Radio TechCheck

NAB NATIONAL ASSOCIATION OF BROADCASTERS

The Weekly NAB Newsletter for Radio Broadcast Engineers

Public Radio Investigates Impact of Mobile Streaming Media

With the advent of "streaming apps" and pervasive mobile broadband availability, pundits both within and outside of the broadcasting industry have been pondering the impact this will have on free over-the-air local radio. In a recent white paper written for the Station Resource Group (SRG, Takoma Park, Md., www.srg.org), Media Technology Consultant Skip Pizzi reviews the technology behind wireless streaming and concludes that while the mobile Internet's impact will be significant, it is not a replacement for radio broadcasting.

Skip's paper, entitled "The Mobile Internet: a Replacement for Radio?" is excerpted below. The complete paper made available by the SRG, is at www.srg.org/delivery/10-06-28%20Mobile%20Internet%20&%20Broadcast%20Radio.pdf. SRG is an alliance of public media organizations that operate leading public radio stations across the U.S.

Wireless (or "mobile/portable") Internet radio – a substantially different environment from wired (or "fixed") Internet radio is now emerging, in which Internet radio streams are available via fully wireless means. This puts Internet radio much closer to parity with broadcast radio, at least in terms of the locations in which it is available. It is expected that such broader access will increase the growth rate of Internet radio usage, although such trends are countered by the cost of service, availability and cost of devices, and complexity of usage for Internet radio listening.

At present, it is too early to extrapolate with much precision what kind of uptick in Internet radio listening such mobile broadband usage will bring. (It is important here to avoid the practice of some analysts to overestimate the short-term and underestimate the long-term impacts of popular new technologies.) It does seem safe to conclude that Internet radio usage will continue to grow as a result of these products' and services' relatively rapid deployments; although the real impact on listening behavior may not be felt for some time.

Apps versus Web streams (HTML5)–complicating matters is the fact that most Internet radio services require a specialized application ("app") to be properly or easily received on these handheld devices. Such applications must be individually developed for each operating system (*e.g.*, iOS, Android, Blackberry, Palm, Windows Mobile, etc.), which is a labor-intensive and expensive requirement. It also requires users to download (for free or by purchase, depending on the app) and continually update these apps, for each separate service they wish to listen to on their devices.

This obstacle may soon dissipate, however, as the gradual release of HTML5 support in browsers and devices continues. Among HTML5's highly anticipated features is native audio support by browsers, which may eliminate the need for streaming media apps in mobile devices (and for that matter, eliminate the need for browser "plug-ins" or media players on PCs for streaming media playback). Just when this development will occur is a complex question, since it varies by browser and by streaming media codec supported. But there is at least hope on the horizon that the requirement for development of platform-specific apps for mobile Internet radio listening is not a permanent prerequisite.

Broadcast +/- online–another key trend likely to emerge soon may bring to the marketplace an increasing number of devices that include both broadcast radio reception and Internet access capability. While both services are massively deployed, the ability to access them both rarely appears on the same device today. This omission is unlikely to last much longer in the age of broadly converged multi-function personal devices.

Given this prediction, it is worth considering ways in which broadcast- and Internet-delivered services might work together to bring a rich media experience to the user. This is another fundamental change, in that up to the present we have thought about broadcast and the Internet in an "either/or" position for delivery methods. The most obvious reaction is a reduction in duplication of services by broadcasters. If local listeners can largely receive both broadcast and online services, it is inefficient to provide identical content on both platforms.

Obstacles to a complete transition–while the above discussion indicates just how competitive Internet radio has become to broadcast radio, the two services remain widely divergent. One is a broadcast service and the other is a telecommunications service. This is akin to positing that a radio and a telephone are equivalent because they both produce audio. The two services are regulated differently and have wholly differing delivery architectures (broadcast being a one-way, point-to-multipoint service, and the Internet being a two-way, point-to-point connection). Regardless of their movement toward parity from the radio listener's perspective, each service offers broadcasters a different value proposition, cost-per-listener calculation and monetization model.

