



FHH TELECOM LAW

Current Issues in Telecommunications Law and Regulation

The National Broadband Plan Issue

The NBP and, well, everything

The Big Picture

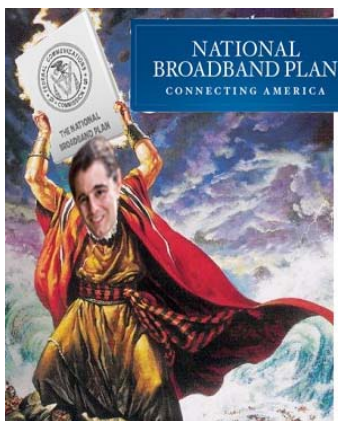
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The FCC’s much ballyhooed National Broadband Plan (NBP, or simply, the Plan) was finally announced on March 16 after weeks of titillating leaks from the Commissioners and staff about what was in the plan. By any measure, the NBP is an ambitious and far-reaching initiative which places the advent of broadband somewhere between the invention of fire and the Second Coming on the scale of human historical momentousness. Here at FHH Broadband Central, we have been digesting the NBP with a view toward assessing where the Plan may present risks or opportunities for the industries affected.

This issue is devoted entirely to the Broadband Plan, with a thematic treatment of the various aspects of American life which the FCC expects will be improved by broadband access. With Commissioner Tate’s departure from the Commission, there is, sadly, no proposal to harness broadband in the fight against obesity, but that is about the only facet of life that is not potentially touched by broadband.

To be sure, the NBP was an enormous undertaking and one for which the FCC is justly to be commended for completing in record time – to the extent it has not already repeatedly commended itself. The NBP makes findings and bold recommendations in such areas as jobs, telemedicine, health-care, energy, public policy, and other areas of commerce that will be affected by broadband – with telecommunications being a means to those ends. While this was all part of the

FCC’s broad mandate from Congress, we and the Commission are now left to sort out how these worthy goals are to be accomplished.



The NBP is not a proposal per se. It is not even a blueprint. It is more of a “things to do” list. Scores of actual notices of proposed rulemaking are in the works to implement certain aspects of the plan that are within the Commission’s jurisdiction. But many important aspects of the plan require new legislation to change existing law, action by other independent states or federal agencies, or even new treaties with foreign countries. The FCC can only advise as to those actions. In this respect, it would have been very useful for the Commission to explicitly identify those elements which it plans to implement

on its own authority and those which require action by others. An undertaking of this magnitude requires a clear division of labor, with all parties having clear marching orders. If the NBP is to have as dramatic an impact as it could, there must be buy-in to the Plan by a broad range of regulators and legislators. Unfortunately, while the Plan is a stirring call to action on pages 1 - 7, by page 338 the reader is less likely to be aroused than to be asleep.

None of this is to disparage the Plan. It is full of useful insights and information, and we recommend it to everyone. The topical treatments presented here will give you an idea of what’s going on.

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Desperately seeking spectrum

Brother, Can You Spare 500 MHz of Spectrum?

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Everybody reading this on a wireless device, raise your hand. We thought so! Our readers are unusually up to date. Those old-style Ethernet cables into the wall are so Twentieth Century.

The FCC has noticed all of us using our phones like little laptops and TVs, and our wireless laptops for everything else we do on line. All of that data has to ride on radio waves. Other things being equal, more data will require more radio spectrum. As part of its ambitious National Broadband Plan, the FCC is looking to find some.

The FCC will have to look hard, because we are going to need a lot of spectrum. Recent increases in demand are impressive. AT&T, with its ubiquitous iPhones, shows an annual growth in service of 268%. The other major carriers are close behind. Analysts expect continued sharp growth over the next several years.

What is driving the demand? The FCC politely calls it “users engag[ing] with data-intensive social networking applications and user-generated video content.” Judging from the people at Starbucks, we think it’s mostly Facebook videos of college kids horsing around. But if people are willing to pay for it, the carriers will deliver, and the FCC will work on helping them find enough spectrum.

The goal is 500 MHz, newly available, of which 300 MHz should be between 225 MHz and 3.7 GHz. The FCC does not explain these boundaries, but we will. Lower frequencies need bigger antennas; 225 MHz is around the lower limit for a hand-held device. And frequencies that are too high do not propagate well; anything much above 3.7 GHz is not practical for mobile applications.

The most-discussed proposal – and most reviled, in some circles – would convert 120 MHz of TV broadcast spectrum, 20 channels’ worth, to wireless broadband applications. After all, the FCC may have reasoned, auctioning just 52 MHz of the former 700 MHz TV spectrum brought in \$19.6 billion. So let’s do it again, but more so. Only 10% of households still depend on over-the-air TV, so no great loss. The broadcasters can all stay in business, once we arrange for them to share whatever channels remain. And those who give up spectrum voluntarily will be in for a cut of the auction revenues. Everybody wins, right?

Another 90 MHz would come from mobile satellite spectrum. Those licensees can offer terrestrial cell-phone-like service on their frequencies, so long as they also provide service through satellites. The FCC could improve access to their spectrum by easing the satellite requirements. The traditional wireless providers, which have opposed similar moves in the past, might come around if they are allowed to participate in offering service.

Where it cannot displace incumbents by offering money (see broadcast spectrum, above), the FCC plans to try the opposite tactic: taking money away. The idea is to charge a “spectrum fee” for shared frequencies that are used for a single purpose. Those would include much two-way radio, most fixed microwave, and possibly satellite services. One proposal is to start with a low fee and gradually raise it until the fee is unaffordable for present uses, thus encouraging licen-

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Show me the money!

