The Future of Cable

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On June 17, 2010, the Silicon Flatirons Center, in conjunction with Colorado Cable Telecommunications Association, sponsored three panel discussions on the "Future of Cable" at the Rocky Mountain Cable Show, held at the Inverness Hotel and Conference Center in Englewood, Colorado. The panels covered such topics as: (1) the newly released National Broadband Plan and what it might mean for the cable industry; (2) the changing nature of the cable industry and potential new business opportunities; and (3) the DOCSIS 3.0 cable modem standard and the evolution of cable infrastructure.

Panel I — What Does the National Broadband Plan Mean for Cable?

The first panel addressed the FCC's recently released National Broadband Plan (NBP)[1] and its implications for the cable industry. Primarily, the panel was concerned with the legal and regulatory issues coming out of Washington, D.C. Raymond Gifford, Adjunct Fellow at Silicon Flatirons and Partner at the law firm of Wilkinson Barker Knauer, LLP, moderated the panel and began by asking the panelists what the NBP was, what it said exactly, and if they could describe the process leading up to the Plan. Scott Wallsten, Vice President for Research and Senior Fellow at the Technology Policy Institute, former Member of the FCC Broadband Task Force, and Economic Director for the National Broadband Plan, said that in his opinion the motivation behind the NBP was a "vague idea" the United States was "behind" in the broadband context. The NBP, according to Wallsten, was an effort to address the perceived deficiencies but it was never clear what the solution should be. When it came to comparing the United States to other countries though, he said, there was some question as to what the specific metrics should be. Should the Plan be concerned with broadband adoption and penetration, speed of the connection, or maybe something else?

Wallsten highlighted how the lack of clarity around these metrics made it difficult for the Plan to prioritize the resources needed to reach the appropriate goals. Further, he said it was not clear — during the process of creating the NBP — whether the FCC's goals were in conflict with the goals of Congress. On another note, Wallsten complimented the team responsible for putting together the Plan. He felt it was a fairly transparent and data driven process and pointed to a number of NBP-related white papers that had not yet been released. Finally, focusing on the implications for the cable industry, Wallsten felt the NBP was a little "schizophrenic" in its treatment of cable — the view seemed to be that elements of the cable industry, especially the technology and standards, were both a good thing and potentially problematic at the same time.

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[1] FEDERAL COMMUNICATIONS COMMISSION, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN (2010), *available at* http://www.broadband.gov/download-plan/.

Gifford asked the next panelist about the cable industry's reaction to the National Broadband Plan, particularly in light of the effort and resources that had gone into current standards in the sector. Steven Morris, Vice President and Associate General Counsel of the National Cable & Telecommunication Association (NCTA), felt the general reaction had been positive, especially since the Plan was a "first" for the FCC. He also pointed to some of the differences between the U.S. cable industry and what can be found internationally. In many countries, according to Morris, there is a state-owned monopoly telecommunications operator and the cable industry is composed of only minor players. He contrasted this with the U.S., relating how the industry here has quite a broad "scope" and has provided significant broadband access to a large percentage of the population. Morris felt many of the conclusions in the NBP were conclusions the cable industry had already come to on its own, but there was generally a positive perception as to the Plan's treatment of both Universal Service Fund (USF) reform and pole attachments.

Finally, Morris felt the Plan, or at least the actions the FCC could be expected to take as a result of the recommendations in the Plan, could have negative implications for the cable industry. He said industry players might end up "victims of their own success" in that many companies have invested heavily in high quality networks that are better than their competitors' networks. Some aspects of the Plan, according to Morris, take the view this quality differential could be a "bad thing." He felt the industry should be concerned with any approach to the NBP recommendations where the FCC treats some companies in the cable industry as monopolists; especially when there are signs it is a competitive environment. Ultimately, he felt the various companies should be allowed to profit from "making good decisions and coming up with something better" than their competitors.

Next, Gifford commented on the apparent ambition of the current Commission and highlighted its large number of initiatives. He pointed to the National Broadband Plan, a recently released action on "reclassification" of broadband Internet, and a major upcoming merger and asked whether the Plan would get lost in all the other activity or whether it fit in well with the rest of the all-encompassing agenda. Kyle Dixon, Partner at Wilkinson Barker Knauer, LLP and former Media Bureau Chief at the FCC, said it would be quite difficult for the plan to get lost since it is simply a report and is not "self-effectuating." Dixon said there were many ambitious proceedings at the FCC, but they were generally related. As an aside, he described how at one point many commentators thought the Plan would be the only item the FCC would approach, but now there were a large number of proceedings.

