

Static on the Standard Broadcast Bands? The Economics Are Pushing Alternative Media To Replace Radio

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It has been fashionable of late to say traditional radio and TV is dead. On the cover of Wired Magazine's March 2005 issue has in bold letters on the front "THE END OF RADIO" over a picture of a portable radio with a bullet going through it¹. The trouble is that the three articles dedicated to the cover don't really dig into the true reasons of radio's certain demise. They try to deify Howard Stern and his "fight" with the FCC. They cover an experimental format on "Indie 103" in Los Angeles. They finish with an essay of the short history of Podcasting. Each one of these stories does not cover the economics of each product. How will they be sustainable? What will drive the success of each story?

Of course, broadcasters have been complacent, in much the same manner as the music industry ignoring the new content distribution methods like what audio codecs and the Internet provide. They have been business as usual for some time now and not noticing that their audience is leaving them for other ways to get music and news content. This is a problem as the business model for almost all of the licensees in the standard broadcast bands, is to bring as many qualified listeners as cheaply as possible to advertisers. With enormous debt service and loss of audience due to competition from the Internet, iPods, CDs, satellite radio and the Internet, can broadcast incumbents survive with over-the-air transmissions?

The Stats: The Radio Audience Is Leaving

For some time now the percentage of the population that listens to radio is continuing to decline² as shown below in "Figure 1". Although the trend has been slightly less than 1.3% of the audience leaving over the last 6 years, it has been a constant trend down.

Not only is the radio audience leaving, they listen for shorter periods of time as seen in "Figure 2". Currently listeners spend about 90% of the time listening as they did 6 years ago. Many broadcasters think this burnout is a result of the increase spot load that stations have done to increase revenues.

