The FCC's Imminent Radio Multicasting Vote; Will it be another broadcast industry giveaway?

"They used to rob trains in the Old West; now we rob spectrum."

--Senator John McCain, Former Chairman,
Senate Commerce Committee

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Introduction

On March 16, 2006 the Senate Commerce Committee unanimously endorsed Robert McDowell's nomination to fill a Republican seat on the five-member Federal Communications Commission. Full Senate confirmation is expected soon. This will give the Republicans a 3-2 majority at the Commission.

Radio broadcast industry lobbyists have been patiently waiting for such a majority before bringing their radio multicasting proposal before the FCC for a vote. Currently, the Commission is deadlocked, 2-2 on the multicasting proposal. Last fall the two Democratic commissioners asked for public interest obligations in return for granting multicasting rights. With a 3-2 majority, the radio broadcast industry is expected to be able to get what it wants without having to compromise.

Multicasting's Spectrum Dividend

The radio multicasting proposal will grant radio broadcasters the right to provide multiple radio programming streams on their digital spectrum. Currently, radio broadcasters have unicast rights on their digital spectrum. That is the right to provide a single radio programming stream, usually described as "HD radio," with HD commonly interpreted as "high definition" or "CD quality" audio.

This issue has arisen in the context of radio broadcasters' transition from analog to digital technologies. With digital technology, radio broadcasters are able to cram dozens of programming streams of a certain quality in spectrum that could previously only provide a single programming stream of that same quality.

The grant of multicasting rights is controversial because multicasting rights are extremely valuable and there is nothing in the current law that says they must be granted to incumbent radio broadcasters. The right to provide additional programming streams, for example, could be auctioned off or otherwise allocated to an entity other than the incumbent radio broadcaster.

Often when a new technology comes along the FCC does just that. It grandfathers an incumbent licensee's service rights and licenses the newly freed up spectrum to another entity. This has sometimes been called a digital or spectrum dividend. For example, when TV broadcasters converted to digital technology, they were required to give up 108 MHz of the 402 MHz allocated to TV channels 2-69. They were also required to give up 35 MHz of a 110 MHz band allocated to electronic newsgathering. The FCC also considered relocating radio broadcasters to a narrower and less valuable band as part of their digital transition but abandoned that proposal in the face of intense radio industry opposition. The current controversy over whether the white spaces between TV channels 2-51 should be allocated to unlicensed or given to incumbent TV broadcasters is fundamentally a question over who should get the spectrum dividend from new spectrum technologies.

Obviously, it's in the self interest of radio broadcasters not to pay a spectrum dividend to the American public for the spectrum, popularly known as the "public airwaves," they want for free. Like a tenant who doesn't want to pay more when the market price for real estate increases, they would like to redefine the terms of their license so that when technology and market conditions change, they can reap the full benefit of those changes themselves.

But the interests of radio broadcasters are not necessarily identical to the interest of the American public. Who should get the spectrum dividend from digital technologies: broadcasters (the lessees) or the public (the lessors): that's the essence of the policy issue raised by the grant of multicasting rights. Under the bogus rationales of "deregulation" and "free markets," the FCC is now poised to decide the question in favor of the radio broadcasters.

The Digital TV vs. Digital Radio Transitions

The granting of radio broadcasters multicasting rights is merely one step in a long saga of spectrum rights windfalls that has accompanied radio broadcasters' transition from analog to digital technology. To understand the significance and genius of the radio broadcasters' digital transition lobbying campaign, it is helpful to contrast it with the TV broadcasters' digital transition lobbying campaign. The TV broadcasters began their digital transition first, so radio broadcasters had the opportunity to learn from all the TV broadcasters' political mistakes.

TV Broadcasters' Political Mistakes

The TV broadcasters made six major political mistakes. First, they called the spectrum for a digital channel a second channel. This created a public expectation that at the end of the digital transition they should give back one of their two channels. It also led people to complain that during the interim TV broadcasters were getting an interest free loan on public assets worth tens of billions of dollars.

Second, they asked for too much at once, which helped mobilize opposition. Specifically, the broadcasters asked for an interest free loan of a second channel and multicasting rights at the same time. At first, TV broadcasters were cautious and only asked for the loan of a second channel and high definition TV rights, which seemed like a minor modification of their standard definition TV rights. But in 1995, when they hadn't yet gotten the second channel, they began asking for multicasting rights, which would allow them to provide many digital standard definition TV programming streams in lieu of their current right to provide only one analog standard definition programming stream. Many politicians and public interest groups saw this as an unjustified windfall. In England, for example, broadcasters were forced to give half of this multicasting windfall back to the government to both auction and create more TV competition.