Proposed Revisions to USF and Intercarrier Compensation Raise “Broad” Questions

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One of the problems which has vexed the FCC for more than a decade is how to adapt the Universal Service Fund (USF) and Inter-Carrier Compensation (ICC) regime to the world of the internet. The USF and ICC were 20th Century constructs which patched up subsidy and traffic exchange problems arising from the AT&T break-up. The need for reform in these areas has been stymied by the inability of policy-makers to resolve the competing, but more or less legitimate, demands of all the players. The advent of broadband offers the FCC an opportunity to break the logjam in the context of a migration to all-digital, all-IP networks.

In this cause, the FCC’s ambitious National Broadband Plan (NBP) to facilitate universal access to broadband is inspiring, but as Rod Tidwell and Jerry McGuire (portrayed by Cuba Gooding, Jr. and Tom Cruise, respectively) famously insisted: “Show me the money!” The NBP asserts that it will cost \$24 billion to close the “broadband availability gap” and provide the targeted level of affordable broadband service to currently unserved areas.

Where will this money come from?

The FCC proposes to transform and re-purpose the major source of funding currently used to facilitate the provision of *telephony* in unserved areas, *i.e.*, the USF, into a new Connect America Fund (CAF) to facilitate provision of *broadband* services. And because, for historical reasons, the USF programs are deeply connected to the way that telecommunications carriers make payments to each other for carrying telephone traffic, the NBP also proposes revisions to the ICC system. With broad proposals to “comprehensively reform” the complex mechanisms through which billions of dollars per year are collected and disbursed, revisions to USF/ICC will be a hotly contested process that will raise some difficult questions.

Currently, three out of the four federal USF programs are not designed to support broadband services di-

rectly, though some carriers that receive USF use that funding to construct facilities that can be used for broadband as well as tradition voice services. In addition, the largest of the USF programs, the High Cost Fund (HCF), supports only certain components of a network, such as wires and switching equipment, but not other components necessary for broadband. Thus, rather than “tweaking” the existing USF programs, the NBP proposes that the FCC pull \$15 billion out of the HCF over the next decade and re-purpose that money into the CAF to facilitate (wireline) broadband development.

The goal of facilitating universal access to broadband is ambitious and inspiring, but where will the money come from?

In addition, the FCC would create a Mobility Fund to facilitate the development of broadband mobile wireless networks where the market would not otherwise support such development. Lastly, between 2012 and 2020, the FCC would beginning phasing down and ultimately eliminating the

HCF – first by eliminating payments to competing providers in certain areas (primarily cellular companies) and then by phasing out payments incumbent telcos for traditional voice services. After 2020, the only voice services eligible for federal support would be broadband voice services.

As noted above, the NBP also proposes broad reform of the ICC system. This is because prior to the deconstruction of the Bell System in 1984, universal service was largely funded by a complex set of internal AT&T price and cost cross-subsidies, shifting costs from rural to urban users, from residential to business users, and from local to long distance users. After the break-up of the Bell System, those cross-subsidies were replaced with direct payments between phone companies, with rural and smaller phone companies charging ICC rates designed to reduce the cost of providing service to their residential customers.

When the Telecommunications Act of 1996 was enacted, it mandated that federal subsidies for universal service be funded *explicitly*, through USF. Neverthe-

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The NBP and infrastructure

Lots of Questions, Not So Many Answers

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The FCC's National Broadband Plan (NBP) correctly recognizes that improved broadband to the end-user cannot be achieved without significant changes to certain critical "behind the scenes" elements of the nation's broadband "ecosystem" – including the resale of facilities to competitors; the cost of "backhaul" (*i.e.*, the radio or wired paths between and among the cell towers and the cellular switching office); availability of "data roaming" (*i.e.*, the ability of a mobile wireless user to receive and transmit data traffic when outside of the data service coverage of its own carrier); and transition of the telephone network away from copper to fiber. While short on details, the NBP (in particular the section titled "Competition in Wholesale Broadband Markets", in the "Broadband Competition and Innovation Policy" chapter of the NBP) suggests a return to regulatory schemes that, in addition to being troublesome and cumbersome, simply haven't ever worked in the past.

Nevertheless, no one can accuse this FCC of lacking boldness.

Resale. Historically, the FCC has attempted to use competition to regulate markets in two ways: (a) by establishing a regulatory environment conducive to competitors who own their own facilities (so-called "facilities-based competition"); or (b) by forcing facilities-based carriers to make their facilities available to non-facilities-based companies at rates that will allow the latter to earn a reasonable profit (a "resale market" approach).

Facilities-based competition tends to promote a wider diversity of consumer choices, greater responsiveness (in time and substance) to consumer desires, and lower service rates – while avoiding the various downsides of direct regulation. Still, the Commission sees a role for the resale market approach in promoting broadband because, in the agency's view, "well-functioning wholesale markets can help foster retail competition", particularly in view of both (a) the economies of scale, scope and density of telecom networks, and (b) the economic and practical infeasibility of building out competitive

facilities in all geographic areas.

This may ultimately prove, like third marriages, a triumph of hope over experience.

The history of the resale approach is long and not especially happy. Beginning in the 1970s, the FCC embraced that approach, apparently convinced that forcing incumbent telcom companies to resell to competitors would serve as an effective alternative to rate and service regulation. Resale was in such vogue that Congress incorporated it as a central feature of the competitive policies of the Telecom Act of 1996 (which relied upon the resale of network elements by incumbent telcos (ILECs) to competitive carriers (CLECs) at below-cost prices).