¹ <http://www.wired.com/wired/archive/13.03/>

² http://www.stateofthenewsmedia.org/narrative_radio_audience.asp?cat=3&media=8

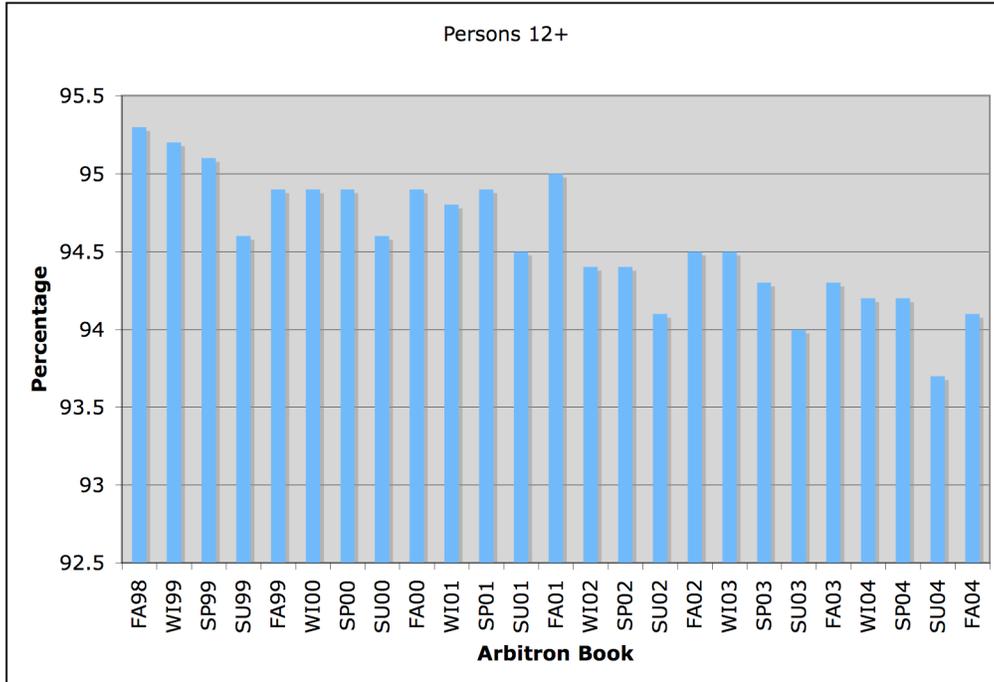


Figure 1 - Declining Radio Audience – Source Arbitron³

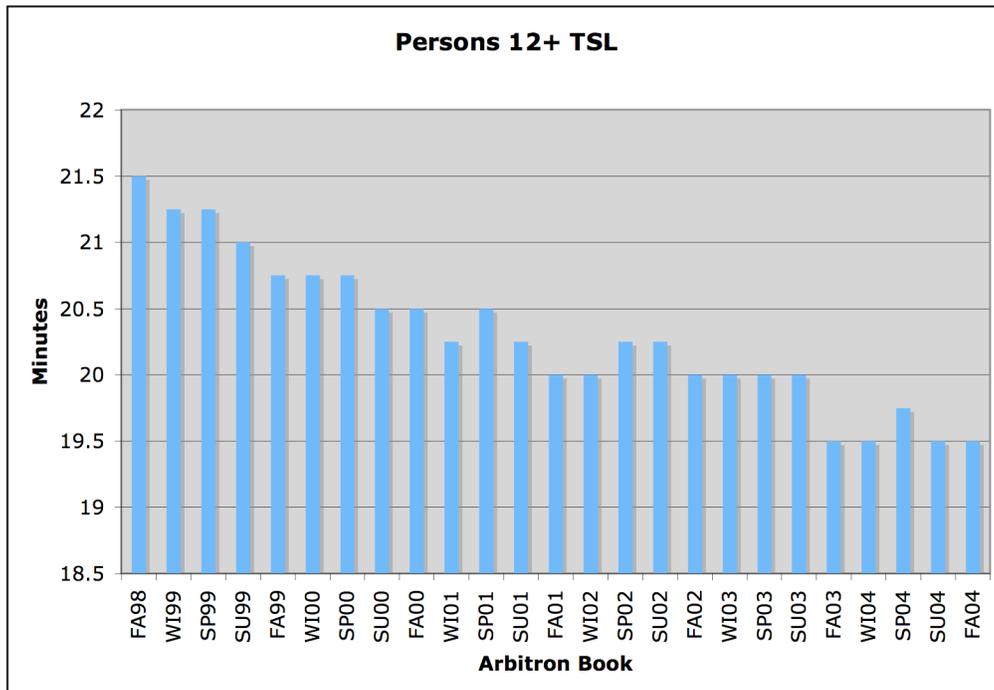


Figure 2 - Declining Time Spent Listening - Source Arbitron⁴

³ Daypart: MON-SUN 6AM-MID Geography: Total US - <http://wargod.arbitron.com/scripts/ndb/ndbradio2.asp>

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Lately listeners are less likely to tune in for music. In the Fall 2004 Arbitron, 82 percent of the radio audience listens to music stations⁵. This is a drop of 1.6 percent from a year ago and 3 percent from the Summer of 2000 Arbitron book⁶. A question one would ask here is where is the audience going to get their music?

Where are they going?

Arbitron reports as of January 2004, 68 percent of American homes had Internet access. 24 percent of American homes had broadband access and it has tripled in the last three years⁷. With Internet access we are also seeing a large percentage of the population listening to Internet broadcasts as in the same Arbitron report showed 41 percent of the US population had tuned into an Internet broadcast in the last month⁸. Arbitron is seeing the Internet and broadcast streams as a factor in the decline in television viewer-ship. Of those with Internet access, those that do not view or watch broadcast streams spend 41% of their time with media in watching television. Of those watching and/or listening to streams this drops to 32%⁹. Certainly the time spent with the Internet is replacing television time and why not? Internet content is multimedia rich with metadata, interaction, graphics, etc.. In this Tivo-aware culture, it is also on-demand. You don't have to wait until "the eights" to hear how the traffic will be when you drive home. You can just go to the map showing how fast the traffic is going on your path home.

They are only now waking up.

Only recently they understand they are not the only game in town and are responding. Clear Channel has recently started to modify its programming to keep from losing more listeners by reducing the number of spots broadcast per hour¹⁰. At the same time, nearly every commercial station is donating air time to the National Association of Broadcasters produced "Radio. You hear it here first" promotional spots¹¹. This is a sizable campaign as it will be replacing a total of \$28 million in commercial inventory. Is it enough?

⁵ http://www.medialifemagazine.com/News2005/feb05/feb14/4_thurs/news3thursday.html

⁶ <http://wargod.arbitron.com/scripts/ndb/ndbradio2.asp>

⁷ Arbitron's "Internet and Multimedia 12: The Value of Internet Broadcast Advertising" - <http://www.arbitron.com/study/internet12.asp>

⁸ Arbitron's "Internet and Multimedia 12: The Value of Internet Broadcast Advertising" - <http://www.arbitron.com/study/internet12.asp>

⁹ Arbitron's "Internet and Multimedia 12: The Value of Internet Broadcast Advertising" - <http://www.arbitron.com/study/internet12.asp>

¹⁰ <http://www.radioink.com/headlineentry.asp?hid=127169&pt=inkheadlines>

¹¹ <http://www.washingtonpost.com/wp-dyn/articles/A64339-2005Jan10.html>

Debt Service and Write Downs

Licenses for radio were bought at record highs after the Telecommunications Act of 1996 with the relaxation of FCC's rules in how many stations can be owned in a market. This started a gold rush of property acquisition where properties were bought at 10 times the rate they were sold some of years before¹². Even with Clear Channel's¹³ and Viacom / Infinity's¹⁴ write down of their property to the tune of \$23 billion, they still have to cover their debt service¹⁵.