Third, they allowed commercial broadcasters, including some of the largest and most profitable companies on earth, to be the public face of the lobbying campaign. NBC, for example, is owned by GE, then the largest and one of the most profitable companies in the world. And ABC is owned by Disney, then one of the twenty largest companies in the world.

Fourth, they boxed themselves into a technological corner by arguing that TV sets were sacred objects that should never be made obsolete. TV broadcasters wanted to postpone the return of their analog TV spectrum as long as possible while using control of that spectrum as bargaining leverage to obtain a bunch of perks such as a tuner mandate, cable must-carry multicasting rights, and a broadcast flag to narrow the scope of free TV. The argument they used to do this was that it would be a national tragedy for the public and a political disaster for politicians if anyone's analog broadcast TV set went dark as a result of the broadcasters' DTV transition. This argument set up a political dynamic whereby it became hard for broadcasters to update their broadcast digital TV standard (designed in the digital media dark ages of the early 1990s) even after the rest of the world had come to ridicule it as technologically obsolete. The logic ran like this: if it was a disaster for the 15% of Americans who relied on analog TV to lose use of their TV sets, then it would also be a disaster for a much larger number of Americans to lose use of TV sets purchased as a result of a government tuner mandate.

Fifth, they allowed non-broadcasters to control the digital TV standard and thus receive royalties from it. The broadcast digital TV standard is proprietary but owned by consumer electronics companies such as Zenith, Motorola, and Thomson. These companies receive approximately $10 to $12 every time a broadcast DTV set is sold.

Sixth, the perception that TV broadcasters were receiving a spectrum rights windfall created political pressure for broadcasters to pay a fee on any programming that wasn't provided free (i.e., ad supported) on their digital spectrum. The result was a 5% fee on all revenues other than advertising.

Radio Broadcasters' Political Genius

Radio broadcasters avoided these six mistakes with some very clever tactics. First, they insisted that they would transition to digital radio without using new spectrum, and then brazenly named their standard "IBOC" for in-band, on-channel. By in-band they meant that the spectrum would come from within the band already allocated to radio and by on-channel they meant that the amount of spectrum already licensed to a licensee would not increase. The on-band promise was

the same made by the TV broadcasters: both transitions would use unused guard band spectrum between existing analog channels for the new digital channels. But the radio broadcasters' political genius was to redefine the meaning of the word "channel" and to develop a standard that would abide by that definition. Historically, people thought of a radio channel as occupying 200 kHz. That's because radio stations on the radio dial are spaced 200 kHz apart and defined by the FCC as occupying 200 kHz. For example, channel 88.1 means 88.1 MHz and the next channel up on the dial, channel 88.3, means 88.3 MHz. What radio broadcasters did was to redefine the meaning of a channel both at the FCC and in common parlance. The new definition included a channel's emission mask; that is, part of its adjacent guard bands, also known as its sidebands. In the analog world, radio stations could not be spaced adjacent to each other. For example, if 88.3 was used, then 88.1 and 88.5 had to be empty. In the digital world, in contrast, guard bands are no longer necessary. That's, for example, how digital TV channels were crammed between analog TV channels. What the radio broadcasters did was take a 100 kHz "emission mask" on each side of their existing 200 kHz channel and call the resulting 400 kHz channel a single channel.

With this Orwellian verbal magic, they could have their cake and eat it too; they could double their spectrum holdings to facilitate their digital radio transition without calling the doubling a "second channel."

Second, radio broadcasters were careful to spread out their requests in different proceedings. Each one seemed so minor that it wasn't newsworthy or capable of generating significant opposition. But, over a period of years, they were able to get everything they wanted.

For example, radio broadcasters insisted that only incumbent broadcasters could use their emission mask spectrum without causing intolerable interference. This was bolstered by the assumption that they would transmit both their analog and digital channels on the same antenna. Only after the FCC granted them the right to the emission mask spectrum did the broadcasters come back and aggressively lobby the FCC for the right to provide their digital programming with a separate antenna. Revealing early on that the digital channel could be provided with a separate antenna would have conveyed the idea that it was a second channel that could just as easily be auctioned to a competitor or subject to a new user fee. By seeking a minor modification years later in an obscure proceeding, this observation slipped under the public radar and became politically irrelevant.