The FCC now wants to resurrect its resale policies for broadband providers.

Many, perhaps most, observers would agree that the government's efforts along those lines have failed. Indeed, over the last 10 years the FCC itself has quietly, and

gradually, dismantled the ILEC-to-CLEC resale program. For example, the FCC ended the right of resellers like Covad to gain unbundled access to the high frequency portion of the subscriber access line (that is, the twisted copper pair running from the telco switching office to your home), thus spelling the end to competition in the provision of Internet access via the subscriber access line (xDSL). While dismantling the resale regime, the FCC pursued a "hands-off" approach to broadband regulation.

But in the NBP the FCC now wants to resurrect its resale policies for broadband providers. Recognizing that it lacks coherent and tested resale policies geared to today's IP world, the FCC acknowledges that careful evaluation of the data and the many complex related issues will be necessary. The Commission also admits that the pursuit of other policy goals, such as retiring the copper plant used for over 100 years by telcos, cannot be ignored in the analysis. So resuscitating the resale market approach for broadband will require consideration of a range of difficult issues over and above the fact that the resale approach historically hasn't worked – making an already complex method of promoting

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(NBP and Infrastructure - Continued from page 4)

competition even more difficult to implement. The FCC surely recognizes that there are legal and political tensions inherent in restoring resale as a competitive tool after having largely abandoned it.

Backhaul and other special access services. Wireless carriers need to connect their various facilities (cell sites, switching and router systems). For that purpose they use either microwave radio systems or LEC facilities. The latter are now referred to as “special access” services. (Think, for example, of a T-1 or an OC-3 line that is always on and not shared with other users.) But the need for wireless backhaul is old news – why should it be an NBP issue now?

Wireless carriers complain that the FCC’s microwave radio rules make radio-based backhaul too expensive. But the wireless carriers complain that the alternative – *i.e.*, special access services – is also prohibitively expensive because the FCC’s deregulation (or non-regulation) of such services has allowed the incumbent, often monopolistic, telcos to charge sky-high rents for backhaul services. And exacerbating the burden of this cost factor is the brutal fact of increasing demand. With more and more cell phones using more broadband apps requiring higher data rates, the amount of wireless traffic is skyrocketing, which necessarily leads to dramatically increased backhaul volume – for which those sky-high rates will be charged, making the cost of backhaul an even larger issue. This same complaint is made by (a) businesses who rely on special access services to get to the Internet and (b) Internet access providers who use special access services to connect their points of presence or extend their services to areas they cannot otherwise serve.

Given the FCC’s lackluster history with resale, we are not surprised that the NBP makes no concrete recommendations for regulating the special access through resale. Instead, in a throwback to days of yesteryear, the FCC appears to be proposing old-style rate regulation. That’s right: tariffs, not competition.

Wireless data roaming. By wireless data, the FCC is referring to the use of the cell phone to access the Internet and use data applications – oh, and voice too, as it’s all data now. The FCC has for years required wireless carriers to allow the customers of other carriers to roam on their networks (although that rule is limited to voice traffic). But while the FCC has been happy to impose that

requirement, it has been loath to regulate roaming rates charged between carriers (even though the FCC has the authority to do so). The FCC’s regulatory reluctance has opened a path for avoiding the roaming access mandate: if Carrier A does not want to let Carrier B’s subscribers roam on Carrier A’s system, Carrier A simply imposes rates that carrier B can’t afford to pay.

While the FCC seems more than happy to jump back into rate regulation of special access, it is still struggling with how to ensure universal data roaming on reasonable terms – a goal it never quite achieved with voice roaming. Perhaps that’s why the NBP proposes to encourage voluntary roaming agreements among carriers while continuing to study the issue of whether to make data roaming access mandatory. It makes no concrete recommendations for regulation.

The FCC supports the transition from the twisted pair and circuit switched technology to fiber and IP technology.

Transition from switched-based services to IP-based services.

We are all familiar with regular telephone service. It is “switched”, meaning that a whole circuit is created for each call, and that call and that circuit are created by the switching process. The two common forms of call switching are analog and time division multiple access (TDMA). We are all familiar with voice over IP service (VoIP). This service uses IP and session initiated protocol, rather than switching, to move, send and receive voice calls.

Recently, AT&T proposed to transition from the twisted pair and circuit switched technology to fiber and IP technology. The FCC supports that transition, seeing the greater public and consumer benefits that will arise when we rely upon fiber rather than the twisted pair.

But the transition will cause dislocations, particularly to DSL providers (like Covad) who rely on access to the high frequency portion of the twisted pair. The NBP concedes that using copper to provide DSL can be beneficial. But the NBP appears to see a greater good in “copper retirement”, *i.e.*, transitioning from the twisted pair to fiber-to-premises. While the NBP does not provide any final answer, it’s probably safe to say that copper-reliant competitive DSL providers should count their days.

Interconnection also is a problem. The FCC sees a need to clarify that the Telecom Act of 1996 requires rural ILECs to interconnect with CLECs. The Commission also plans to study the interconnection challenges and opportunities that the Nation will face as we transition to all IP networks.



The NPB and public safety

Revamping the Public-Private Partnership

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The FCC's NBP suggests some bold steps to develop a nationwide public safety broadband network, including: new federal grant programs; roaming and priority access on commercial broadband networks to add capacity; a common technology standard; a new federal office within the FCC to address interoperability issues; and incentives for public-private partnerships. However, to the great disappointment of those who have asked Congress to reallocate the 700 MHz D Block for public safety broadband use, the NBP suggests that the D Block auction proceed as required under current law.

