Wheatstone
WHITE PAPER

Revenue Generating Public Radio Technologies:

A progress report

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Introduction

The original idea for this study came from an earlier study, sponsored by Wheatstone Corporation, entitled “Revenue Generating Radio Technologies: A Progress Report.” That study, which measured the implementation of revenue generating technologies at commercial radio stations, was widely distributed, discussed, and quoted.

The idea to create a similar study on public radio business models came after discussions with Rich Parker, Director of Engineering at Vermont Public Radio, as we looked to present findings from the original study at the upcoming Association of Public Radio Engineering Conference. It seemed like a good idea except that the study was really focused on commercial radio, not public radio. We decided to redo the study, this time customized for public radio, by replacing questions that related to commercial radio with appropriate questions for public radio. Wheatstone, which sponsored the original study, generously agreed to sponsor the new study as well.

Many people volunteered to help adapt the study for the needs of public radio. Thanks must go to:

Doug Eichten, President at DEI, and Marlene Schneider from the DEI staff, for donating time to help get the fundraising questions right.

Chuck Leavens, CEO of Leavens Engineering, who agreed to distribute the survey through Pubtech, the list serve he manages.

Michael LeClair, Chief Engineer at WBUR in Boston, who helped to reframe many of the technical questions for public radio.

Jeannie Ericson, Executive Director of the Integrated Media Association and Sondra Russell from NPR.org for their help in framing the digital media sections.

Marjorie Stone of Stone Marketing, who used her 11 years experience as Marketing Manager for WGBH/PBS National Sponsorship Sales to help us get the questions on sponsorship sales right.

Alethea Research, which conducted the actual survey.

Josh Gordon

Director of Marketing and Content Development

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The Survey Sample:

This survey was deployed through an email list provided by the list serve, Pubtech. Pubtech manager Chuck Leavens handpicked a list of the top participants in Pubtech, creating a list of possibly the most engaged engineers in public radio. Here are the demographics of the survey respondents:

AM or FM

The majority of respondents in the sample are FM stations (74.8%). There almost no AM or "streaming only" stations represented. Respondents who selected the "other" category included TV- FM combinations and those working for NPR:

FM stations:	74.8%
Combination AM/FM stations:	16.5%
Other:	7.0%
AM stations:	0.9%
Streaming only stations:	0.9%

Ownership

A majority of respondents were from standalone stations. Most respondents from the "other" category were "university owned," or part of a small regional network.

Standalone station	48.7%
Part of a station group	20.9%
Part of a statewide network	14.8%
Other	15.7%

Market size by ADI

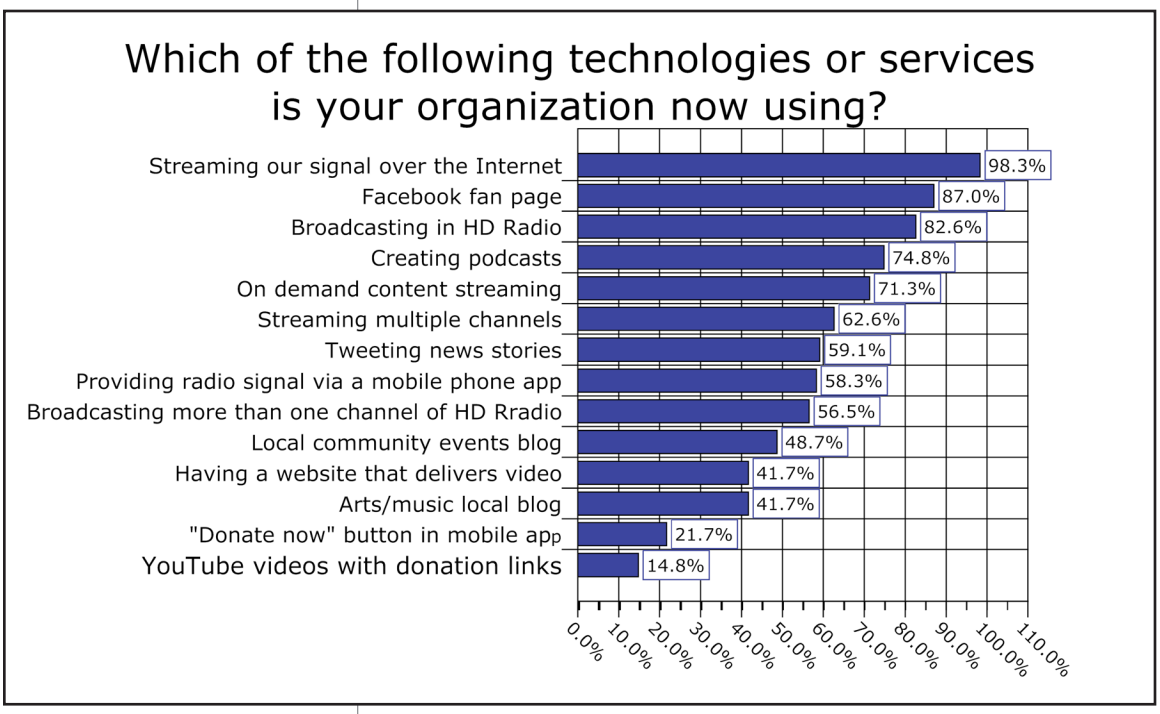
The study covered stations in markets of all sizes:

1-25	29.1%
26-50	24.5%
51-100	17.3%
100 +	29.1%

While reading the results of the survey, it should be understood that this is not a census of public radio infrastructure, but rather a view of the direction where technology is headed, as seen by a significant number of the best and most engaged engineering minds in public radio.

Finding #1

Streaming, Facebook , HD Radio and creating podcasts are the top technologies and services used by public radio to meet their economic needs