Radio broadcasters also maintained the illusion of high definition longer than TV broadcasters. The value of calling a second programming stream "high definition" is that it appears to be a minor modification of an existing standard definition radio channel.
In contrast, "major modifications" face a much higher legal and public opinion hurdle. The Communications Act prevents "spectrum windfalls" and "unjust enrichment" but "minor modifications" are exempt. Correspondingly, FCC license modifications are much less controversial when they appear to entail minor windfalls. When radio broadcasters doubled their spectrum, they claimed that their digital programming would only be a higher fidelity version of what was already on their analog channel. Now, with their doubled spectrum allocation in hand and all but irrevocable, coming back and asking for multicasting rights seems much less of a windfall. After all, they can claim that all they are trying to do is use their existing spectrum

more efficiently to provide more broadcast service to Americans. In 1994 the TV broadcasters were so fearful that their request for a second channel including multicasting rights would be viewed as a major modification and subject to the FCC's Ashbacker Doctrine (new services must be allocated via a comparative process, such as a hearing or auction) that they went to Congress to ensure that any FCC ruling could not later be overturned in the courts. A later legal analysis determined that these fears were unwarranted.

Radio broadcasters can also point to the fact that 180 digital radio stations have already received permission to do multicasting on an experimental basis. The Administrative Procedures Act has an exemption for case-by-case wavers of general rules for special situations such as "experiments." Otherwise, rules are expected to go through a formal rulemaking process. With so many case-by-case exemptions for radio broadcasters, it could be argued that radio broadcasters have bypassed the Administrative Procedures Act and created de facto a new rule. But regardless of whether digital radio stations have skirted the law, the fact that so many are already multicasting without significant problems makes it harder politically not to just give all radio broadcasters blanket authorization to multicast. In FCC parlance, such multicasting experimental authorizations are known as "creating facts on the ground." It's widely known that both members of Congress and FCC commissioners hate to change such facts on the ground.

Radio broadcasters also planned to move into the sidebands gradually, so the extent of the initial digital spectrum windfall appeared mitigated. For example, they cannot fully expand their coverage areas (i.e., raise their digital power levels) and expand into the sidebands until the analog signal has been replaced at the end of their digital transition with a digital signal. Even in the current highly limited hybrid analog-digital mode there are two submodes, with the current IBOC standard touted as only 96 kbps, although it includes an unused extended hybrid mode increasing the total to 146 kbps.

Third, although with both radio and TV the behind-the-scenes political muscle came from the commercial stations, the radio broadcasters were careful to make sure that their non-profit allies, notably National Public Radio (NPR), were their public face. NPR had as much to gain as commercial broadcasters from a spectrum rights windfall. But whereas NPR is popular among the public and public interest community, the giant commercial radio chains, such as Clear Channel and Infinity Broadcasting, are highly mistrusted.

Fourth, radio broadcasters didn't have to come up with a lobbying excuse not to give back their second channel because they didn't have to give it back. This allowed them to upgrade their equipment, such as the shift from the first generation of unicast digital radios to the current generation of multicast digital radios, at their own convenience and without having to worry about allegations that they were disenfranchising certain analog radio set owners such as the poor, minorities, and those with multiple radio sets.

Radio broadcasters are currently operating with a hybrid standard, keeping their analog channel and then adding digital information on the lower and upper sidebands of that channel. At the end of the digital radio transition the analog and digital portions of the channel will be integrated into a single digital channel. But that standard has yet to be determined, so not only analog radios but also hybrid analog-digital radios won't be able to benefit from the services created with that

standard. But thanks to the way the radio broadcasters set up their transition, that's unlikely to be any more of a political problem than Microsoft updating its operating system and gradually stranding users over a period of five to ten years with essentially useless or at least much depreciated computer equipment.

Fifth, the radio broadcasters wanted to ensure that they received a new revenue stream as a result of radio's digital transition. They thus banded together to develop a standard from which they could get royalties on every radio sold in the U.S. They then got the FCC to endorse that proprietary standard as "free" radio's digital standard.