The NBP does not recommend any fundamental changes to the current 10 MHz of spectrum in the 700 MHz band already allocated for public safety broadband. However, national public safety organizations and others have argued that additional spectrum (the adjacent D Block currently slated for auction) will also be needed to accommodate future public safety requirements, especially once first responders have the capability to stream live video to and from the field. The NBP suggests instead that public safety have priority access to commercial spectrum when dedicated public safety spectrum is unavailable, for example during a major emergency.

To make priority access and roaming work, the NBP recommends that the Commission mandate use of LTE as the broadband standard for both the D block and the adjacent public safety spectrum. (LTE has already been selected by other 700 MHz commercial licensees such as Verizon and AT&T.) This will allow devices to roam across the band and, pursuant to rules yet to be proposed, provide the mechanisms for priority access to be implemented. The big question for public safety, however, is whether commercial licensees would be willing to provide first responder agencies with seamless priority access to their networks, potentially disrupting (or at least slowing) their commercial customers' communications. The NBP does propose that commercial providers be allowed to charge public safety for priority access, and some FCC staff have sug-

gested that charges be limited to something like a "most favored customer" rate.

The federal grant programs are intended in part to provide funding for the deployment of the dedicated public safety spectrum, based on assumptions that existing public safety land mobile radio transmitter sites and, through partnership agreements, existing commercial cellular sites are used for the build-out. Federal grants could also be used by public safety entities to "harden" shared commercial sites to meet public safety requirements (e.g., to add back-up power and reinforced towers). Part of the money for these grants could come

from new commercial broadband fees proposed in the NBP, similar to the Universal Service Fund.

Tying all of this together will be the Emergency Response Interoperability Center (dubbed "ERIC") that will reside with the FCC's Public Safety & Homeland Security Bureau, but will also have input from DHS and other federal agencies. There will be some type of advisory

body to ERIC consisting of public safety representatives, though its composition and exact role are yet to be defined. Similarly, the NBP does not address how ERIC will interface with the Public Safety Spectrum Trust, which holds the national license for dedicated public safety broadband spectrum.

Finally, the NBP contemplates that the FCC will soon address long-standing petitions for waivers from various state and local governments seeking authority for "early" deployments of 700 MHz public safety broadband systems. On March 17, the FCC issued a Public Notice seeking comment on a set of recommendations as to how to maintain interoperability among those systems and the yet-to-be deployed national broadband network.

As with other parts of the NBP, the public safety issues have already generated debate and will inevitably lead to contentious rulemaking proceedings and perhaps legislation in the months to come.

Would commercial licensees be willing to provide first responder agencies with seamless priority access to their networks?

The NBP and health care

The FCC Plays Doctor

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In the health care chapter of its National Broadband Plan (NBP), the FCC envisions nationwide availability and use of electronically gathered, exchanged, and archived medical information to improve individual and public health care. Getting there from here (noting that the United States is at the back of the pack within the developed world when it comes to electronic health care) will require a vast, coordinated effort on the part of many different players.

Looking at the big picture, the NBP identifies three major gaps: adoption, information utilization, and connectivity. It goes on to formulate a comprehensive plan to fix all three before apparently realizing that the FCC has jurisdiction over only one – connectivity. Undeterred, the Plan creates a “honey do” list for Congress, the States, the Secretary of Health and Human Services, the Centers for Medicare & Medicaid Services, the Food and Drug Administration, and the Office of the National Coordinator for Health Information Technology.

Having put the rest of the government on the right track, the FCC also sets itself a few tasks:

- ❏ **Establish Health Care Broadband Access and Infrastructure Funds within the Rural Health Care Program.** The FCC proposes to establish two health care broadband funds, a “Health Care Broadband Access Fund” and “Health Care Broadband Infrastructure Fund.” The Health Care Broadband Access Fund would replace the existing Internet Access Fund, supporting bundles of services for eligible health care providers. It would be available to both rural and urban health care providers, based on need. The Health Care Broadband Infrastructure Fund would subsidize network deployment to health care facilities where existing networks are insufficient.
- ❏ **Allow broader participation in the Rural Health Care Program.** The FCC plans to authorize participation in both funds by long-term care facilities, off-site administrative offices, data centers and other similar locations. To further expand the reach of the programs, the FCC recommends that Congress make

funding accessible to private for-profit institutions that serve particularly vulnerable populations. The FCC also proposes to increase participation by increasing the amount of support and simplifying the application process.

- ❏ **Establish outcome-based performance measures.** To protect against fraud, waste, and abuse, the FCC proposes that participating institutions will have to meet outcome-based performance measures to qualify for the above funding, on the model of Health and Human Services’ “meaningful use” criteria.
- ❏ **Publish a biennial Health Care Broadband Status Report.** This report will discuss the state of health care broadband connectivity, review industry trends, describe government programs and make reform recommendations. The FCC will analyze the progress of its own programs and, we hypothesize, give Congress, the States, and other federal agencies letter grades for performance and effort.
- ❏ **Collaborate with the Food and Drug Administration on regulation for medical devices.** The FCC seeks to address and clarify the regulatory approach in areas where communications and medicine converge, such as medical devices that use radio frequencies. Such devices might include wearable sensors for monitoring a patient or smartphone applications that give fetal heartbeat and contraction information to an obstetrician. The FCC proposes, within the 120 days following release of the NBP, to seek formal public input and hold – wait for it – workshops.