This mad rush to purchase stations was at the same time of unprecedented demand for advertising by the "dotcom" boom. Budgets were set, debt service was accounted for in the heyday of this boom. Every publicly traded company that went on this buying spree in the late 90s has significant pressure to perform from the stockholders. For instance, Clear Channel's stock with 1200 stations had a high of 84 in 2000 and as of this writing is currently trading at 34¹⁶. Every year it has been constantly trending down from 2000. In the last 52-week period its high was 44.50¹⁷.

Most of these companies hoped that consolidation would cut their bottom line and bring significant efficiency to the operations of these stations. Unfortunately, consolidation can only go so far as a station still needs sales people, engineers and programmers. Admittedly, with advancements in digital audio storage, announcers can be cut back as automation can replace most or all of a broadcast day. But this is only a small portion of a broadcast station's budget. Further financial "adjustments" are in order.

Economic costs of audio content distribution - FM/AM standard broadcast bands vs. web streaming

Is Internet broadcast a sustainable model?

Besides the costs of the license/debt service, there is staffing of sales, programming and management. We also need to consider the of transmitting the program to the listener. Transmitters, transmitter locations, antennas, etc. can be rather expensive to purchase, install and operate. With the lower cost of broadband to the home and the development of low bit rate audio codecs, radio stations are just starting to look at the Internet as another method to reach and sell to listeners.

¹² For example, KKSF-FM (San Francisco) was bought in 1987 for \$15 million. A year after the Telecommunication Act of 1996 deregulated ownership caps, it was sold for \$115 million.

¹³ http://money.excite.com/jsp/nw/nwdt_ge.jsp?news_id=cmt-056w1579&feed=cmt&date=20050225

¹⁴ <http://www.broadcastingcable.com/article/CA506312.html?display=Breaking+News>

¹⁵ FCC's "Review of the Radio Industry" 1997, 2000 and 2001 - <http://www.fcc.gov/mb/policy/radio.html>

¹⁶ <http://www.nyse.com/about/listed/lcddata.html?ticker=CCU&fq=D&ezd=1Y&index=5>

¹⁷ <http://www.nyse.com/about/listed/lcddata.html?ticker=CCU&fq=D&ezd=1Y&index=5>

In the 1990s, Internet bandwidth costs and the lack of availability of good quality audio codecs prevented almost all stations from financially justifying streaming. Many would treat streaming as a promotional gimmick for branding.

Many stations are still under the assumption that bandwidth costs are too high and would not be able to bring listeners to them at the same cost as over the air transmission. A couple of years ago when bandwidth was \$100 a megabit per second per month this argument could be made. With surplus of fiber, collocation space and transit providers, bandwidth has dropped to 1/10th of this price. At least one “Tier 1” Internet provider is now offering transit bandwidth for \$8.50 per Mb/s per month.

Another drop in Internet bandwidth costs have been the development of better audio codecs. Early codecs such as G.711 a-law and Real Audio’s early releases required 64 Kb/s and had a significant amount of “artifacts” to muddy the quality of the audio. Fraunhofer Institute and THOMSON developed the MPEG1 Layer-3 (aka “MP3”) audio compression standard. With the same bandwidth MP3 was able to produce a much better the quality audio stream. Recently Dolby’s AAC codec used in MPEG4 has dropped the required bandwidth again. Using only 48Kb/s, an audio content provider can stream pretty good quality stereo audio.

“**Table 1**” shows a comparison of cost per listener of over the air delivery verses the Internet broadcast. Assuming that bandwidth is purchased for \$10 a Mb/s per month, a station has an average of 1000 listeners 24 hours a day for a month and they are playing 12 RIAA licensed songs per hour, the cost of streaming pretty much matches the cost of running a transmitter. More than 90% of this cost is paying for RIAA license fees. If a station streaming can avoid RIAA material, such as a talk station, their cost per listener to stream is less than 1/10th the cost of running a traditional terrestrial FM transmitter. Or seen another way, content providers can make ten times the profit!