Scott Wallsten felt it would be important to build evaluation mechanisms into the Plan — especially with Universal Service Fund (USF) revisions and the issue of broadband adoption. In terms of the USF revisions, he wondered if the contemplated switch from subsidizing voice service to subsidizing broadband was actually accomplishing much. He said it is not clear what the cable industry would be getting out of this and why they support it. According to Wallsten, the contemplated changes to the USF would simply increase the prices of broadband generally and the subsidies would go to a small number of operators in each individual area.

On the topic of USF revision, Steven Morris said this was the first time the FCC has looked at reducing the subsidies to some of these competitors to the cable providers. He felt that for the vast majority of customers — especially where a cable company provides its triple play of cable, Internet, and phone service — the FCC does not need to subsidize the phone companies. In any USF revision the cable industry, according to Morris, wants to subsidize the right level and hopes to keep the USF fees at the same level or lower than those fees currently are. He pointed out that one major concern though is how there seem to be no "strings" attached to the money proposed to be given to the broadband companies; there seem to be no requirements for these companies to use that money for specific broadband related items. Ray Gifford asked if any revision to the USF program — especially one focused on increasing broadband adoption — would subsidize a particular political constituency. Kyle Dixon answered that adoption is not a "one-size-fits-all problem" and a variety of issues affect broadband adoption. Dixon felt maybe the FCC should focus instead on information gathering and facilitation.

In terms of adoption, David Don, Senior Director for Spectrum Policy at Comcast, pointed to the broadband adoption survey that showed many people did not think broadband was relevant to their lives. He felt the FCC could not *make* broadband more relevant to the average citizen, but as more everyday services migrated online it would simply become more relevant to more people over time. The FCC could do things to encourage this migration though, according to Don, for example by encouraging various federal agencies to move their services to an online format.

Next, Gifford asked the panelists what they saw as the most positive developments emerging from Washington, D.C., and conversely, what they saw as the greatest threat. Kyle Dixon felt the most positive aspect was how the FCC looked to have sensitivity as to the size of the Universal Service Fund. The greatest threat, according to Dixon, would be if the FCC places onerous conditions on the USF changes or goes about picking "winners and losers" in terms of the technology.

David Don felt the most positive development was how the National Broadband Plan seemed to be a "bit of a business plan" and the Plan highlighted opportunities for growth in areas such as smart grid, home healthcare, and more. If the government, he said, is going to focus on and incentivize these areas, then there will be significant opportunities. In terms of threats, Don was concerned with policies or rules that may serve as a hindrance to investment. He cautioned against new law or regulation that would cause those in the cable industry to "revisit" their capital investment decisions.

Steven Morris was concerned with the FCC Notice of Inquiry (NOI) on reclassifying broadband and how the FCC seemed to not realize major changes such as reclassification can and will impact employment and investment. The FCC, according to Morris, was not taking the industry warnings as to changed investment incentives seriously. These changes may not happen overnight, he said, but there would certainly be consequences. Morris said his concern was tempered by how ambitious this particular

Commission has been and that it will likely not be possible to address all the issues before the next election.

Scott Wallsten was pleased with the increased amount of information and higher quality reports the FCC had started to release. He saw some of these increases as a "willingness to rethink how to look at the issues." One downside, he said, is how the emphasis on "big things" means there must be "big suggestions." Morris, like many of the other panelists, was concerned that "big changes" would come with "unintended consequences."

Finally, there were some questions from the audience. One member of the audience asked if the NBP and the reclassification NOI were simply the first steps in opening the door to "massive" regulation down the road. David Don pointed out the U.S. was in a generally pro-regulatory environment across many industries — giving examples of the financial crisis and the recent oil well disaster in the Gulf of Mexico. One way to combat this, according to Don, was for the telecommunications industry to stay on message and educate policymakers as to how the industry is a "bright spot" and has continued to invest during the downturn.