Sixth, radio broadcasters managed to avoid a requirement that they pay a 5% fee on subscription radio services. Both radio and TV broadcasters have always touted themselves as providing a "free" service. But digital technology made it technologically much easier for both radio and TV broadcasters to charge audiences directly for content. This raised the question whether they should pay some type of fee on this revenue stream just as cable companies must pay a 5% fee on their subscription revenues. But because radio successfully created the impression that its spectrum windfall was negligible or even non-existent, the pressure for such a quid pro quo, however imperfect it might be, has not become a political factor.

None of this is to say that the TV broadcast industry lobbyists didn't do exceedingly well in their quest for a spectrum rights windfalls.

Nor does my brief list above include all the windfalls secured by the TV and radio industries. Both, for example, have used their digital transitions to greatly expand their coverage areas for their main transmitters. Both have used the transitions to acquire vast amounts of additional rural spectrum rights via translator stations. Both have used the transitions to position themselves to abandon the "free" (i.e., ad-supported) content delivery business in favor of a system supporting multiple streams of revenue. And both are moving from a site-based to a geographic service licensing scheme, which will eventually allow them to reuse spectrum and shift from the one-way broadcasting into the interactive Internet (e.g., Internet radio) business.

My key point is simply that although both industries used the digital transition as a fantastic lobbying ploy, the radio broadcasting industry got a better payoff, in relative terms, and with far less controversy. Indeed, if there was such thing as a nobel prize for lobbying, I'd give it to the NAB for the timing and framing of its digital radio transition lobbying campaign. Its digital TV transition lobbying campaign was already brilliant, but it learned from its mistakes and did an even better job on its digital radio transition.

Other Factors That Helped the Radio Broadcasters

Central to the political genius of the radio broadcasting lobbyists was their understanding of the limitations of the press and public interest community. They understood that the press and public interest community were both uninterested in technical details and technically illiterate. They were confident that they wouldn't read the details and, if they did, wouldn't understand their significance. This allowed broadcasters to provide a cover story (which might be called the "IBOC cover story") that was a fundamental distortion of reality but would be accepted as reality.

Radio broadcast lobbyists also had a measure of luck, perhaps far more than they could have dreamed when they started lobbying for the digital radio transition in the early 1990s, about the same time that the broadcast digital TV transition got under way. During the period in the late 1990s and early 2000s when the key digital radio decisions were being made, the public interest community, and the press they educated, were focused on the low power FM debate. LPFM only required a tiny fraction of the FM spectrum whereas IBOC used up huge amounts of it. But low power FM was nevertheless a great issue for the grassroots driven public interest community because everyone understood FM, many individuals and organizations throughout America wanted to be their own FM broadcasters, and the time horizon for implementing LPFM suggested the closest thing you can get to immediate gratification in a spectrum policy proceeding. In the end, IBOC would get more than 95% of the white space between the FM channels but virtually no one in the public interest community would link the issues and alert the press.

Another stroke of luck for the radio broadcasters in comparison to the TV broadcasters is that they had more monopoly power and therefore less organized opposition from competitors. Broadcast TV had powerful, politically sophisticated competitors in the cable and satellite broadcasting industry. These competitors were motivated to understand the issues raised by the digital transition and complain that their broadcast TV competitors were being given an unfair leg up. Such complaining is vital for educating the press, public interest community, and policymakers. Radio broadcasting, in contrast, has largely been a government sanctioned monopoly. In the last few years, the advent of broadband Internet services and satellite radio services has begun to change that. But in the year 2000 cable and satellite broadcasting had more than an 80% share of viewers whereas satellite and Internet radio were in the single digits and probably had less than 1% of viewers.

Also worthy of note, satellite radio has been legally banned from providing a local component. Satellite radio is now trying to get around that ban with its purchase of new flexible use spectrum for the provision of local radio service. But more than 110 members of Congress have so far signed onto a bill to ensure that the satellite radio industry can never provide local services and thus become a direct competitor to radio broadcasters. Since the political power of radio broadcasters comes primarily from their control over local coverage of their members of Congress, preventing satellite broadcasters from providing local radio service hurts them politically as well as economically.

Policy Recommendations

Multicasting rights probably represent the last, best chance for the public to get something in return for the multibillion dollar spectrum rights windfall the radio broadcasters have so brilliantly maneuvered to get out of their digital transition. Unfortunately, at this late stage in the digital radio transition, the practical options for a digital dividend are far fewer than they were at the beginning of radio's digital transition.