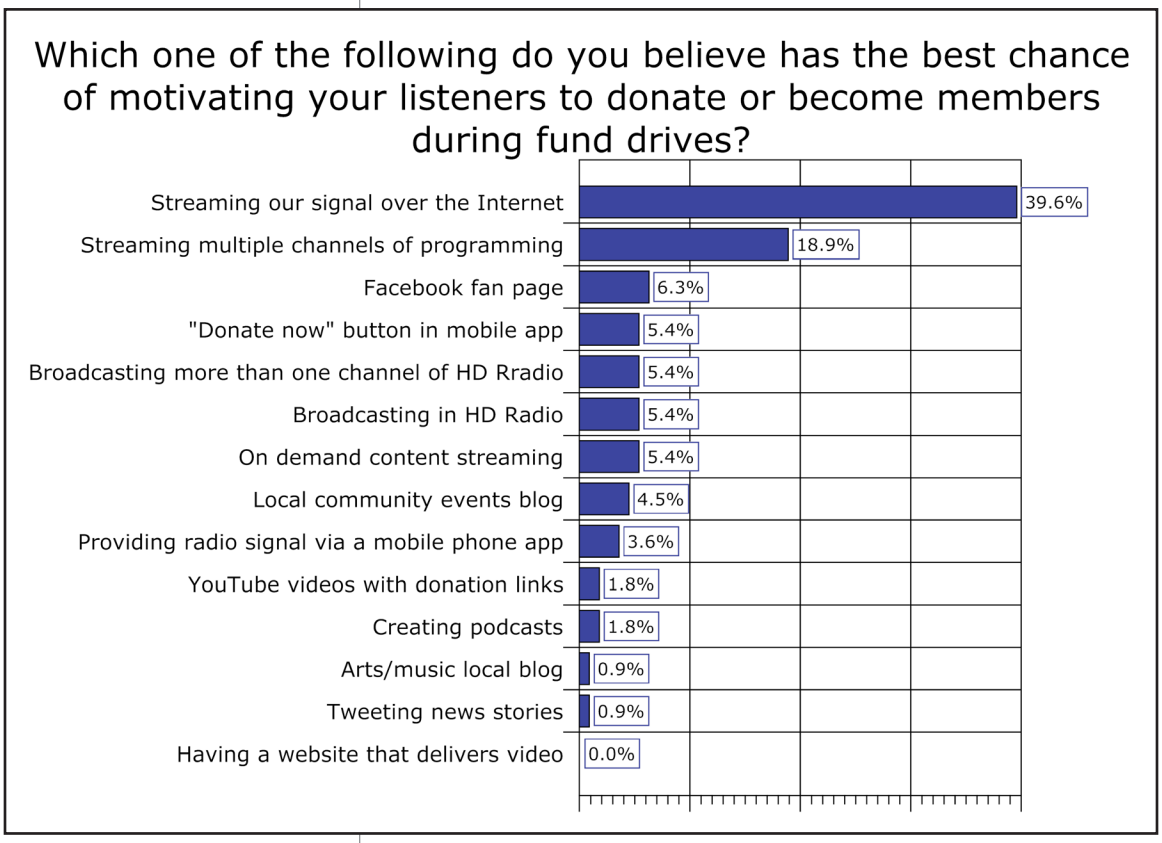


Virtually all public radio stations covered in this survey are streaming their signal over the Internet. For example, according to Kent Hatfield, VP Technology & Operations for WXXI Public Broadcasting Council, "For us, the opportunity to stream content from our AM radio service expands our footprint in the market, as AM is not easily receivable in many homes and workplaces. The advent of IP radio devices moves streaming more toward the original personal radio model that has existed for years." Facebook fan pages are also extremely popular, with 87% of the public radio stations surveyed making use of them. According to Terrence Dupuis, Chief of Broadcast Operations for St. Louis Public Radio 90.7 KWMU, "the Facebook fan page adds a personal feel for the listener and provides direct feedback in almost real time for the station." Other popular services and technologies being used include broadcasting in HD radio (82.6%), creating podcasts (74.8%), and delivering content on demand (71.3%). Only a little more than half the stations are broadcasting more than one channel of HD radio (56.5%), but one of them is WYSU-FM, where broadcast engineer Ron Krauss shares,"We broadcast two services -- one news, information, classical and specialty music, with the companion service dedicated entirely to classical music, both locally produced and syndicated. Also, our four streams are mentioned frequently during listener feedback offerings."

As mentioned in the methodology section of this report, keep in mind that the people responding to this survey are among the most engaged and active engineers in public radio. It is possible that their stations will tend to be more progressive than other public radio stations. However with them leading the way, others will follow.

Finding #2

Streaming a station's signal over the Internet is the top revenue generating technology for motivating listeners to participate in fund drives.

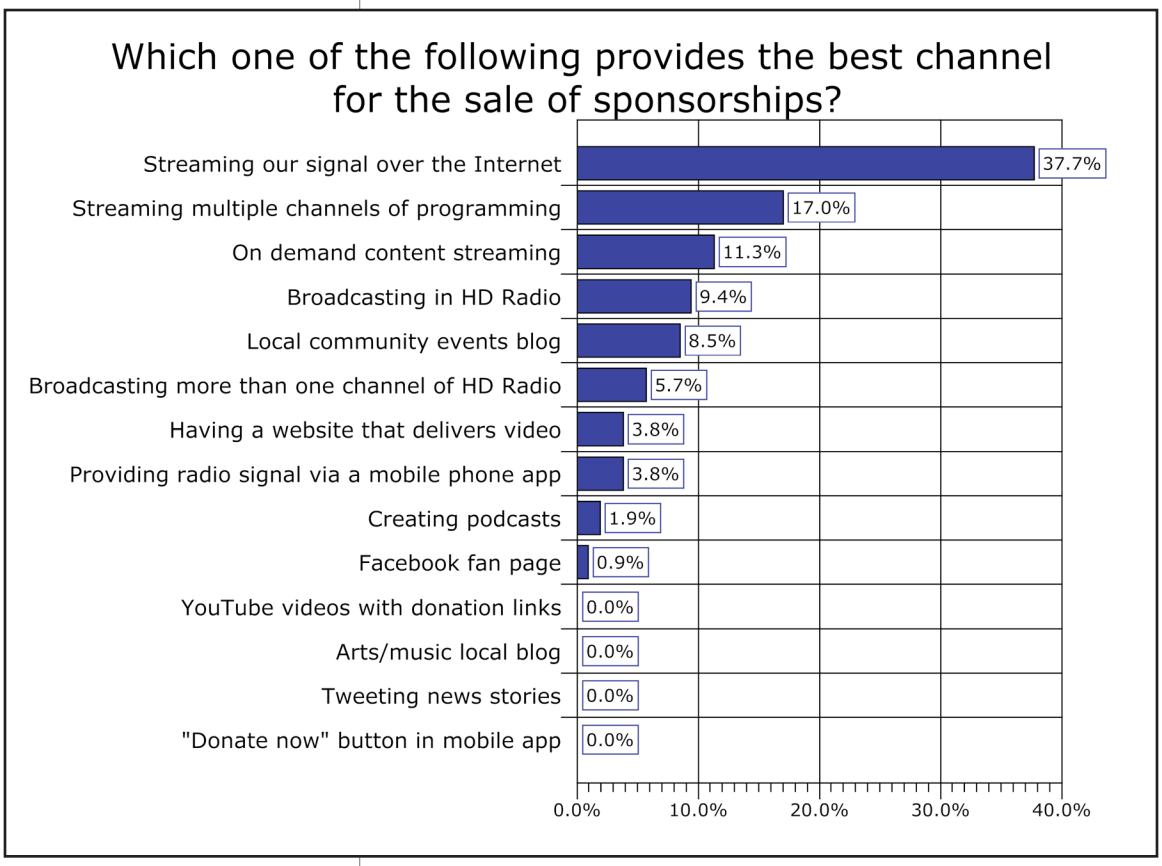


When respondents were asked to review the same 14 revenue-generating technologies from the previous finding and pick the one that would best motivate listeners during fund drives, two of the three streaming options took the top two slots. While 39.6% of respondents chose "streaming our signal over the Internet" and 18.9% selected "streaming multiple channels of programming, all other options received only single-digit scores.

However, another respondent, Chuck Leavens, CEO of Leavens Engineering, believes that listener motivation is all about content. Says Leavens, "I do not believe any of these answers are truly appropriate. It is content and not technology that drives pledging. It is our job to provide all of the platforms for the content, but if there was an appropriate technology for this question it would be to have the 'Pledge Now' button never far away from the user experience, no matter what the platform."

