

Digital radio could be more satisfying, but will it?

by Mike Starling

Originally published in Current, March 25, 2001

Digital radio is not about technical quality. Some of the worst audio you'll ever hear will be digital audio. Although compression technology continues to improve, some digital service providers inevitably want to devote fewer bits per program stream so that they can air more programs at once.

Digital is also not about cost-effectiveness. This year, NPR is retiring scores of analog reel-to-reel recorders, some in service as long as 30 years. From now on, we'll be tempted to replace audio equipment at the same furious rate that computers become obsolete.

And digital is not about speed. Though digital technology can save time in audio postproduction, it also lets producers extend their quest for the best, absorbing any time saved. (You'd be surprised to know how cleverly some are painstakingly simulating spontaneity during "post.")

What is digital really about? Its overmastering attribute is that it engages the computer, the first machine that manipulates content. Whether it's doing voicemail, a digital automation system or a transmission protocol like the iBiquity digital radio proposal now pending at the FCC (story, page 1), digital technology's stellar achievement is all about slicing and dicing content. That's good news for public radio, since we're here to create compelling content.

Long before we had heard of the Internet, I wrote in Current about the wonders of digital technologies to come. Back then, my notion of national program hosts sitting at home and recording segments for national broadcast probably seemed a bit overdrawn. But today, the innovative *JazzWorks* collaborative production model developed by Boise State Radio and WDUQ in Pittsburgh has become a model for widespread emulation. And correspondent Ivan Watson can now send a report from his laptop computer in Afghanistan through a briefcase-sized Inmarsat satellite uplink and directly into NPR's digital production system in Washington. The fanciful musings of a decade ago are no match for the commonly deployed tools of 21st century broadcasters.

What's truly exciting is what's coming for listeners.

Listener behavior appears to be ruled by a maxim of human nature posited in the 1950s by communications theorist Wilbur Schramm: Individuals turn their attention to media that gives them high expectations of reward for the amount of effort required. Schramm's formula indicates how many readers will go inside a newspaper to read the rest of a front-page story, or how many web visitors will "drill down" for more information on a public radio website.

Public broadcasting's long-term success may depend on how well we leverage opportunities for high satisfaction and low effort in an all-digital environment.

The artful prosumer

On the receiving end of broadcasts, listeners and their digital helpers are taking a much more active role than in the past. Radio may be approaching a breakthrough that Alvin and Heidi Toffler termed Prosumption—the act of consumers producing their own high-quality goods with the help of technology and perhaps some thoughtful assistance from people on the sending end of broadcasts, like you and me.

TiVo is a pleasing example of an early media prosumption device. (Caution: evangelist at work.) Even at early-adopter pricing, TiVo has been the best media device I've purchased to date. My family never misses *Now*, *West Wing*, *Washington Week*, *Providence*, *Sopranos*, *60 Minutes* or *South Park* (yes, the kids are still at home). We never have to rush to meet a start time. We no longer care about commercial interruptions or particularly mind when friends call during a program. Our favorite moments can be played and replayed instantaneously, until we're content or saturated. If our aging ears miss a line, we can hit the "last eight seconds" button and hear it again. With advanced search criteria, we easily find and command the capture of beloved classics fed in the middle of the night, otherwise lost in the clutter of 500 channels. While we watch no more TV than before, we enjoy it more.

The problem is, I've become an increasingly frustrated radio listener. TiVo users routinely lament the lack of a radio version. If only I could start the latest hour's *Morning Edition* when I get into the car. If only I could skip over pledge breaks (after calling in my contribution, of course). If only I could hear Sylvia Poggioli, the Tappets, Cokie, Tavis, Garrison and Stephen Hill when I've got the minutes and yearning for them. If only.

Let's imagine a radio version of TiVo called PAR/ROT—Personal Audio Recorder/Radio On Tap. Parroting is exactly what it will do for us, repeat what we want, whenever we ask. It's coming, and it will forever change how listeners use our programs.