In a similar vein, on March 19, 2010, the Rural Utilities Service of the Department of Agriculture released a “Notice of Funds Availability and Grant Application Deadlines” for its annual Distance Learning and Telemedicine grant program application window. (See <http://edocket.access.gpo.gov/2010/pdf/2010-6007.pdf>.) This program primarily funds end-user equipment used for distance learning and telemedicine, such as video conferencing or teleradiology equipment. Therefore, in NBP terms, it addresses the adoption gap.

The NBP identifies three major gaps: adoption, information utilization, and connectivity.



Energy = Broadband²

Broadband-based “Smart Grid” Would Facilitate Energy Conservation

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Can't make it out to Disneyland for the 2010 version of “Walt Disney's Carousel of Progress”? No problem. Just take a quick gander at Chapter 12 of the National Broadband Plan (NBP). A Jetsons-like future is, apparently, just around the corner for all of us. The NBP, of course, is touted as promoting a wide range of society-improving interpersonal communication uses – like telemedicine and long-distance education. But the elaborate broadband infrastructure necessary for those communications could also be harnessed with innovative technology to enhance energy efficiency and safe transportation. Hence, the “Smart Grid”.

In the NBP's vision, a national broadband “Smart Grid” would connect to most energy-consuming devices. It would enable the reduction, or at least evening out, of their consumption, and inform consumers of the extent, and cost, of their energy use (thus, ideally, encouraging them to stop being energy hogs).

Smart homes and buildings are the starting point – buildings equipped with devices that provide their occupants with information about both past and current energy consumption and allow the occupants to make real-time adjustments in consumption patterns.

Traditionally, consumers have received information about energy consumption only on a monthly basis and after-the-fact, when they receive their electric and gas bills. The FCC recommends that systems be developed and installed that monitor and report on energy consumption on a real-time basis and also provide consumers with pricing information, enabling them to avoid or to reduce consumption during peak demand periods. Since a significant portion of energy production plant is needed only during peak hours, less plant would be needed if peaks were leveled out. For example, if the power grid were under strain at a particular time, and you happened to be cooling your home enough to wear a sweater, your TV might flash dollar signs before your eyes to warn you that it is time to let the place warm up a little if you don't want a rude surprise when your electric bill comes. To top it off, you would receive a warning

and could change the thermostat using your smartphone, which means that you could get the hint and change the temperature in your home in Washington while you were surfing in California.

Appliances are now being developed that can connect to a home network and gather and report information about community-wide power demand. Those appliances might discourage operation during peak periods, by sounding a warning or even refusing to function. Appliances with time flexibility might include washers and dryers and charging stations for future electric vehicles, which will tax the power grid significantly if charging is not confined to overnight hours. One manufacturer claims that all of its appliances will connect to the Smart Grid by 2015.

Network sharing should be encouraged to avoid construction and operation of duplicative energy-consuming systems.

Telecommunications network sharing should be encouraged, the FCC says, to avoid construction and operation of duplicative energy-consuming systems. Sharing between public safety and commercial entities should also be encouraged. The FCC suggests that studies be undertaken of the reliability and resiliency of commercial broadband networks and recommends that the networks be hardened so that they are less likely to fail during a storm or other emergency. Right now, cable TV, for example, is known in many areas as one of the earliest systems to go out during a storm – and utilities do not want to rely on systems which fail when most needed. The more reliable commercial networks become, the more likely public safety agencies and utilities will become interested in sharing those networks. The FCC also suggests that privately owned utilities be qualified to share public safety wireless networks. Today, they usually do not qualify because they are not government entities.

Financial incentives are suggested to encourage utilities in turn to provide incentives to their customers to conserve energy. These incentives will be different from today's incentives, which encourage building facilities and selling more power, especially for utilities which have a guaran-

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NBP and Education

Broadband Goes to School**FCC encourages use of broadband by schools,
funding of broadband by government**

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Among the array of ills which the FCC's National Broadband Plan (NBP) addresses is the insufficiency of broadband in our schools. The NBP therefore devotes considerable attention to Education. It begins by noting studies showing American students lagging far behind other advanced nations in math and science. The NBP's solution, unsurprisingly, is more broadband. The NBP promotes the use of broadband enabled resources for students, teachers and educational intuitions and proposes increased investment in broadband infrastructure. Specifically, the NBP recommends a collection of initiatives designed to: (1) support and promote online learning; (2) unlock the value of data and improve transparency; and (3) modernize educational broadband infrastructure.

The NBP strongly embraces online learning tools as both an in-class resource and as a means of extending learning beyond the classroom. To promote online learning, the NBP's recommendations include creating and implementing new standards and formats so that educational content can be more easily located and shared by educators. The plan also urges Congress to consider certain changes to copyright law to "encourage copyright holders to grant educational digital rights of use."

On the state and local level, the NBP recommends changes to accreditation programs to allow for more online instruction to count towards primary, secondary and post-secondary programs – allowing students in rural high schools, for instance, to take online AP courses from larger schools or even schools from other states. State and local school systems are also encouraged to include more "digital literacy" elements in their curriculums. Finally, the NBP recommends increased funding from the U.S. Department of Education (DOE) and other federal agency for research and development of online learning systems and teacher training in digital literacy.

The NBP notes that not only can information technology improve education but information about edu-

cation can improve education. Thus, it urges new and improved measures for capturing, storing and utilizing information about students, teachers, schools and educational resources. The NBP therefore recommends that DOE encourage the adoption of standards for electronic educational records, including standards for information sharing, privacy and data security. The NBP also recommends greater financial data transparency, with the goal of making educational spending and related data more publicly available to encourage analysis that may improve educational policy.

The NBP strongly embraces online learning tools as an in-class resource and a means of extending beyond the classroom.