Finding #3

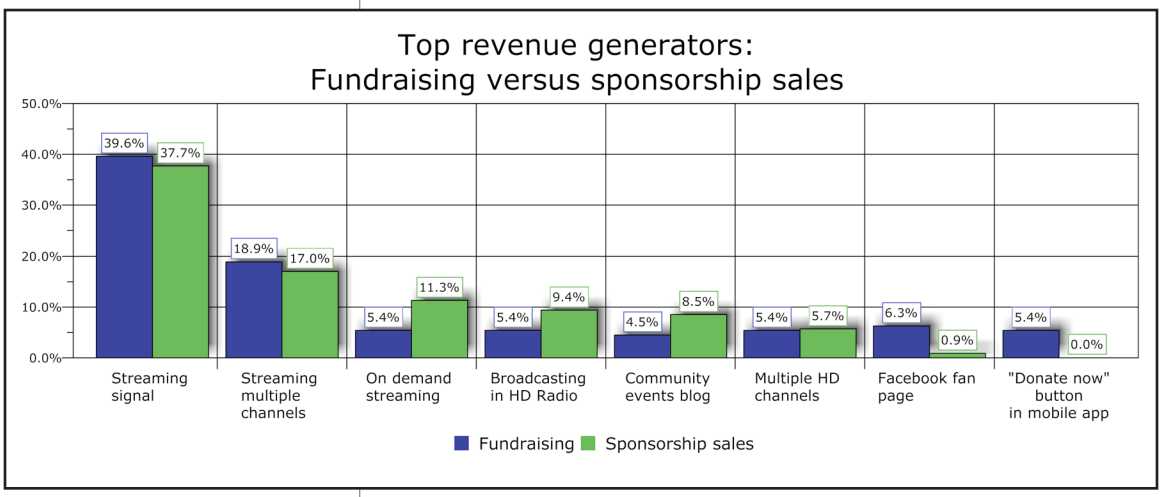
Different forms of streaming comprised the best channels for public radio sponsorship sales.



Using the same 14 revenue-generating technologies, we then asked respondents to pick the one that represented the best channel for sponsorship sales. “Streaming our signal over the Internet” and “streaming multiple channels of programming” took the top two spots as they did in the previous finding. But this time the third streaming option ranked third: 11.3% of respondents saw “on-demand content streaming” as providing the best channel for the sale of sponsorships. We also saw some extremely low scores. For example, almost no one picked Facebook even though in general it was the second most frequently used of the 14 (see Finding #1).

Finding #4

On-demand streaming, community events blogs, and broadcasting in HD radio are better for sponsorship sales than fundraising; however, Facebook fan pages and "donate now" buttons are better help at fundraising time.

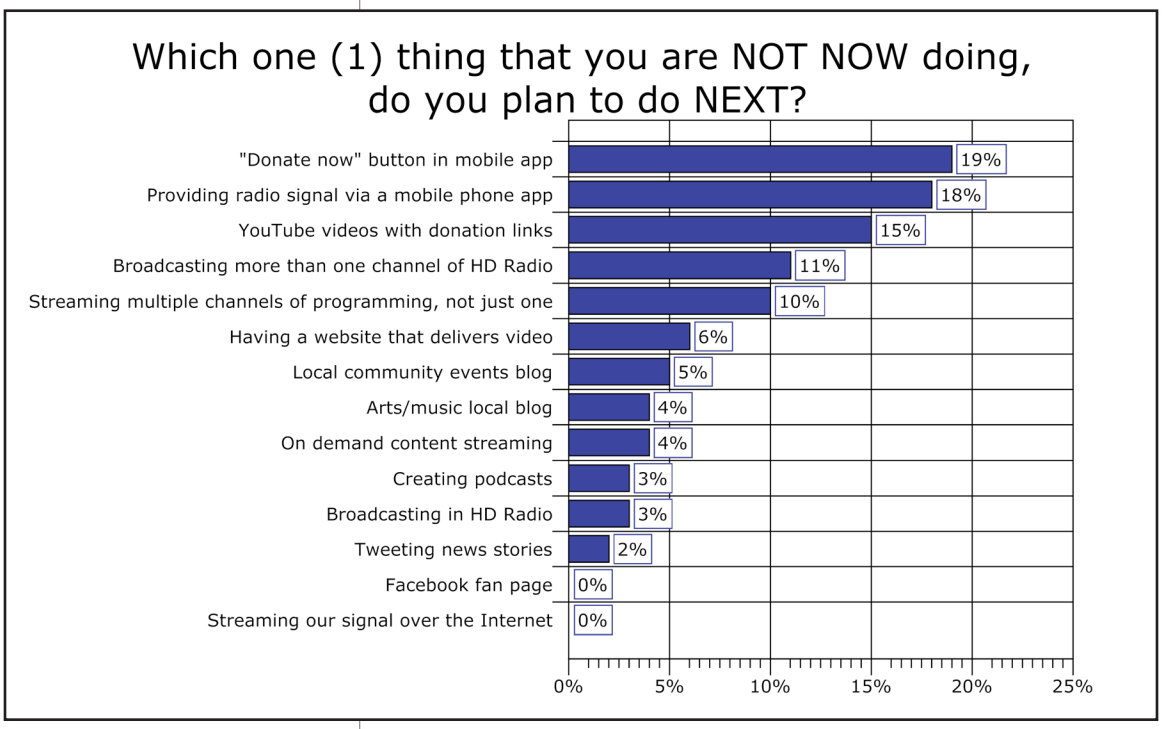


Looking at the top eight revenue-generating technologies, we can see that some are better suited for fundraising, while others are better at providing opportunities for sponsorship sales. Facebook seems to do well as a fundraising motivator, but poorly in providing opportunities for sponsorship sales.

Looking at these results, the conclusion is inescapable that streaming, in several forms, is the most important revenue-generating technology for both fundraising and sponsorship sales. But as a technology, streaming has caused other issues. According to Michael LeClair, Chief Engineer for WBUR: "Sometimes streaming success is the kind of success you don't want to have because the costs increase every time you add another streaming listener. You have to be careful, during special events or breaking news, not to exceed your contracted bandwidth or the costs will quickly skyrocket." He continues, "During the daytime we have about 3,000-4,000 simultaneous streamers. The cost of serving them is about the same cost as our utility bills, rent, and so on, to operate our transmitter. But with our transmitter, during the same time, we are reaching 35,000-40,000 listeners, about ten times the number of streamers. With a transmitter, you don't pay any more for the next listener; I can add 10,000 more for the same price."

Finding #5

Mobile phone apps are the next new revenue-generating technology that public radio stations plan to deploy.

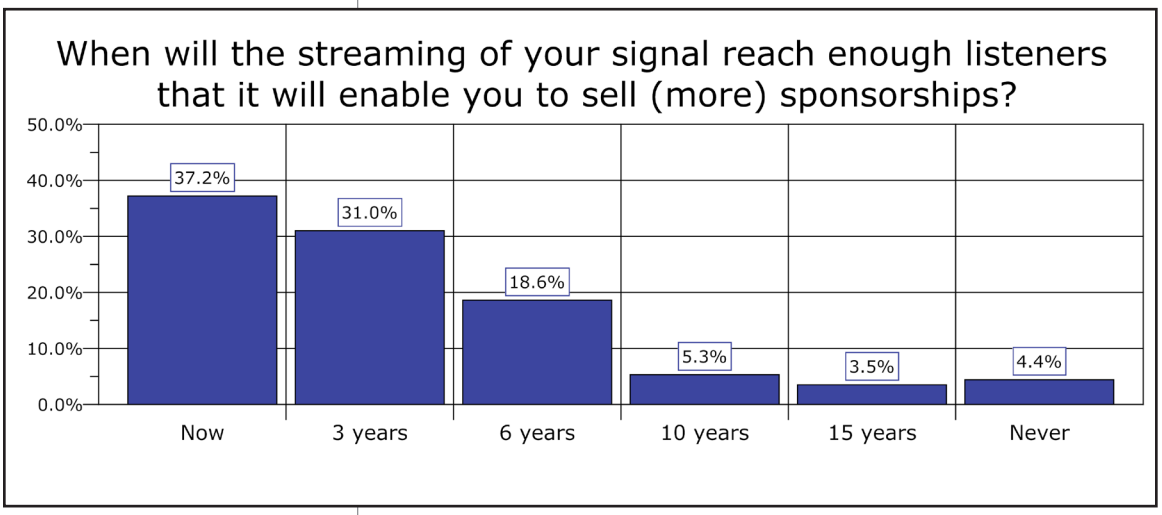


Respondents picked mobile options as the top two picks. Providing a "donate now" button in a mobile phone app topped the list with 19%, followed closely by providing a radio signal via a mobile phone app, at 18%. After that came YouTube videos with donation links at 15%, broadcasting more than one channel of HD radio at 11%, and streaming multiple channels of programming at 10%. For public radio stations looking to engage in a new technology or service, the mobile space is where they are going.