Here are a few ideas for a digital dividend that I think are still feasible. They would come under the conventional rubric of "public interest obligations." Some are unlike any public interest obligations radio broadcasters have ever had.

Divide The Multicasting Data Streams Into Two Separate Flows. Digital radio data streams should be divided into two categories: dependent and independent bits, with the content of dependent bits under broadcaster control and the content of independent bits, a subset of public interest obligation bits, outside their control. In an analog, single channel world, such a distinction was not practical. Public interest obligations all had to be incorporated into the radio broadcasters' single analog program stream. But with digital multicasting, the cable and satellite TV public interest obligation model becomes a public policy option. On cable TV a certain number of channels are set aside for public, educational, and government access channels. Cable TV companies are allowed no control over these channels; they are allocated to a third party. In addition, cable TV companies are obliged to carry all local broadcast TV channels, with no ability to exercise any type of editorial control over those channels. The situation with satellite TV is similar in general regulatory philosophy, with 4% to 7% of data capacity allocated to public interest programming and a basic tier of local broadcast TV programming.

I suggest that 32 kbps or 5% of broadcasters' digital radio programming stream, whichever is greater, be allocated for the public interest programming stream. To put a 32 kbps data stream in perspective, a radio talk show requires about 20 kbps and an FM quality station about 32 kbps. Eventually, when the digital radio transition is complete, digital radio broadcasters will have more than 1 mbps and perhaps as much as 2 mbps, of which 32 kbps would represent well under 5%. In hybrid mode, in contrast, the 32 kbps represents a much larger fraction. The current hybrid mode only has 96 kbps. But there is an extended hybrid mode with up to 150 kbps. The hybrid mode supports up to eight audio channels, plus additional auxiliary data channels. As noted above, at the end of the digital radio transition when the hybrid mode is replaced by the all-digital mode, the digital sidebands will be expanded. The technical parameters of the all-digital mode, including the bit rate, has yet to be determined.

Separate Control of Each Data Stream. With current public interest obligations, broadcasters have control of all public interest programming. Since such programming often conflicts with their bottom line, they have an inherent conflict of interest. Public interest programming that conflicts with their bottom line has little chance of getting produced and aired.

The most exciting feature of multicasting technology from a public interest perspective is the ability to completely separate control of the information conduit from control of the information content. This new technology should be exploited by taking all editorial control of PIO content on the separate data stream out of the hands of broadcasters.

Broadcasters would still provide distribution of the independent content in the sense that cable companies provide distribution for PEG content and Emergency Alert System content. But it they would have no more control of the content than common carriers have control of the content that goes over their networks.

Think Creatively About Types of PIO Data Streams. Most public interest obligation programming ideas focus on enhanced music, ethnic, and other conventional radio programming diversity. If a funding source can be found for such programming, they have a place in a multicasting world. If not, then I think other ideas need to be explored, where the content is

already being produced for other purposes or could be produced at negligible cost, but lacks an affordable delivery option. Here are some proposals for such low marginal cost, high public value PIO data streams.

Consider indoor global positioning system (GPS) information. At no charge to the public, the American government already provides pervasive outdoor GPS information. This information is revolutionizing many important location based services, including e911. The government's satellite provided GPS service, however, does not work indoors, which is a major limitation. For example, one of the arguments the broadcast industry has used to oppose unlicensed service in the unused TV guard bands is that current GPS systems won't operate indoors. As a result, indoor unlicensed devices won't know where they are and won't be able to shut themselves off if they're using spectrum licensed to a TV broadcaster. The FM radio bands are stupendously well suited to provide indoor GPS because their wavelengths are very large and can easily pass through walls.

Whereas indoor GPS might be viewed as a new type of free content, there is a lot of other information that is already publicly generated but not distributed in a convenient or affordable way. Examples may include time, weather, road conditions, and emergency information. In some cases the government has very ambitious plans to generate highly valuable public information—such as the proposed intelligent transportation system's database of road conditions—but expensive or otherwise impractical means for the public to access it. Some of this information the broadcasters already plan to include in their digital services. But they also insist that to access this information consumers must purchase royalty laden digital receivers and pay for the content either through ads (the conventional way) or fees (the new way made possible by digital radio technology). Given that taxpayers are already paying for the information to be collected, it seems unfair to let the broadcasters use their monopoly power over distribution to extract the value from it, especially when the prime justification for giving the highly profitable radio broadcasting industry so many public subsidies is that they provide vital free information to the American public.