Finally, the NBP includes a series of recommendations, many targeting the use of E-rate funding, to increase spending on educational broadband infrastructure. The E-rate program (or the Schools and Libraries universal service support program) allows schools and libraries to receive telecommunications services at discounted rates. Recommendations include:

- ✦ Removing barriers to off-hours community use of E-rate funded resources.
- ✦ Prioritizing E-rate support for broadband connectivity for schools and libraries.
- ✦ Providing E-rate support for internal connections to schools and libraries.
- ✦ Greater spending flexibility for E-rate applicants so that applicants can seek the lowest cost solutions.
- ✦ Raising the cap on E-rate funding to account for inflation.
- ✦ Streamlining the E-rate application process.
- ✦ Collecting and publishing more information on E-rate spending.
- ✦ Encouraging more cost-efficient broadband expenditures through the E-rate program, by encouraging increased information sharing and collaboration among federal, state and local agencies.
- ✦ Lower barriers to E-rate eligibility to Tribal libraries.

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The NBP and privacy

More Data is Good Data

Unless it's your data and somebody else has it

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The FCC's National Broadband Plan (NBP) calls for the extension of broadband into virtually every facet of American life. While ubiquitous connectivity has many benefits, it also raises questions about how to maintain the privacy of those who enter this brave new world. The FCC astutely recognized that people's concerns in this regard could be a significant barrier to adoption and utilization of on-line systems, and it has therefore offered some recommendations on how to create an online environment which will provide more consumer protections. But lest you think the FCC has suddenly gone all soft and consumer-oriented, the NBP recommendations for online privacy place a hefty emphasis on the need to encourage commercial services which harness "digital identities" to provide customized services (and make a lot of money).

These seemingly contradictory goals actually serve the same common purpose, according to the plan: firms with greater access to greater amounts of personal information can offer better targeted services, which in turn increase consumer use and utility.

So how do we reconcile these apparent cross-purposes to reach the FCC's goal? Generally, the theme seems to hinge on two notions: (1) ensure competition and innovation in the data-collection and mining industry; and (2) ensure individuals can manage their own "digital identities." Noting that the "existing regulatory frameworks provide only a partial solution to consumer concern and consist of a patchwork of potentially confusing regulations," the plan suggests, but does not outright recommend, that someone (Congress? It is unclear.) should sort-out and clarify the roles of the FTC and FCC with respect to online privacy. In a side-bar, the FCC tiptoes around asking Congress to help, but suggests that maybe the legislative branch ought to look into revision of the Privacy Act to, at the very least, grant consumers more control over their personal data.

Whichever branch of government or executive agency actually acts, the FCC makes recommendation is in the following areas:

Federal Framework

First, the FCC calls for laws or regulations that more spe-

cifically address the obligations data-collection and data-mining firms have to consumers with respect to use, sharing, collection, and storage of personal data.

Second, the FCC thinks Congress should help develop trusted "identity providers" to assist consumers in managing their data. Apparently the FCC believes that Congress is the best vehicle for adopting a regime in which safe harbor provisions, guidelines and audits could permit companies to become "trusted" safe-guarders of personal information. The FCC feels that Congress should also ensure that such companies can get insurance for their trouble.

Congress should help develop trusted "identity providers" to assist in the management of data.

Finally, the FCC recommends that it work with the FTC to develop principles to require consent before broadband service providers share certain personal data with third parties. Why this concept falls under the rubric of "principles" rather than "rules" is not explained, nor are potential enforceability issues.

Identity Theft and Fraud

Given that the FTC is mandated by Congress to act as the identity theft complaint clearinghouse and consumer guidance counselor, the FCC is all too happy to let the FTC continue to bear the burden. The plan does recommend some changes: first, the FTC should be given additional resources to battle identity theft and fraud. These efforts should include amping-up OnGuard Online (an FTC-administered website that provides practical tips to consumers on internet privacy), maintenance of a database of which agency is responsible for what when it comes to consumer protection online (back to that hot potato problem), and greater education and outreach. Finally, the FCC recommends that the FTC coordinate more closely with the national security apparatus.

Child Protection

Citing the lesson that the best way to make swimming pools less dangerous for children is to teach children how to swim, the FCC recommends that the federal government (presumably the White House) create an interagency working group to coordinate child online safety and literacy efforts, and to spearhead a national education campaign.

The NBP and, well, everything else

A Few Ideas From The Cutting Room Floor

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As we have noted elsewhere in this issue, the National Broadband Plan (NBP) is a far-reaching vision of the future, one in which Americans use broadband to unleash, unlock, enhance, create, and multiply the value of, well, everything. While the NBP has many creditable (and some not so creditable) ideas, we are surprised that these perfectly worthy suggestions were left on the cutting room floor:

In Utero Broadband – A whole new market for broadband would be our smallest and newest citizens. Fetuses have heretofore been limited to kicking or rolling over as a way of communicating. With tiny wireless broadband receivers inserted surgically into the uterus, these youngsters would have 24/7 access to “Baby Einstein” (it’s never too early to think about that Harvard application!), to streamed versions of Sesame Street, and to other parentally selected content. The fetuses could also communicate their simple needs: nutrition, warmth, and a remote control unit for the receiver.

Obesity Deterrence – We teased former Commissioner Tate for not pushing for an anti-obesity provision in the Plan. But as we think about it, broadband has many useful applications in this regard, from calorie monitoring at the point of food ingestion to mild electric shocks administered from the “Smart Grid” when the refrigerator door is opened late at night to 3D images of your wife’s rear end when she squeezes into a pair of jeans. ‘Nuff said.