Brian Urban, Chief Operator at KUT, attests to the growing importance of online: "Radio is losing its prominent place in the automobile dashboard; portable listening via whatever device is available will continue to grow in importance. During our recent fund drive, a significant portion of financial support came via the station website. It appears that online listening is growing."

Finding #6

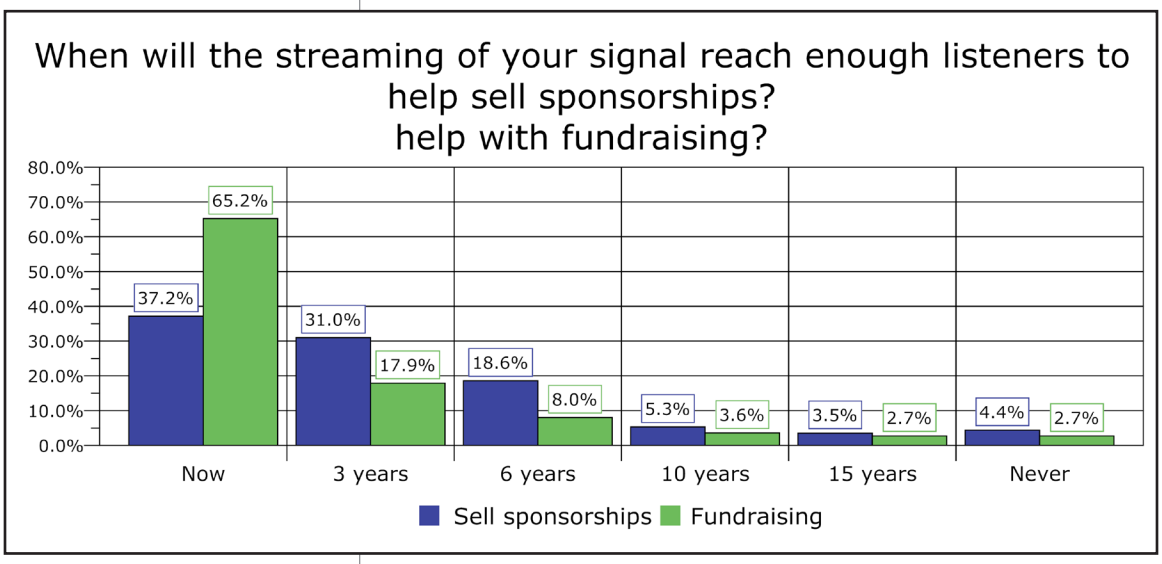
More than a third of respondents report they are now reaching enough listeners through Internet streaming to enable them to help sell (more) sponsorships.



How many streamed listeners does a station need to help it sell sponsorships? About a third (37.2%) report they already have enough to do this. Three years from now, almost another third (31%) believe their stream signal will help them do this, while another 18.6% will have enough within six years. If we add these three together, six years from now 86.8% of respondents believe that streaming their station signal will be helping them sell sponsorships.

Finding #7

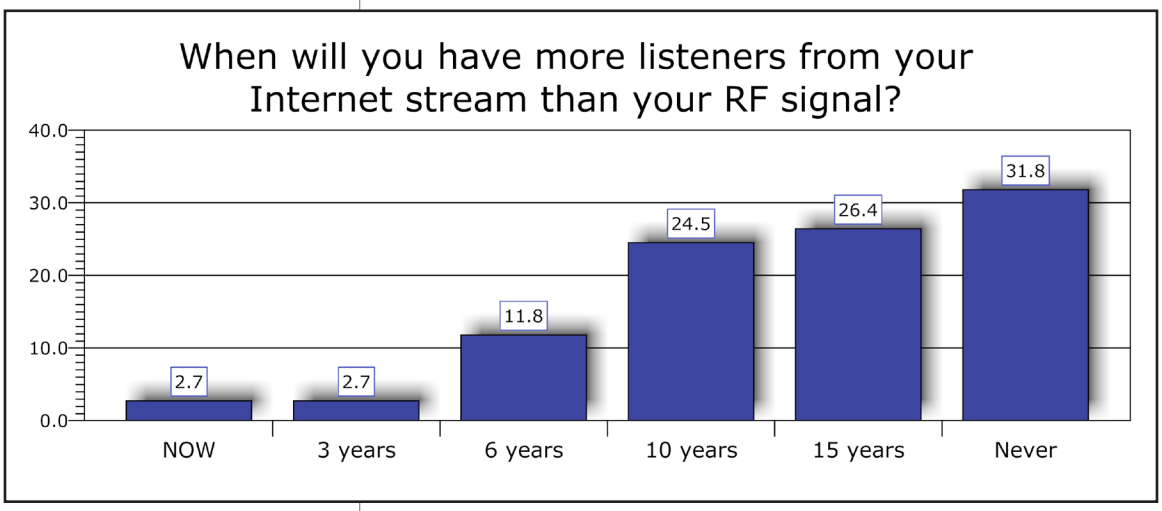
More than two thirds of respondents report they are now reaching enough listeners through Internet streaming to help fundraising efforts, but only about one third say streaming helps sell sponsorships right now.



How many streamed listeners does a station need to help with fundraising efforts? Responding to the question, "When will your streamed signal reach enough listeners that it will motivate them to participate in fundraising or membership drives?", 65.2% responded that the time is now. In addition, within three years another 17.9% believe they will have a sufficient streaming audience to be able to motivate listeners during fundraising and membership drives. However, the story is different for selling sponsorships, at least for right now. Currently only about one third (37.2%) of respondents say they have enough streaming listeners to help them sell sponsorships. However, within six years, respondents expect that this will change, and that the ability to sell sponsorships through streaming will have caught up to where it is for fundraising.

Finding #8

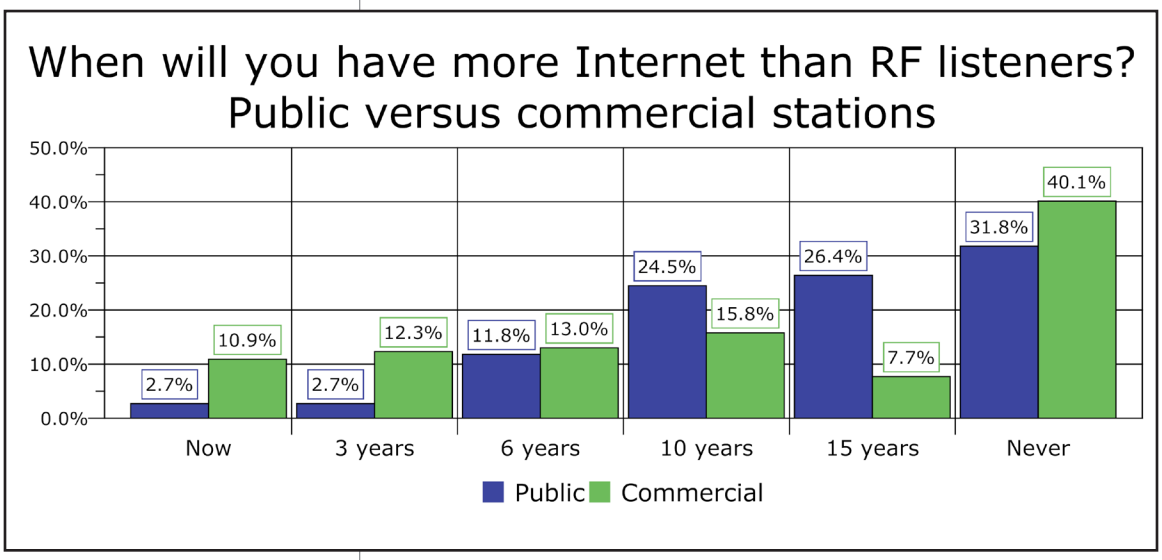
In 15 years, public radio stations will have more listeners from their Internet stream than their RF signal.