Another type of streaming media the government does a pretty good job of collecting but a terrible job of distributing is open meeting information, including the public deliberations of state legislatures, city councils, and school boards. At essentially no additional public expense, this information could be streamed to the public. Nor would it be necessary for citizens to listen to the programming in real time. They could simply ask their radios to record such and such public meetings and listen to them at their convenience. Almost all digital radios of the future are expected to have computer-based recording functionality, just like the i-Pod and Tivo. I don't want to imply that a lot of the legally mandated audio recording currently done by public bodies isn't antiquated and couldn't be greatly improved. But the problem here is not one of cost but disinterest on the part of elected officials in modernizing the open meeting system.

Of the 32 kbps, one possibility would be to allocate 12 kbps to local service agencies such as public safety, and 20 kbps for a local public affairs channel. The primary rationale for doing this is one of economies of scale. Giving public safety access to 12 kbps, less than 1% of the final all-digital bit stream, could revolutionize the economics of providing certain types of public safety information. It's incredibly inefficient to devise a terrestrial over-the-air system for

narrow purposes such as indoor GPS, weather, and traffic information. Not that the government hasn't often built such networks. But the far more efficient approach is to build a general purpose network such as the FM radio network and then let the government information bits ride over a fraction of the capacity of that network. This approach is a hybrid between the two current alternatives of 1) building completely separate networks so the government can have complete control, or 2) using the broadcasters' network but at the expense of losing control.

Provide Public Media Funding by Charging a 5% Fee on Fee-Based Digital Radio Services. There is no good reason why TV broadcasters have to pay a 5% fee on their direct audience revenues whereas radio broadcasters don't have to pay anything on such revenues. This type of fee could be used to fund non-profit public affairs stations, such as local "C-SPANs," that use the independent bit stream. For the next few years direct audience revenues aren't likely to bring radio broadcasters significant revenues. For a variety of reasons, they are also a source of embarrassment to the radio broadcasting industry, which continues to lobby Congress and the FCC for public subsidies in the name of providing a "free" service. But there is nevertheless good reason to expect that five to ten years into the future such revenues will come to dwarf conventional ad revenues.

Eliminate Royalty Payments On Broadcast Radio Equipment That Only Accesses The Independent Information Stream. If a radio device incorporates only the second public interest portion of the digital radio stream, no royalties should have to be paid on the equipment. For example, let's say a device manufacturer only wants to take advantage of the indoor GPS signal provided by local radio broadcasters. He should not have to pay $10 or more per device in royalty fees to the radio broadcasters. Free must really mean free. If radio broadcasters are getting all sorts of government benefits because they provide public interest programming for free, then they must really do so.

Eliminate Fees on Public Interest Information. Although digital radio was sold to the public as a way to enhance free radio, it in fact allows radio broadcasters to start charging for content the same way satellite radio operators such as Sirius and XM are able to charge for content. One reason to put government created time, weather, and traffic information on a separate channel is to prevent broadcasters from charging for information that the public has already paid for. Requiring that there be no additional fees on certain types of publicly subsidized information would send a strong signal that the word "free" amounts to more than a lobbying slogan used by the broadcasting industry.

In truth, these are second best solutions. Ideally it should be recognized that using low frequency spectrum for broadcasting is a misuse of beachfront spectrum. It has long been recognized by telecom analysts that broadcast TV, a fixed wireless service, is fantastically ill-suited to be delivered via conventional over-the-air broadcast TV. It should either be delivered via wires (e.g., cable broadcast TV or Internet TV) or via over-the-air via higher and much less valuable spectrum (e.g., satellite TV). Low frequency spectrum, according to this reasoning, is most productively use for mobile applications such as mobile telephone and WiFi service.

Radio broadcasting has gotten a pass because, unlike broadcast TV, so much of it is listened to in mobile environments, such as cars. But this argument has gotten weaker and weaker.

Increasingly, people are listening to radio stations at home and at work via the wired Internet. And with their home and office wired networks connected to wireless devices via WiFi, they don't even need to be plugged in. Even on the streets, with the advent of municipal WiFi, over-the-air radio is unneeded. For example, Google promises to provide 300 kbps of ad-supported ("free") wireless service to residents in San Francisco. With an FM quality bit stream requiring less than 20% of that capacity and also providing radio on demand, it could easily come to be viewed as a superior radio delivery mechanism on public roads.