Spam-destroying bots – Spam and malicious e-mails can be expected to grow as broadband use expands. Why not develop spam-seeking applications that, instead of just erecting shields against viruses, could actually go on the offensive, re-trace the path of an offending e-mail, and physically destroy the computer of the sender? How satisfying.

Educational Porn – The NBP is strangely silent on the use of the internet for pornography, despite reliable statistics that porn is the single largest application

for internet video. The internet seems to have unleashed and unlocked libidos, if nothing else. Instead of hiding its head in the ground, the NBP should embrace porn and put it to productive use – anatomy classes certainly come to mind, but also sex education, couples therapy, workshops on improving inter-racial relations, flexibility training, acting lessons, appreciation of alternative domestic lifestyles, instructional videos for pool boys and pizza delivery boys – there are a host of informative and educational offerings from which the public could benefit.

Broadband will bring us Smart Grids, Smart Houses, etc. How about Smart People?

Voting by Broadband – This suggestion is real but scary. Universal broadband should theoretically make it possible to have true democracy in this country. By that we mean a situation where the people could themselves actually vote on laws directly over the internet in real time without the need for legislatures.

The Athenian model will have come full circle. Do we really trust The People to inform themselves on the issues and vote thoughtfully and intelligently on everything?

Smart Things – Broadband will bring us Smart Grids, Smart Houses, Smart Cars, and Smart Networks. How about Smart People?

The jobs/productivity dichotomy – The NBP promises that universal broadband will be the source of millions of new jobs in the coming decade. It also promises to increase worker productivity substantially. Aren’t these cross-purposes? A single broadbandized worker using all the intelligent systems at his or her disposal can do the work of four or five 20th Century workers. If every worker is so damn productive, that means we need fewer of them. What are the three or four laid off workers going to do? Perhaps they can become app developers for the few people who actually are working and using the apps.

Transportation by transmutation – We heard a futurist a few years ago predict that by the year 2025

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(NBP, USF and ICC - Continued from page 3)

less, the business structures of many telephone companies still rely heavily on the profits received from ICC, and to the extent their ICC declines, those companies would either have to receive more USF or raise fees on customers. Thus, ICC still plays an important role in making service affordable for customers, a key universal service policy goal. Nevertheless, the NBP recognizes that due to changes in technology (reduced costs of switching and transport of digital data) and increased competition, the existing ICC regulatory structure does not function well and leads to destructive market and behavioral distortions. Indeed, notwithstanding the huge growth of VoIP, many parties claim that the current ICC regulatory regime does not provide for payment of ICC for carriage of VoIP traffic, leading to extensive litigation and under-recovery of ICC by incumbent carriers.

Accordingly, the NBP proposes a staged transition of ICC between 2012 and 2020.

Initially, intrastate per-minute compensation rates would be reduced to the typically lower interstate levels. Then, set per-minute ICC rates for origination or termination of traffic would be completely phased out, leaving companies to negotiate “reciprocal compensation” agreements, where in many cases, no money would be paid between companies in either direction. If enacted, this would radically transform the economics of the telecommunications business. In a related matter, the NBP also appears to endorse FCC action to ensure “fair and reasonable” (read “reduced”) “special access” charges, which are paid to local exchange carriers by large end users, ISPs, and competing carriers, for dedicated high-capacity transport.

A number of big questions are raised by the above proposals. Here are some of them:

Section 254(e) of the Communications Act states that USF payments can be made only to “telecommunications” carriers, and other provisions of that Section suggest that funding is primarily for the purpose of facilitating provision of “telecommunications services, though there is some mention of “information services”. At this time, the FCC has ruled that broadband Internet services are not classified as “telecommunications” services, and it has refused to rule on the regulatory classification of VoIP. Does the FCC need to get Congress to revise the Act in order to defund USF and

repurpose that money for provision of “broadband” services through the CAF? A good argument can be made that there is no need for any such legislation, and the NBP does not suggest any such need. But the answer is not 100% certain, and this issue could get caught up in the debate over whether the FCC should reclassify broadband Internet as a “telecommunications” service to facilitate its attempts to promote an “open” Internet. Alternatively, will Congress step in and address the matter?

Does the FCC need legislation in order to set up the Mobility Fund?

The NBP proposes that the CAF would support only one provider in any particular geographic area, and the use of “market-based” mechanisms (read “reverse” auctions) to determine the one recipient of support. While such approaches have been discussed for some time, they have not been enacted. Would such approaches survive an attack by proponents of funding multiple providers (primarily wireless carriers) and opponents of the auctioning of federal support (primarily wireline carriers)?

The current ICC system is clearly dysfunctional.

While the current ICC system is clearly dysfunctional, previous attempts by the FCC to enact the changes proposed here ground to a halt after years of FCC proceedings and industry negotiations, though a negotiated solution was apparently undercut by the actions of former FCC Chairman Kevin Martin. In the previous rounds of proceedings and negotiations, it was widely supposed that USF disbursement would *increase* in order to cover the reduction of ICC income by smaller carriers. Yet in the NBP, the FCC proposes not only to eliminate ICC per-minute payments, but also to *reduce* (and ultimately eliminate) the HCF at the same time. Is this approach wise or even workable? What can the FCC do at this time that would make this version of ICC reform more palatable to all major industry segments than it has been in the past? In addition, the NBP proposes to reduce the level of *intrastate* access charges, a matter that state commissions are likely to claim is in their sole jurisdiction. What, other than holding out “incentives” to carriers and state commissions, can the FCC do to address intrastate rates?