Currently only 2.7% of respondents say they have more listeners via the Internet. Three years from now only another 2.7% believe they will as well. However, while the numbers build slowly, the trend is clear over time: In 6 years 11.8% believe this will be true, in 10 years 25.5% believe it, and in 15 years, 26.4%. Adding all these up, a significant majority of 68.2% of respondents believe that 15 years from now, radio will have more listeners over the Internet than via RF technology.

Finding #9

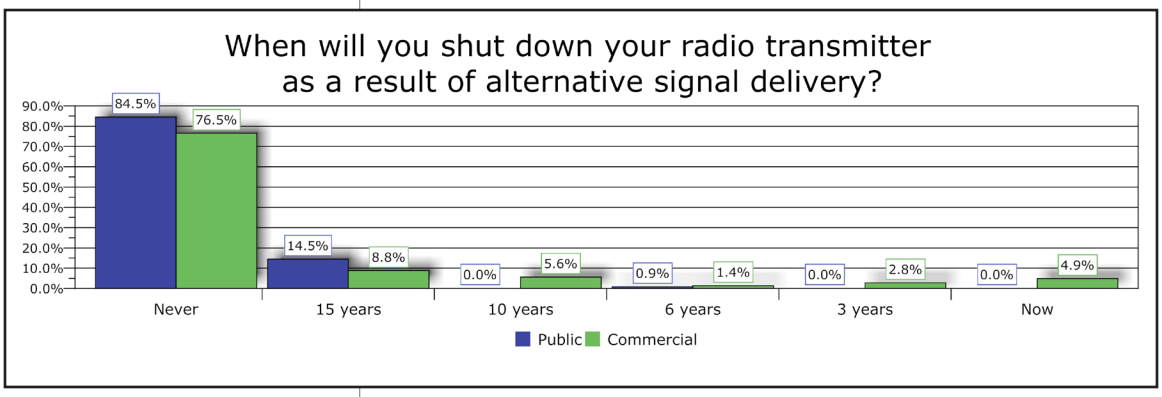
More than two thirds of respondents report they are now reaching enough listeners through Internet streaming to A larger number of commercial stations have more streaming listeners than RF listeners, but as time goes on, this trend will reverse.



When comparing how soon stations will have more listeners on their Internet stream than their RF signal, public stations are off to a slower start than commercial stations in general. Now only 2.7% of public stations have more Internet listeners, versus 10.9 % for commercial stations. Three years from now the numbers are about the same: Another 2.7% of public stations and 12.3 % commercial. But as the years tick by, public stations anticipate advancing more rapidly. Right now, there are simply more Internet-only commercial radio stations than public ones. In the end, only 31.8% of public stations believe they will never have more streaming listeners than RF listeners, while 40.1% of commercial stations believe they will never have more streaming listeners than RF listeners.

Finding #10

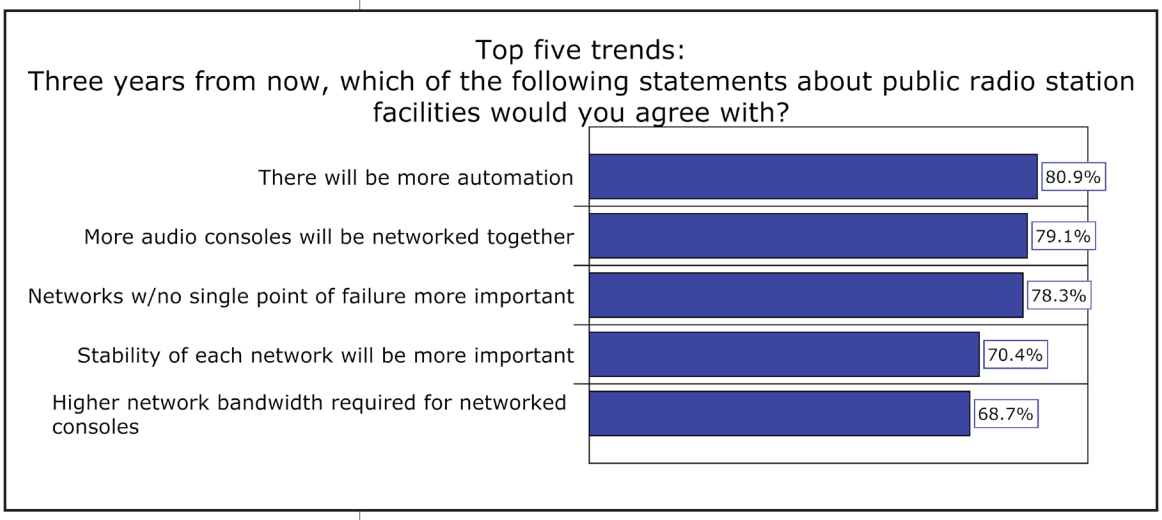
Public radio respondents: We are never shutting down our transmitters.



Despite the advancements in alternative delivery services, no one in public radio is talking about turning off their transmitter. 84.5% of respondents said their facility would never shut off its transmitter. The number of people not willing to turn off their transmitter is somewhat lower in commercial stations, at only 76.5%. No matter what technology comes along, it looks like radio will be transmitted over the airways for a long time to come.

Finding #11

Three years from now, the top trends will be more automation, more networked consoles, and a greater need for network stability



In an effort to pinpoint future technology trends involving public radio facilities, the respondents were shown a series of 10 statements on technology trends and asked to check off the ones they thought would be true three years from now. In this chart, we see the top five rated trends.

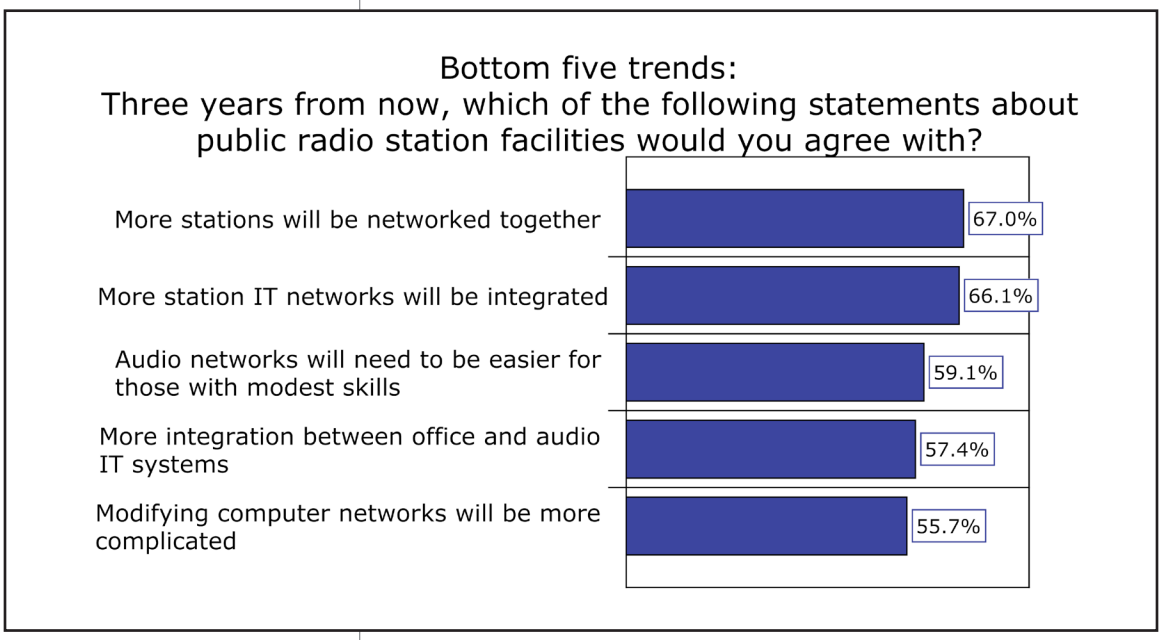
The trend that most respondents agreed with (at 80.9%) is that three years from now there will be more automation in public radio facilities. According to Chuck Leavens, CEO of Leavens Engineering, “With cost cutting and personnel reductions, automation that works well and offers extra services complementary with other products will be critical.”