All this should lead policymakers to ask why we are allocating more spectrum to radio broadcasting when broadband is clearly what radio consumers of the future will want. This is not a question raised in the current multicast radio rulemaking. But this is a question that should be asked because it is only a matter of time before the radio broadcasters, as they turn off their analog channels and switch from their hybrid to all-digital modes, seek to annex yet more of the white space in their sidebands.

Along these lines, it is essential that the FCC stop relying on standards developed by the broadcast industry. These clever and politically motivated standards are designed to constrain, in a highly biased fashion, the range of policy options available to the FCC. A major source of bias is that the only type of digital standard that the broadcasting industry has ever created is one that, if implemented, would give them a spectrum windfall. There is no such thing as a broadcast industry standard where the efficiency gains from new technology are shared with the public.

Broadcast industry standards have also historically been designed to pollute as much white space as possible, so incumbent broadcasters can later come back to the government and say that if the government wants the spectrum cleared, they are the only ones that can do it. Eliminating this type of holdup/extortion power is another reason policymaking needs to be taken out of the hands of the secretive broadcast lobbyist dominated standards bodies.

But this agenda is far too large to have any chance of being implemented in time for the FCC's upcoming multicast vote. The key thing to keep focused on at this point is that the public must get something back in return for this huge giveaway of spectrum rights. In addition to being unfair to the public, it is unfair to radio broadcasters' competitors. Why should radio broadcasters be given free spectrum to upgrade their services when their competitors are told they must pay for it themselves—and even then, as in the case of satellite radio's purchase of WCS spectrum, may not be allowed to compete with the radio broadcasters? PIOs may not be an ideal solution to this problem but at the moment appear to be all that is politically realistic. Some novel types of public interest obligations, such as a dedicated stream of PIO bits including indoor GPS, may be worth considering in this context.

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Disclaimer: These are my personal views and should not be assumed to be the views of either the New America Foundation or its Wireless Future Program.

Appendix A:
Chronology of Key Events in the Digital Radio Transition

For general FCC information on the digital radio transition, see
http://www.fcc.gov/mb/audio/digital and
http://www.fcc.gov/mb/audio/decdoc/engrser.html#IBOC.

1990—The FCC issues a report supporting the principle of digital conversion for radio broadcasters but stating that the technology to implement such a conversion is not yet available.

1991—Major radio broadcasters join together to create a company (at first called USA Digital Radio and then renamed iBiquity) that will develop the digital HD radio standard. About the same time, TV broadcasters endorse the effort to come up with a digital HD TV standard.

March 16, 1994—Representative Billy Tauzin introduces a TV digital multicasting amendment to the bill that would become the Telecommunications Act of 1996. This amendment sets off a firestorm of controversy and opposition. More than 30 newspapers editorial pages, dozens of op-eds in prominent newspapers, and the Republican presidential candidate (Bob Dole) will oppose it as an outrageous giveaway. The President of the U.S. (Bill Clinton) will create a high profile advisory committee to determine what public interest obligations the broadcasters should incur as payback for these multicasting rights worth billions of dollars.

April 3, 1997—The FCC grants broadcasters a second digital TV channel, including multicasting rights.

October 7, 1998—USA Digital Radio petitions the FCC to approve its digital radio standard and allow incumbent AM and FM broadcasters to broadcast in digital. The standard is called IBOC for in-band, on-channel and roughly doubles the usable spectrum for each incumbent broadcaster. The digital channel is supposed to simulcast the analog channel but in higher definition. The purported primary purpose of digital radio is to allow radio "to meet the higher sound quality the public demands." No mention is made of an intention to multicast.

October 11, 2002—The FCC approves digital radio with only slight changes to the USA Digital Radio petition. Radio stations may commence digital transmissions on an "interim" basis. Stations are restricted to transmission systems that combine the analog and digital signals into one antenna. Under its section on "policy goals," no mention is made of multicasting.

March 17, 2004—The FCC approves radio broadcasters' request to use a separate antenna for their digital and analog signals.

March 8, 2005—The FCC announces that it will authorize radio multicasting on a case-by-case experimental basis.

February 22, 2006—There are 180 radio stations already multicasting, creating facts on the ground making it politically difficult for Congress and the FCC not to grant incumbent radio broadcasters blanket multicasting rights.