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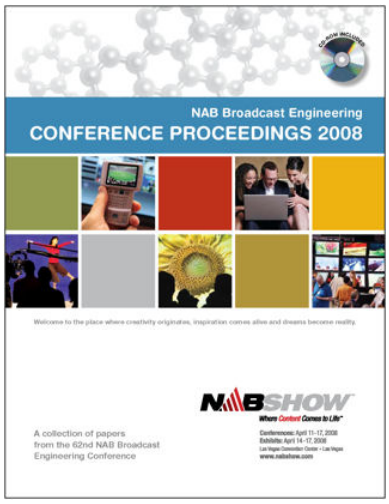
Radio Broadcasters: Building File-Based Networks

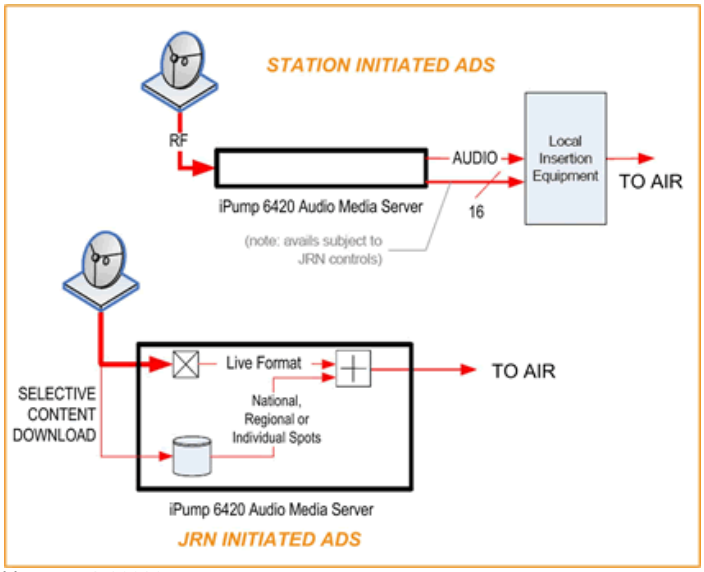
Consolidating radio services from multiple end broadcast sites to a single centralized location promises dramatic economies of scale, but also presents unique challenges. A session at this year's NAB Broadcast Engineering Conference (BEC, held from April 12-17, 2008, at the 2008 NAB Show in Las Vegas, NV) entitled "Radio Technology Advancements" included a paper (excerpted here) by Eric Wiler (Jones Radio Networks, Centennial, CO) and Gary Pelkey (Wegener, Duluth, GA) which discusses how an intelligent centralized solution allows radio networks to support the technical and business needs of today's radio networks.



INTRODUCTION – many radio networks today integrate multiple devices at each affiliate station for local ads, station identifiers, local traffic and weather. A more efficient means of achieving these goals is to leverage a centralized solution that uses addressable devices to receive live audio broadcasts, store regionalized to local content and seamlessly combine them to customize broadcasts. This solution can be achieved through a seamless combination of network control, content management and media server technology. Jones Radio Networks (JRN) is an example of a large radio network utilizing this technology.

NEXT-GENERATION DELIVERY – in 2004, JRN identified the need to enhance their products and targeting Wegener as their technology partner to develop their next-generation delivery platform. This next generation network architecture incorporates elements of file based workflows and robust management tools in both the centralized satellite uplink location and at affiliate stations. Stations may choose to receive programming from one of several music formats. Stations also can choose to subscribe to sets of short form programming (such as talk and music shows), which are not part of any particular, dedicated format. Both of the above are easily achieved with a traditional linear digital receiver and addressable control system. To keep the management of the program switching from exploding in complexity, while still allowing flexible end user selection of formats and long form programs, requires a control system that provides a "funneling" of user requests into manageable packages, which can then be implemented via "switch groups."

The JRN updated network control system provides a mechanism to, for example, switch a set of receivers, on Monday through Friday from "The Clark Howard" show to the "Neal Boortz" program, at precisely 3:00 local time. Once receivers are moved into or out of their correct switching and time zone groups, all format and switching takes place automatically, without further operator intervention. Thus thousands of stations may receive essentially custom programming without any local personnel, and without an army of centralized personnel.



PLAYING LOCAL OR REGIONAL ADVERTISING – another important 'localizing' feature is the ability to play local or regional advertising. Local stations sell advertising, and

require cueing information to properly trigger downstream insertion equipment (see figure). The receiver / media server must support this with a bank of relays for each audio output. Select relays are activated such that a relay will only close if the associated decoder is outputting an audio format that is currently undergoing a "break." These triggers can be further restricted to only those sites that have contracted for this feature with JRN, by selectively including them in special "Local Avail" groups maintained by the control system.

Alternately, ads may be inserted as files directly by the receiver / media server itself, under complete control of JRN. This is done by first loading a spot as a file onto the receiver/media server hard drive. Spots with different content (but with a common name) may be loaded regionally or individually into receiver / media servers. Then at the spot avail time, a single control system command is transmitted, resulting in highly "tailored" ad output. Using the Internet-based return path, spots are verified to have "landed" successfully on the receiver / media servers, and "As-Run" logs may even be later retrieved to verify the spots played at the station level.

TIMEZONE DELAY AND SHOWSHIFTING – Two other features made possible by file based networks are Timezone Delay and Showshifting™. Timezone Delay allows an end station to completely shift the network broadcast format such that the audio plays out of the unit in exactly the same time relationship (to the local time zone) that it had when it originated (relative to the network's time zone). Thus a typical audio format (*e.g.*, "jazz") may have all of its songs, DJ banter, liners, PSAs, and even local breaks and PAD (Program Associated Data) shifted forward in the day by a set number of hours. Showshifting is another highly customizing feature of the system. Using it, the station end user (or network operator) may "point" to a show (such as "Neal Boortz") and specify that program to play out of the receiver / media server at 9PM every evening (rather than the 10AM time at which it is transmitted). This may even occur if "Neal Boortz" is transmitted on another channel than what the receiver / media server is statically set to decode. As with Timezone Delay, all activity associated with that program (internal or external ad insertions, liners, PAD data, etc.) are captured and used in the correct manner as the show is later played out. Showshifting yields tremendous satellite bandwidth savings over linear operations. Without it, the network is forced to rebroadcast a show multiple times to allow affiliates the ability to air it at a more desired time slot.

This paper is included in its entirety in the 2008 *NAB BEC Proceedings*, available on-line from the NAB store (www.nabstore.com). For additional conference information visit the NAB Show web page at www.nabshow.com.