Close behind, 79.1% of respondents agree that in the future more audio consoles will be networked together, while 68.7% feel that higher network bandwidth will be required to run those networked consoles. The final two trends of the top five involve network stability: 78.3% agree that networks with no single point of failure will be more important three years from now, while 70.4% agree that the stability of each network will be more important.

Says Ron Krauss, Broadcast Engineer at WYSU-FM, “Automatic failure of switches, routers and firewalls, etc., although rare, can cripple a facility highly dependent on interactivity for offsite operators. As we become more TCP dependent, the self healing infrastructure is becoming more important. With four networks in use by our facility, it becomes more complex to [ensure]reliable interconnection between networks without unwanted intrusion or equipment failure. “Adds Leavens, “Making all things talk together, and function in a way that allows you to sleep as well, is of major importance.”

Finding #12

Three years from now, there will be more integrated networks in public radio, and engineers will need to know more about them.



The previous finding looked at the top five out of 10 tech trends we measured. Here are the remaining five, all of which more than half of respondents believe will be true three years from now. These trends indicate just how network-oriented public radio facilities will become, as well as how engineers will deal with this.

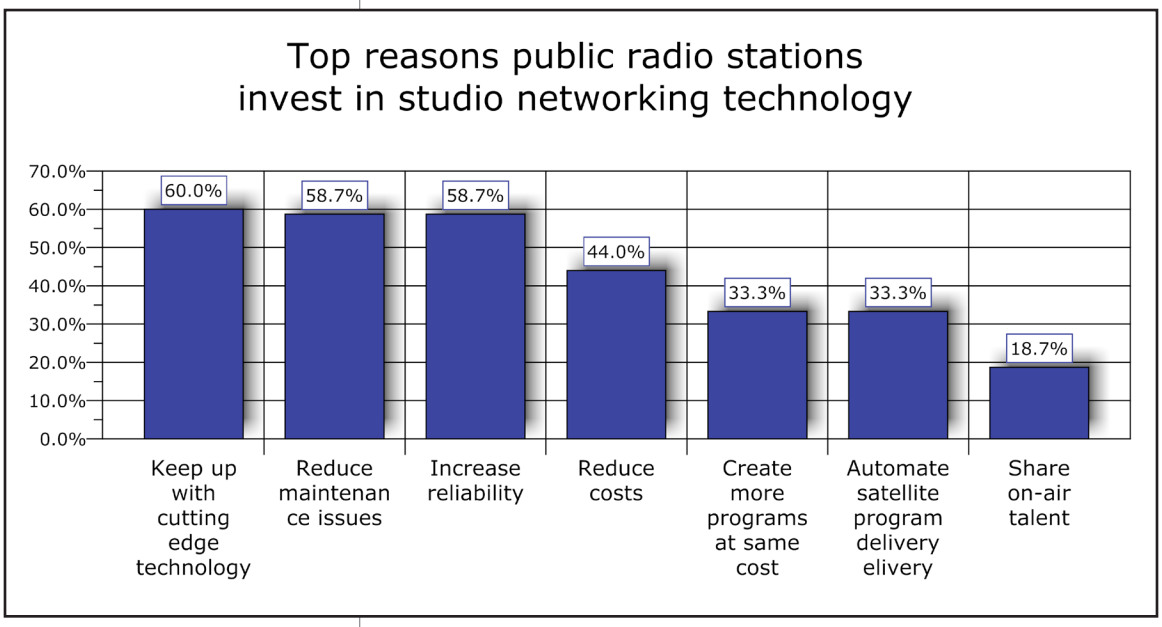
Topping this list, 67% of respondents believe that public radio stations themselves will become networked together three years from now. Kent Hatfield, VP Technology & Operations at WXXI Public Broadcasting Council, believes the economic survival of many stations could depend on this: “Many public radio facilities are part of a larger operation as in a college or university, whose main mission is not broadcasting. It is easy for boards to remove funding from these non-mission services in order to maintain mission-critical operations. To keep these facilities from going dark, stations are forming LMA groups to reduce costs and provide, in many ways, better service.

Second on the list, 66.1% feel that within stations, more IT networks will be integrated together in three years. Finally, three years from now there will be more integration between office and audio IT systems, say 57.4% of respondents.

How will engineers cope? It will be challenging because 55.7% of respondents believe that modifying computer networks will be more complicated, and 59.1% believe that audio networks will need to be easier for those “with modest skills”.

Finding #13

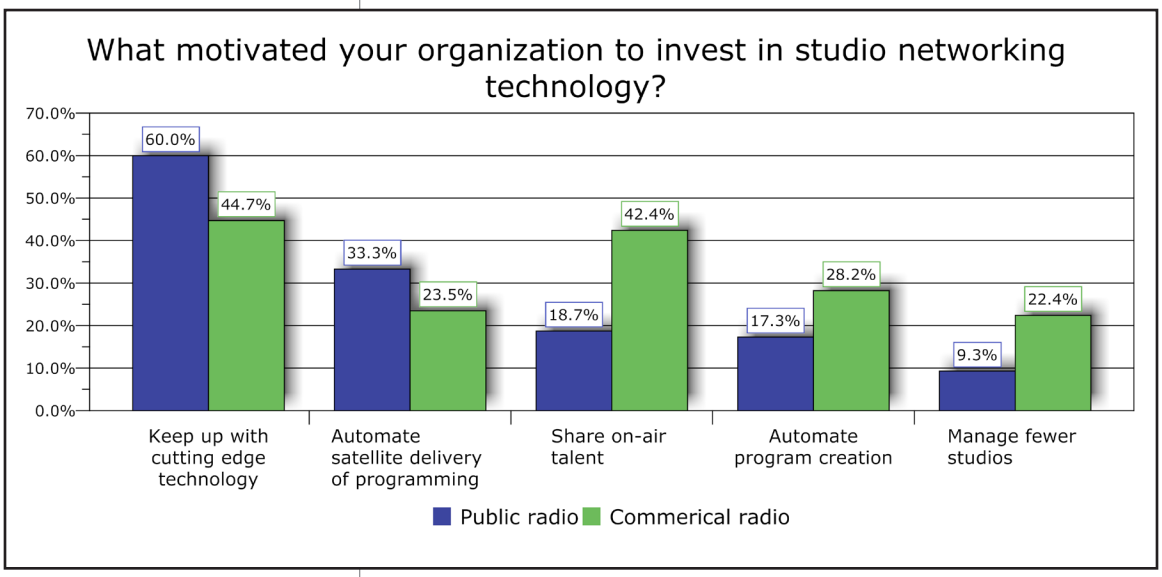
The top reasons that public radio stations have installed studio networking technology are to keep up with cutting edge technology, reduce maintenance issues, and increase reliability.