Another member of the audience asked, if it was true that the FCC was too ambitious and would not be able to accomplish all it has set out to accomplish, whether certain items, such as reclassification, would shift to Congress. Would Congress "fill the void" and in what ways? Some panelists felt that reclassification was more of a "big picture" item appropriate for Congress and that the FCC would be better served focusing on implementing the recommendations of the National Broadband Plan. Many felt the Commission simply did not have the resources to accomplish everything in the Plan *and* reclassification at the same time. Others cautioned against underestimating the FCC's ability to "chew gum and regulate at the same time." As a final note, one panelist pointed out Congress typically only acts when "all of the parties involved agree a particular action should be taken" and when it comes to "clarifying" the 1996 Telecommunications Act's stance on broadband there seems to be this kind of general stakeholder consensus.

Panel II — Cable's New Business Opportunities and Threats: Video-Over-The Top, Smart Grid and Other Ways Our Business Is Changing

The second panel focused on future opportunities and threats the cable industry may face, particularly when it came to smart grid. Raymond Gifford, Adjunct Fellow at Silicon Flatirons and Partner at the law firm of Wilkinson Barker Knauer, LLP, again moderated the panel.

Gifford began the panel by asking what exactly smart grid is and, specifically, what might the opportunity for the cable industry look like in this area. Ray Gogel, President of Current Group, LLC, a company focused on smart grid software and location-specific grid data for utility companies, pointed out there are no set agreed-upon definitions for what smart grid is; he said it means "many things to many people." Gogle

continued by describing the current state of the utility industry, where he said there is not significant interaction between utilities and their customers, and the grid itself is "dumb" and "one way." While acknowledging the great technical achievement represented by modern utility companies, he also highlighted how it is a network that must "wait" for the customer or consumer to contact the utility when there is something wrong or the "power is off." Contrasting this with the "dynamic nexus" of a smart grid, Gogel said smart grid technology will allow customers to choose what information they are provided concerning their energy use, manage that use accordingly, and potentially even sell power back to the grid.

One major element of the smart grid, according to Gogel, will be "smart" meters — meters that will allow the consumer to make "rational" decisions as to power use, such as how to balance their load and assessing their pricing. Further down the road, he said, there will be a "local area network" that includes the appliances and "smart" meter, where the supply and demand of power use in the household will be managed — this future network will operate in a "set it and forget it" way. Gogel felt there was a large opportunity for the cable industry to provide the connectivity such a network would require. He was surprised the cable company had not pushed further into this area because cable was already a "pipe coming into the home" and was a part of "people's lifestyle." Gogel felt smart grid was not as important for utility companies as it generally increases efficiency savings for consumers, and thus is premised on trying to convince utilities to sell less product to their customers.

Gifford then turned to the cable industry panelists, asking whether the industry was interested in smart grid and whether it will become a "real business." Scott Binder, Regional Vice President of Comcast, acknowledged interesting opportunities but felt there was not a clear path as to how the cable industry could get "involved." He felt the home of the future would be "smarter" and there also could be a role for the cable companies when it comes to home security.

Terry St. Marie, Senior Vice President of Operations at Bresnan Communications, a broadband telecommunications provider, said people have been talking about the future and "remote controlling" the house for a long time. The technology has been moving in this direction, according to St. Marie, but such a thing is still down the road for the cable industry — right now companies are focused on building out the network itself in the first place.

Gifford pointed out how one vision of for the smart grid would be as an Internet Protocol (IP) network. He described this as a house where home energy management and healthcare, for example, are simply applications on your set-top box. Turning to the panelists, Gifford asked how many years it would be before something like an IP network might be a reality. Ray Gogel pointed out how IP addressable components are more prevalent in Europe than in the U.S., but that these are mostly pilot projects. He felt increasing the number of IP addressable appliances and items in the average house was the first step, and the applications would come shortly thereafter. Gogel said the real question is whether a company has to "jump in" now in order to have a "place at the

table" or if companies can take a wait-and-see approach. Scott Binder, Regional Senior Vice President for Comcast, felt the market opportunity had not yet been defined sufficiently to pursue and the cable industry was still working on ways to monetize the "smarter" home. St. Marie asked what value the consumer would put on this level of control. He compared the "smart home" to the digital video recorder (DVR) and how in the DVR context consumers want additional control but are not willing to pay significant additional money. The cable industry, according to St. Marie, is a "return on investment" business and cable companies will not be as interested in providing this service until the return is more fully defined.