Streaming also has its advantage as the radio is typically used by listeners 6AM to 7PM Monday through Friday. Listener number fall off sharply after 7PM¹⁸. So the two places that radio tries to reach is into the office and into the car. With the ubiquitous deployment of computers in the office place, many listeners are getting their station streamed to them.

“Drive Time” is a little more difficult to reach listeners with streaming. This is where on-demand and cached content are starting to make their mark. Companies like audible.com are distributing NPR programming such as “This American Life”, “Le Show” and “All Things Considered”. A number of stations are freely distributing programs on their web site. KFCF in Fresno¹⁹, has the whole broadcast day in ½ hour chunks available for download to a laptop or a MP3 playback devices such as Apple’s iPod. For the most part, the bandwidth costs with on-demand distribution are the same as the streaming

¹⁸ Of the total US population, radio reaches 21% Monday through Friday from 6AM to 10AM; 20% M-F 10A-3P; 18.1% M-F 3P-7P; 6.9% M-F 7P-Midnight; 2.5% Monday-Sunday Mid-6A – source: Fall 2004 Arbitron Book @ <http://wargod.arbitron.com/scripts/ndb/ndbradio2.asp>

¹⁹ <http://www.kfcf.org/archives/>

costs. It is only a matter of time where this feature will be standard for cars. In 2002 BMW started shipping interfaces to iPods²⁰. Many after-market makers are coming up with their own solutions²¹.

For the long drives, caching and on-demand may not be as convenient. We do see a number of truck stops offering WiFi access²² but this only works when a truck or car is parked near an access point. Mobile phone companies can fit the niche of sending content to listeners on the move. The infrastructure is already deployed. Cellular systems follow major highways right now.

Phone manufactures should consider building units that can cache and display good quality video and high quality audio²³. A phone with with just 1GB of flash can easily store 12 to 48 albums of music or 3 hours of medium quality video. With the speeds that 3G can support, real-time delivery of high quality audio can be supported but likely will and should be cached to avoid taxing the cell network. Demand of real-time audio content can be restricted to news sources that can be better compressed to require much less bandwidth.

Cellular phone companies have extensive experience with micro-payments and billing. Audio and video content can be either charged for as a flat rate service or can be parceled out in an “iTunes” model of 99 cents per track. Ring tones are already a hot commodity and sold in the same manner.

Cellular phone companies need to see themselves as the next “Standard Broadcast Band” and major content distribution channel.

²⁰ <http://www.ipodyourbmw.com>

²¹ <http://www.carplayer.com/>

²² http://www.tonservices.com/hisp_home.htm

²³ at least 44.1Khz sampling at 16 bit

Transmission Costs - Standard Broadcast vs. Webcasting			
RF Broadcast			
Capitol Costs	Purchase Price	Lifetime (yrs)	Monthly Cost
STL Antennas	\$1,500.00	10	\$12.50
STL Transmission Line	\$2,000.00	10	\$16.67
STL Cavity	\$600.00	10	\$5.00
STL Composite TX and RX	\$4,000.00	10	\$33.33
Stereo Generator / Audio Processing	\$10,000.00	5	\$166.67
Remote Control	\$3,000.00	10	\$25.00
Modulation Monitor	\$5,000.00	10	\$41.67
Transmitter	\$50,000.00	10	\$416.67
Transmission Line	\$20,000.00	10	\$166.67
FM 4 bay antenna	\$20,000.00	10	\$166.67
Antenna and Line install	\$7,500.00	10	\$62.50
Dehydrator	\$2,000.00	10	\$16.67
Generator	\$30,000.00	10	\$250.00
Electrical Install	\$1,000.00	10	\$8.33
Air handling	\$5,000.00	10	\$41.67
Monthly Recurring			
TX site rental			\$4,000.00
Power			\$1,500.00
RF Total Monthly Costs			\$6,930.00
Web Cast			
Capitol Costs	Purchase Price	Lifetime (yrs)	Monthly Cost
Streaming Server	\$2,000.00	3	\$55.56
Encoding Server	\$2,000.00	3	\$55.56
Monthly Recurring			
Studio DSL			\$100.00
Rack Space (1 RU box)			\$75.00
Streaming Bandwidth Costs			\$480.00
CARP cost per performance			\$0.000762
RIAA licensed songs per hour			12
Monthly CARP costs			\$6,408.12
Streaming Total Monthly Costs			\$7,063.12
Monthly average of number of concurrent listeners	1000		
Bandwidth / Stream (Kb/s)	48		
Average Bandwidth (Mb/s)	48		
Cost of Bandwidth (\$/Mbs/Month)	\$10.00		
Streaming Cost per listener	\$7.06		
RF Broadcast Cost per listener	\$6.93		

Table 1