When respondents at public radio facilities who have purchased studio networking technology were asked why they made the investment, three reasons tied for first place. The first reason, with 60% of respondents selecting it, was "to keep up with cutting edge technology," a good way for any business to stay competitive. "Reduce maintenance issues" was next, with 58.7%, because studio networking technology helps the maintenance process by enabling engineers to make system-wide adjustments while logging in from afar. The last reason was increasing reliability, also at 58.7%.

Finding #14

Public radio stations invest in studio networking technology for different reasons than do commercial radio stations.



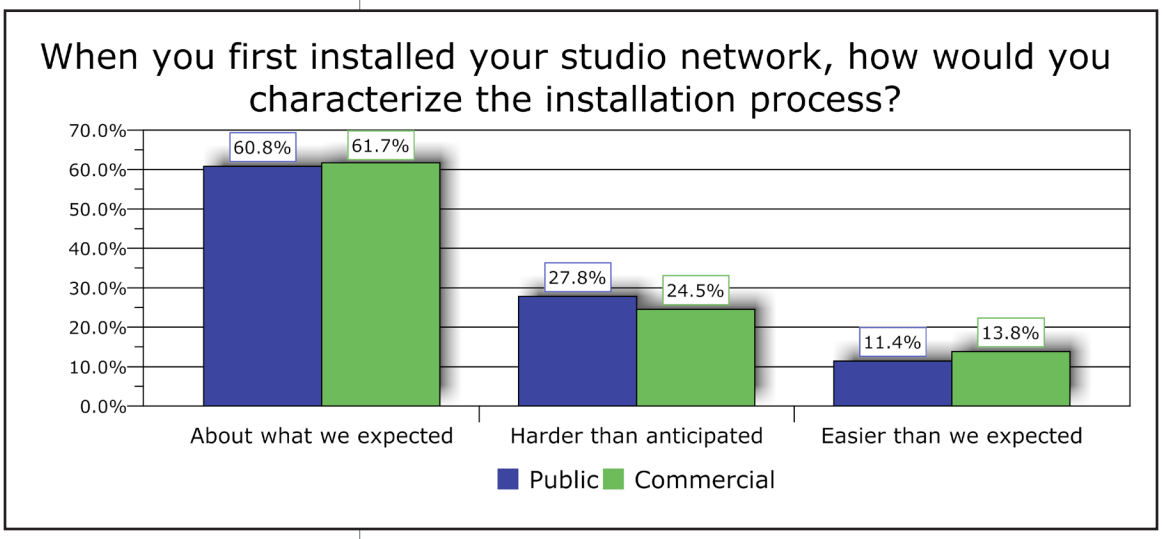
When we compared the public radio results with those of commercial radio for the same question, many of the reasons ranked equally, but some showed contrast. Among the five that showed the most contrast , "keeping up with cutting-edge technology" was the top pick of public radio respondents but was ranked only fourth by commercial radio respondents. In addition, public radio stations gave higher ratings to "automate satellite delivery of programming." Three additional reasons that were selected twice as often by commercial radio as public radio were "sharing on air talent", "automating program creation", and "manage fewer studios."

In the appendix of this report you can read a short commentary by Terrence Dupuis,

Chief of Broadcast Operations at St. Louis Public Radio, on the reasons studio networking technology make sense.

Finding #15

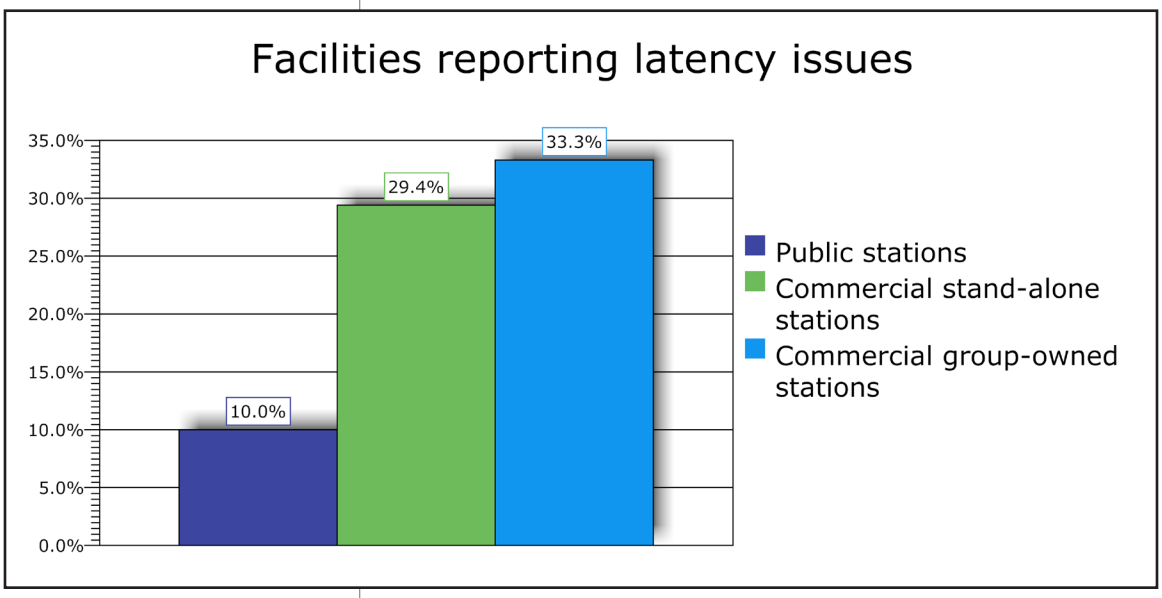
Both public and commercial radio stations find studio networking technology harder to install than initially expected.



Public radio and commercial radio station respondents indicated similar levels of challenge when first installing their studio networking technology. About one in four indicated that it was harder than anticipated, about 60% indicated it was about what was expected, and between 11% and 14% indicated that it was easier than expected. Overall, the process seems to be slightly more difficult than anticipated. In the future, Brian Urban, Chief Operator at KUT, feels that audio networks will need to be easier to configure: “The trend in broadcast engineering is for fewer engineers with more responsibility. Non engineering personnel will be configuring systems. Thus, our complex infrastructure will have to become simpler to set up, as the people installing systems will not have the knowledge and expertise required by today’s technology.”

Finding #16

Only 10% of public radio stations report latency problems with studio networking, about a third of that of commercial stations.