It is far too early to know how all of this will play out, but here are *some potential* winners and losers if USF/ICC reform proceeds as set out in the NBP:

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(NBP, USF and ICC—Continued from page 12)

Losers:

Rural and small/mid-size telephone companies (and their customers) that do not or cannot move to all-broadband networks by 2020. ICC revenues get zeroed-out, as does the HCF. Will CAF provide sufficient funding for these companies to move to all-broadband networks, and to survive after that transition? Will revenues from providing multichannel video services make up the difference?

Winners:

AT&T and Verizon radically reduce their ICC payments and their contribution to the USF. Furthermore, they may receive more CAF funding than the USF funding that they currently receive.

Winners and/or Losers:

Cellular Companies (including Verizon and AT&T) will lose some of their current funding if USF funds only one entity per area, and in order to obtain new USF funding, they may have to be the lowest bidder in an auction. But they will be the primary beneficiaries of

the proposed Mobility Fund (though it is unclear how much funding this would provide, in what locations, and for how long). More important, they will likely benefit greatly from reduced “special access” payments.

Internet Content, Application and Service Providers: If the NBP accomplishes the proposed goals, ubiquitous high-speed broadband will likely greatly enhance the development and profitability of on-line providers. But there is also a possibility that some of these providers could be dragged into making large contributions to the USF and/or CAF funds.

Wireline competitive local exchange carriers (CLECs) could greatly benefit from suggestions in the NBP regarding the unbundling of incumbent LEC broadband fiber facilities and reduction of special access charges. It is harder to see whether CLECs will win or lose in ICC reform.

Execution of the USF/ICC proposals will generate a large number of extensive and hard-fought battles at the FCC and perhaps in Congress. Put on your helmets.



(NBP and Spectrum - Continued from page 2)

sees to shift to other, presumably more valuable uses. No details on how this would work. Government spectrum users would be subject to a similar fee; no details on that, either.

Nor has the FCC overlooked unlicensed applications, which now include Wi-Fi, Bluetooth, and a vast array of consumer, commercial, and industrial equipment. Goals include “free[ing] up a new, contiguous nationwide band” for unlicensed use – assuming it can be found somewhere; encouraging spectrum-agile radios that can use temporarily empty spectrum; and finishing the long-running “white space” proceeding on unlicensed use of vacant TV spectrum (which may be in short supply, if the FCC auctions off large numbers of TV channels).

Finally, the FCC acknowledges the need for more

“backhaul” spectrum to move broadband data between cell towers and network facilities. It proposes some technical rule fixes that might help providers to backhaul services more efficiently.

The FCC’s calling this document a National Broadband “Plan” is a bit of stretch. On the spectrum issues, at least, it is more of a rough outline of how to develop a plan. The proposals are missing key details. Many will take years to work through; spectrum allocation proceedings are typically among the very slowest at the FCC. Some key steps will require action by Congress, which rarely comes swiftly.

We’ll check back on the outcomes later in the decade – with any luck, on our ultra-high-speed handheld using newly available spectrum. Or, if all else fails, we can always plug the Ethernet wire back in.



(NBP and Education - Continued from page 9)

- ▀ Awarding E-rate funding to programs that incorporate broadband connectivity into the educational experience.
- ▀ Using E-rate funding to support wireless connectivity to portable learning devices.

Congressional allocation of funds to provide and maintain broadband connections to public community col-

leges.

As with all elements of the NBP, the plan’s recommendations on education may see many changes as they proceed through the various rulemaking and legislative processes. Indeed, this may be even more true for education, which has a long history of local control and local policy taking precedence over federal plans and proposals.



(NBP and Energy - Continued from page 8)

teed rate of return on their plant investment. The FCC suggests that utilities be rewarded for investing in ways to reduce consumption, not just investing in more generating plants.

Standardization is an important element in encouraging both the use and the usefulness of the Smart Grid. The FCC suggests mandatory open and interoperable standards, along with standardized access policies which would all customers to have access to the Smart Grid and be able to acquire and use information to reduce consumption wherever they may be physically located. The FCC suggests that if states do not require utilities to provide consumers with access to energy consumption information within the next 18 months, the federal government should step in with national pre-emptive legislation.

More efficient technology is encouraged in the design and operation of telecommunications networks themselves, including deploying virtual servers which allow a single server to perform the function of multiple servers, as well as using energy-efficient components.

Moving to the transportation side, the FCC extols the energy savings which would accrue if everyone had a communications link that (a) knew where traffic was congested and (b) suggested alternate routes in real time. So much for listening to your favorite radio station traffic personality. And finally, a nod of the head is given to collision avoidance technologies, which require spectrum to operate but do not require a link to the Smart Grid except to report when they have failed and the vehicle has been smashed.

The FCC's aspirations are ambitious; but few people dispute that the nation consumes more energy than it need consume, and most agree that we would be better off if we were less dependent on foreign oil. To those ends, moving in the directions the FCC suggests should result in cleaner air and more economic freedom for the nation. There are obvious "Big Brother" issues with amassing and distributing too much information, but the FCC does recognize privacy concerns and recommends that while consumers should have access to full information about their consumption patterns, they should also be able to control who else has access to their individualized data.



(NBP and Everything Else - Continued from page 11)

people could be disassembled, transported over the Internet to distant points, and reassembled at their destination. It's all a matter of bits per second, he said. Now that we're talking speeds in the gigabits per second range, we need to dust off the Transporter

Room in the old Star Trek set and start beaming people up.

Afterlife – While we're at it, could broadband be utilized to resurrect the dead? Surely there's an app for that.

NATIONAL
BROADBAND PLAN
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