While such similarities to the user may allow broadcasters to apply some of their tried and true experience with broadcast radio to the provision of online service, there are many unique elements to Internet radio service, which traditional radio service providers will need to fully understand if they are to succeed equally in the online space.

Technical differences–the primary distinction between broadcast and Internet radio is one of potential audience reach. Within a given service area, broadcast radio's potential audience is unlimited. On the other hand, while Internet radio's service area is essentially unlimited, its ability to serve individual users is always finite. Regardless of how much infrastructure is developed, it is impossible for Internet radio service to reach the truly infinite scalability that broadcast radio inherently provides within its service area. Therefore some constraint will always exist regarding audience members' access to Internet-streamed services, and this could be seen as particularly inappropriate for services produced by publicly funded broadcasting entities. Retaining at least a baseline of broadcast-delivered channels precludes such potential denial of service.

That said, the bandwidth requirements of audio-only services are relatively small, and ongoing codec development continues to reduce these requirements. Thus, in contrast to theoretical constraints, the practical limits of available Internet bandwidth may indeed be adequate to service all the users a given Internet radio service attracts in the wired environment described above.

In the wireless domain, however, additional constraints apply. Even though a given Internet radio channel's server architecture and Internet backbone requirements may be adequate to respond to all users, the users in a particular area served at "the last mile" by a given wireless service provider may at some time overwhelm that provider's capacity at that location ("maxxing out the cell site"). Therefore wireless Internet radio remains particularly vulnerable to occasional service outages due to scalability problems.

Looking ahead–rather than being preoccupied by the question of Internet versus Broadcast service, the key process that broadcasters should consider today for planning and future investment is the development of compelling visual content to enhance their radio services, along with examination of the currently emerging methods proposed for synchronous delivery of such content to enabled devices.

RADIOSHOW
Produced by RAB and NAB

Ask the Experts at the Radio Show
September 29–October 1, 2010
Grand Hyatt Washington ● Washington, DC

Ask *the Experts* is a series of sessions specifically designed by NAB Science and Technology for radio engineers and others interested in the future for radio broadcasting from a technology perspective. It will put you in front of people who are changing the rules, crafting new ones and enforcing compliance. Whether you handle technical operations at a small station, are in charge of a station group, or a consultant in the radio industry, *Ask the Experts* will offer a unique opportunity to join your colleagues and peers grilling our speakers for accurate answers to your most pressing questions. You may find the schedule for *Ask the Experts* and the other events plus information on registration and housing on the Radio Show website.

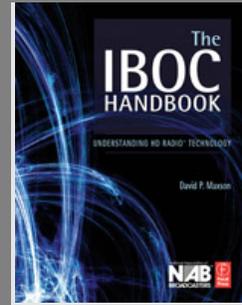## Proposals Now Being Accepted for
2011 NAB Broadcast Engineering Conference
Las Vegas Convention Center, Las Vegas, Nevada
Conferences April 9 – 14, 2011/Exhibits April 11 – 14, 2011
Deadline for submissions is October 22, 2010.

The 2011 NAB Show will host the 65th NAB Broadcast Engineering Conference. This world-class conference addresses the most recent developments in broadcast technology and focuses on the opportunities and challenges that face broadcast engineering professionals. Each year hundreds of broadcast professionals from around the world attend the conference. They include practicing broadcast engineers and technicians, engineering consultants, contract engineers, broadcast equipment manufacturers, distributors, R&D engineers plus anyone specifically interested in the latest broadcast technologies.

In order to be considered, proposals must explain what attendees can expect to learn from the paper, must not be a sales pitch and should be no more than 200 words in length.

Papers accepted for presentation at the 2011 NAB Broadcast Engineering Conference will be eligible for the NAB Best Paper Award. Established in 2010, the Best Paper Award honors the author(s) of a paper of exceptional merit published in the *NAB Broadcast Engineering Conference Proceedings*. The yearly proceedings, published as both a book and a CD-ROM is a compendium of these technical papers, and an important archive of the leading edge of broadcast engineering issues.

Technical paper proposals submitted for the 65th annual Broadcast Engineering Conference will be accepted until the October 22 deadline. If you have any questions, contact John Marino, VP NAB Science and Technology at (202) 429-5346.