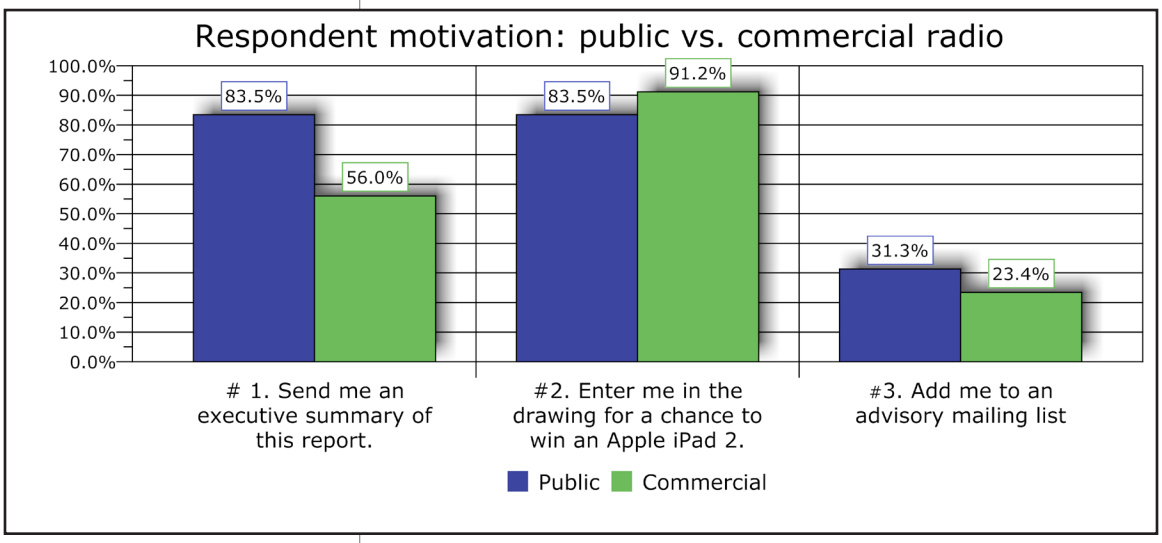


The study on commercial radio found that stations with larger radio systems and networks reported more latency problems. Of the commercial stand-alone stations, 29.4% reported having latency problems, while group-owned stations, whose infrastructure would be larger, reported a higher degree of problems at 33.3%. Commercial radio also is highly dependent on the proper serving of advertisements within the flow of programming. One fear in commercial radio is latency causing a station automation system to skip playing ads.

But WBUR's Michael LeClair believes that the big difference between could have more to do with talent than technology: "In commercial radio, if high-priced talent has latency or unprocessed sound in his headphones, he can get engineering to buy technology to fix it. What percentage of non-commercial stations have installed audio processing on their headphone monitors for talent? I don't think too many."

Finding #17

Survey respondents: public radio engineers were more interested in receiving a survey summary; commercial radio engineers were more interested in winning a prize.



On a less serious note, it was hard to miss the fact that respondents to this public radio survey and respondents to the commercial radio survey seemed to be motivated to participate differently. At the conclusion of each survey, respondents were invited to check any or all of three opportunities: receive a free executive summary of the report, a chance to enter a drawing to win an Apple iPad, or the opportunity to be added to an advisory list to receive other surveys. Here's how public radio engineers stacked up against their commercial radio counterparts:

83.5% of public radio respondents wanted to see an executive summary, while only 56% of commercial radio respondents wanted to see one.

83.5% of public radio respondents wanted to be entered in the iPad drawing, while 91.2% of commercial respondents wanted to be entered.

31.3% of public radio station respondents wanted to be added to an advisory list, while only 23.4% of commercial radio respondents did.

In short, public radio engineers filled out the survey less often for a chance to win a prize (iPad) , and more often for an educational opportunity (executive summary of the report) or the possibility of sharing their knowledge with fellow engineers.

In conclusion: A look ahead

We asked engineers what the biggest technical challenges facing public radio will be in the future. Brian Urban, Chief Operator of KUT said, "Aside from the loss of engineers as they retire and aren't replaced by a new, younger, talent pool, the biggest challenge faced by broadcasters is determining what content delivery methods to use. Traditional RF? WiFi? WiMax? A method not thought of yet? We must be ready to provide content by any platform. Determining which delivery platform to focus on is the challenge."

Public radio stations are evaluating these new delivery platforms and some unexpected drawbacks are emerging. According to Terrence Dupuis, Chief of Broadcast Operations at St. Louis Public Radio 90.7 KWMU, "Web resources like pictures, videos, podcasts, and social media can raise security issues because the audio network must get closer to the rest of the outside world to allow their use to happen."

Aside from working through the issues of deploying new technologies, there is also the financial challenge all radio organizations are facing. Ron Krauss, Broadcast Engineer at WYSU-FM, sees the biggest challenge to public stations as "how to accomplish ever more with ever less funding and personnel. And to do it even better."

Those same economic forces make Chuck Leavens, CEO of Leavens Engineering, see public radio as a target for consolidation: "I see the financials driving it in many places. Universities selling off stations and the reality of common buyouts just to keep the stations public. More engineering talent is needed to run these back ends with an excess of automation and cost reductions. I hate it. I don't believe in it as a good radio model, but I see it being the hand we are dealt."

Finally, Kent Hatfield, VP Technology & Operations at WXXI Public Broadcasting Council, thinks stations need a broader vision: "Many public radio facilities are designed for 'what we need now' and not for successful operation and expansion of operations or adding additional services. For stations that had not even considered building another live studio, now with streaming and HD possibilities they find themselves searching for space and expanded technology."

The diverse topics covered above show just how much change is coming in different areas to public radio. The pace of change does not look like it is slowing down, but as legendary race car driver Mario Andretti once said, "If everything seems under control, you're just not going fast enough."

Appendix

Additional commentary by Terrence Dupuis, Chief of Broadcast Operations, St. Louis Public Radio 90.7 KWMU

"[Networking audio consoles together] allows you to do more and spend less. With all audio consoles networked together it provides advantages in sharing resources between studios or locations with access to the audio network.

"For example, say there was an event that you wanted access to record and broadcast and you had LAN access to it. [You would] just bring the interface hardware (the number and type of nodes you wish) to the location and connect to your audio network. (Assuming these device(s) have been on your audio LAN, that should do it for network configurations.) Next, pick your console in the studio of your choice and set levels and mix. Because of the ability to control the settings remotely in a networked audio chain, you can manage inputs from your studio environment. Using the same type of consoles minimizes culture shock for operators who only have to learn one style of console to do their job. (This also minimizes training and learning curves.) Granted there may be different numbers of faders on a given console, but all else is the same. This also minimizes the number of dedicated studios needed at a location, since all operators can potentially operate out of any studio that is unoccupied.

"Need an extra CD player (or one fails while you are on air)? Just assign it to a fader on your console and not only will the audio follow your selection, but remote control functions will too. (Granted you may have to go into another studio to load the CD…)

"Costs are less since consoles only need to be sized to the maximum number of faders that you need at one time in that studio. Any source that exists anywhere on the audio network can be made available on any console fader (decided and controlled by the software settings which determine what you can access and where).

"In addition, some vendors offer software versions of sound cards (virtual sound cards) which, when you add a second network card to your audio editing computer, give you access to any source on the network to record into. A network card is obviously much less expensive than a quality sound card. This feature also comes in handy with various automation systems, where again you need no expensive sound cards. From an installation standpoint it is much less costly -- just connect to central computer type switch(es) and that's it.

"Gone is the day of analog when, if you wanted audio from one place to another, you ran a wire between those two places (or perhaps a really expensive audio switching/routing system). Some audio console manufacturers use off the shelf computer motherboards to do the mathematical data crunching, keeping costs lower than custom made devices that may not be available in the future.

"Computer network switches are a stable technology with very high reliability (at least on enterprise class devices). Since most devices have browser access, support and rapid changes are easier.

"Got web access and correctly configured interfacing computer? I tell my users that I can be anywhere on the planet with an Internet connection and I can turn the volume up and down on their microphone! Some console systems also allow for automation of various console system features. For example, want to change the input to your virtual sound card at a certain time or in response to a contact closure? Easily done with a separate computer on the audio LAN. Also great for automating floating breaks using the contact closures on the stream decoders

"Bottom line: Costs less, gives more features, offers functionality and flexibility, and makes it easier for operators to do more."