The only hardware required is a single laptop-sized personal broadcast station that receives content from a PC or media player, plus a standard over-the-air antenna connected to each TV. No additional receivers or associated power sources are needed at each screen, reducing costs and complexity while also eliminating the need to adjust transmitters or receivers if a display is moved or added.

The system also features:

- Drag-and-drop conversion of virtually any video file (MPG, MOV, AVI, WMV, etc.) to the MPEG2 transport stream format required for broadcasting, using Peerless-AV's streaming media server software bundled

with the package

- Easy FCC registration and system configuration to an available white-space channel based on the facility's geographical location, all with online tools provided
- High-speed data transfer to the PeerAir Pico Broadcaster, via Ethernet, from any laptop, desktop PC or media player with IP transport output capabilities

Going Live

With these specifications precisely matching Gardner-White's needs, the MELD's Pico Broadcaster was rolled out at the chain's 30-screen Auburn Hills store a few days before the new location was scheduled to open in September 2012.

Installers first configured the MELD Pico Broadcaster to sit on the local network using two static IP addresses—required for controlling and streaming the content—and selected an open white-space channel to broadcast to. Next they strapped the Broadcaster to the rafters in the middle of the showroom, adjacent to an IT cabinet from which the network connection would be made. They tested the reception by wheeling a cart containing a TV tuned into the selected white-space channel with a connected antenna from one end of the showroom to another.

The test showed that the TV received a strong signal throughout the showroom regardless of the distance or obstructions. The content came through even in a conference room 160 feet from the broadcast antenna with three full walls in between, and in the warehouse located behind a metal stud wall and several showroom-dividing walls. The next day, the IT administrator installed Peerless-AV's software onto a computer in the IT server room at the far end of the facility. The system was then ready for opening day, complete with remote access to load and control the content even via a smartphone.

Today the Auburn Hills store uses the Pico Broadcaster to feed movies and seasonal and/or evergreen promotional content to the majority of its 30 screens, while continuing to rely on local DVD players to promote spot sales and other current information on other TVs. Gardner-White's other stores are expected to transition to the Pico Broadcaster solution in 2013, when a new Peerless-AV software option will allow content to be delivered to all sites from a central location.

“Digital signage is a powerful tool for us, but the size of our stores and the number of screens made it difficult to find an efficient management strategy,” said Barbara Tronstein, vice president and owner of the third-generation business. “Cabling was expensive and inflexible, local DVD players required too much busywork and our first wireless system didn’t have the signal reach or scalability to meet our needs. MELD’s Pico Broadcaster is solving those problems, opening the door to expanded use of our TVs for marketing messages, and allowing us to focus on managing the business instead of managing technology.”

Sidebar: White-space Channels

White-space channels are a legacy of the conversion from analog to digital television that took place in the United States in 2009. These open channels sit on vacant frequencies that are not being used by licensed TV broadcast channels. Every geographic area in the United States has available white-space channels, with the number varying from one to 10 or more depending on the number of TV stations in the market.

For PeerAir Pico Broadcaster users, finding an open channel is a simple matter of visiting an online database of TV white-space channels and entering the installation site’s geographic location. The website will identify available FCC-licensed white-space channels. The cost of the first-year FCC license is included with the product.

Sidebar: Deployment highlights

- 30 screens in a 70,000-square-foot showroom
- Complete coverage with one wireless transmitter
- No standalone receiver units needed
- 350-foot signal reach
- Clear through-the-wall transmissions

- No cabling costs
 - No DVD burning or distribution
 - Easy content changes
 - Auto connectivity for screen moves and additions
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Sidebar: MELD's Pico Broadcaster: Advanced Wireless Media Delivery

With a 350-foot omnidirectional transmission range, the Pico Broadcaster wirelessly broadcasts HD media to an unlimited number of digital TVs that have an ATSC tuner and over-the-air antenna. Uses include marketing, advertising, entertainment, educational content and more for:

- Retail stores
- Restaurants/bars
- Patios
- Hotels
- Schools
- Football stadium suites
- Airports
- Outdoor sporting events
- Offices
- Factory floors
- Car showrooms
- Hospitals

Peerless AV markets an OEM version of MELD's PicoBroadcast technology as a PeerAir is the USA.