Finally, the panel took questions from the audience. One audience member expressed skepticism as to the benefits of smart grid. He felt the same benefits could be obtained without broadband, by merely changing the electricity pricing structure or by using "programmable" thermostats. Ray Gogel acknowledged there were many challenges to adoption of smart grid technologies. He pointed out how average utility bills in the U.S. are not "very large" and reducing those bills by 10-20% does not seem "compelling." Also, according to Gogel, in many ways the smart grid is a "disintermediation play" and at the end of the day will "cut out" the utilities.

Another member of the audience asked about the privacy concerns inherent in smart grid technologies. In terms of controlling how much information the customer gives to the utility, said Gogle, there may be a "rate structure" for this. Gogle envisioned certain consumer prices being set at certain levels of information sharing.

Panel III — Beyond DOCSIS 3.0: Next Steps in the Evolution of the Cable Infrastructure

The third and final panel of the conference consisted of two separate presentations given by Pragash Pillai, Senior Vice President of Engineering & Technology at Bresnan Communications, and David Reed, Executive Vice President and Chief Strategy Officer at CableLabs, respectively.

Reed began by outlining where consumer trends were predicted to go and how CableLabs' programs were aligned with and designed to meet those trends. He focused on three general themes: (1) Network Evolution — *how* consumers are connecting; (2) Service Platforms — *what* they are connecting; and (3) Cable Services — how they are *consuming*. He pointed out how in the "old model" the "pie" would stay the same size — that any new form of media would displace an old one — but this has not happened. Instead, the "pie" has gotten bigger and there has been a general increase in the average amount of media consumed each week. Under the "new model," according to Reed, consumers are gaining more choices in connections, content, and devices, but the consumer dictates what and when the content is consumed and on what device. In terms of the raw numbers, he forecasted significant growth in the use of broadband and the Internet, faster upload and download speeds along with concomitant increased data

capacity on networks, increased use of video, a concomitant decrease in DVD rentals and sales, increased variety of devices being used, and an increased use of interactive ads.

Pragash Pillai focused on the future of bandwidth and what lay "beyond" DOCSIS 3.0.[2] He pointed to a Cisco forecast that showed total Internet data traffic increasing with the lion's share in mobile device data usage. He felt video would drive demand for bandwidth moving forward and it would surpass peer-to-peer as a percentage of total data traffic. As a cautionary note, considering the forecasted increases in demand, Pillai pointed out DOCSIS 3.0 is thought to be capable of a "raw" bandwidth only up to 343 Mbps downstream and 123 Mbps upstream. This, he said, is where a Passive Optical Network (PON) would come into play. He related how PONs tend to be a point-to-multipoint architecture and a single fiber can go to multiple homes.

Pillai then discussed the wide range of fiber optic architectures and how they can take advantage of certain existing equipment and standards. He also felt cable operators could benefit from innovation, scale, and quality if they joined the Asian and European "standards communities" and learned from those countries' experience with fiber optic deployments.

Ray Gifford asked if "incrementalism" — or incremental upgrades to the network — was inherent in the cable industry (versus telecommunications companies which at some point have to replace their entire network) or if the cable industry was going to "hit a wall" and need to replace "everything"? David Reed felt cable operators had not "hit a wall" in their current architecture and future breakthroughs would continue to add capacity and bandwidth. Such advances, according to Reed, tended to apply to multiple architectures, including both current and legacy. Both Pragash and Reed, even though they felt full end-to-end fiber networks lay sometime in the future, said many new real estate developers were requiring fiber-to-the-home, especially if the development was geographically close to a "fiber ring."

In the final question of the conference, Gifford pointed to the differential between upstream versus downstream bandwidth inherent in the DOCSIS 3.0 standard and asked if when this would be addressed. Reed said DOCSIS 3.0 already addressed this issue in its specification, but that high upstream bandwidth tended to only be needed by commercial users. He felt the cost would decrease when residential users started demanding higher upstream bandwidth and adoption of the necessary equipment increased.

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[2] Data Over Cable Service Interface Specifications (DOCSIS) is an equipment interoperability standard and "defines interface requirements for cable modems involved in high-speed data delivery over cable's hybrid fiber-coaxial plant." *See* CableLabs, DOCSIS, http://www.cablelabs.com/cablemodem/ (last visited August 1, 2010).