Our part in this is adding digital tags to content so that machines like PAR/ROT can manipulate it.

With program choice directly under the control of the prosumer, not the program director or serendipity, expectation of reward will be high and the effort required will drop virtually to zero. Under Schramm's hypothesis, user satisfaction will skyrocket.

When listeners have PAR/ROT devices, we'll be able to air compelling niche programs in off hours that will compete on an open playing field with the blockbusters of primetime. Radio will have shifted from a serial, temporal delivery technique to access on demand.

Except for live programming, primetime will have nothing to do with when programs are transmitted. It will be the refreshing time I spend with my most cherished radio companions.

Listeners and their PAR/ROTs won't be entirely on their own. Astute PAR/ROT owners will seek out programmers and editors to suggest content they will enjoy and expand their horizons to new programming they're likely to appreciate.

TiVo already offers a crude “suggestions” protocol that recommends programs because they feature performers or writers you’ve chosen in the past. Sometimes it works well, sometimes not. Video stores also offer a “Mark’s Suggestions” shelf of tapes, and Amazon.com bases its recommendations on the preferences of other buyers who share some past selections with you. Imagine a cottage industry of content advisors who use demographic and focus group research and layers of three-dimensional modeling of audience proclivities to make recommendations and save content on your storage device in case you’ll like it. TiVo or PAR/ROT owners will want to be thoughtfully nudged toward content that will be even more satisfying, as public radio tends to do.

It’s the receivers, stupid

Where the proposed digital radio plan could stumble is if regulators fail to anticipate and preserve opportunities for innovative services when they craft the FM-IBOC rules.

Warts and all, FM-IBOC works pretty well. It’s much improved over the 1995 version—reasonably interference-free on analog radios, with a sound quality statistically indistinguishable from a CD recording.

It also offers the potential of multiple simultaneous channels—an important means of satisfying our listeners, though this will happen only if the receivers are designed to handle multiple channels. This may require mandating multimode receiver standards—an affirmative step of the kind the FCC has traditionally avoided.

During the first part of the transitional period for IBOC, when stations air both analog and digital streams on the same channels, a frequency will be able to carry both a digital music-grade channel (equal in quality to XM or Sirius satellite radio, with a bit rate of 64 kilobits per second) and an AM-grade digital voice channel, as well as the analog stream and various digital data services.

Later, in the “extended hybrid” part of the transitional period, the channel could carry two satellite-grade music channels and a voice channel.

And then, some years from now, when few people still use analog radios and broadcasters go entirely digital, the channel could deliver the equivalent of three or four channels equal in quality to compact discs, with a bitrate of 96 kilobits per second. Or the broadcaster could devote the whole channel to a surround-sound channel. This would be the equivalent of the DTV option of high-definition broadcasts.

The lack of a federal effort for multimode digital radio standards could make IBOC a short-lived deadend and delay the advent of successful digital radio. UHF television nearly died until the All Channel Receiver Act that required manufacturers to include UHF tuners in sets. The spread of closed captioning and stereo TV audio were hampered by the lack of universal mandates.

As public radio has learned time and time again—with Channel 6 interference, with SCA performance and with third-order intermodulation interference—it is receiver design that defines and often limits the services delivered to our audiences. The design of future digital radio receivers will either bear the fruit of innovation or will squander a promising opportunity.

We currently lack tests on listeners' subjective reaction to different multimode transmission formats, which will provide valuable information to help broadcasters make informed decisions on specific services to offer. No one knows how low bit rates will go while retaining good sound. This work can be pursued immediately.

We've recently lost a shepherd, statesman and friend—Rick Madden of CPB—who spent his final energies urging us individually, and as an industry, to think unabashedly big. As he told us when receiving the Ed Murrow award, "We're not a smaller-is-better enterprise anymore, and none of us can think with that mindset."

Is it too implausible that public radio could consciously leverage digital opportunities to maximize listener satisfaction? And if we took those steps, is it possible that public radio might emerge as the killer application of digital radio?

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