

BEFORE THE  
Federal Communications Commission  
WASHINGTON, D.C.

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion Pursuant to Section 706 of the Telecommunications Act of 1996	)	GN Dkt. No. 09-137
	)	
A National Broadband Plan for Our Future	)	GN Dkt. No. 09-51
International Comparison and Survey	)	
Requirement in the Broadband Data Improvement Act	)	GN Dkt. No. 09-47
	)	
Telecommunications Act of 1996:	)	
Commercial Availability of Navigation Devices	)	CS Dkt. No. 97-80
	)	

**COMMENTS OF MOTOROLA, INC. -- NBP PUBLIC NOTICE #27**

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**TABLE OF CONTENTS**

**I. INTRODUCTION AND SUMMARY.....2**

**II. THE COMMISSION SHOULD LAUNCH A NOTICE OF INQUIRY TO EXAMINE NAVIGATION DEVICE ISSUES.....4**

**III. THE COMMISSION SHOULD CONTINUE POLICIES THAT PROMOTE THE OPTIMIZATION OF BROADBAND NETWORKS.....6**

**IV. COMMISSION POLICIES SHOULD ACCOMMODATE THE DEPLOYMENT OF IP VIDEO BY MVPDs.....9**

**V. IN LIGHT OF THE RAPIDLY EVOLVING MARKETPLACE FOR INTERNET-CONNECTED TV AND SET-TOP BOX DEVICES, THE COMMISSION SHOULD AVOID MANDATES IN THIS AREA.....11**

**A. The Commission Should Recognize The Wide Array Of Options For Consumers To Access Internet video On Their TV Sets.....12**

**B. There Also Is Rapid Innovation In Marketplace For Home-Networking Solutions.....15**

**C. The Commission Can Play A Constructive Role In Supporting The Development And Use Of Voluntary Solutions.....17**

**VI. CONCLUSION .....19**

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**COMMENTS OF MOTOROLA, INC. -- NBP PUBLIC NOTICE #27**

Motorola, Inc. (“Motorola”) respectfully submits these comments in response to the Public Notice in the above-captioned proceedings regarding innovation in the marketplace for video devices.<sup>1</sup> Motorola is a leading provider of network and customer equipment to video and high-speed Internet service providers. We welcome this opportunity to build on the comments and information we have already provided on device issues, which we incorporate herein by reference.<sup>2</sup>

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<sup>1</sup> *Comment Sought on Video Device Innovation*, NBP Public Notice #27, DA 09-2519 (rel. Dec. 3, 2009) (“Notice”).

<sup>2</sup> *See, e.g.*, Comments of Motorola, GN Dkt. No. 09-51 (filed June 8, 2009) (“Motorola Broadband Plan Comments”); Statement of Mark DePietro, Motorola, Inc., before the National Broadband Plan Workshop on Technology/Fixed Broadband Issues (Aug. 13, 2009).

## **I. INTRODUCTION AND SUMMARY**

Motorola agrees with the Commission's statement in the Public Notice that the current CableCARD regime has not been successful in producing a marketplace for retail navigation devices. There are a number of possible explanations for this situation, such as consumers' preference for leased equipment. The CableCARD technology is also being superseded in the marketplace by Digital Rights Management ("DRM") and other security solutions. Motorola supports recent calls for a Notice of Inquiry ("NOI") to examine these issues in more detail and consider fresh, consumer-driven approaches to addressing the future of navigation devices.

Motorola also believes that, while the Commission considers these issues further in an NOI, it continue to pursue policies that are promoting investment in faster and more efficient broadband networks. The waivers of the integration ban rule for low-cost, limited-capability devices are critical to cable's digitization and bandwidth reclamation efforts, and the Commission's support for switched digital video ("SDV") technology underscores the importance of bandwidth-conservation technologies to the rollout of faster Internet services. The Commission can take additional pro-innovation steps by, for example, granting waivers of the Commission's 1394 requirement for high-definition ("HD") set-top boxes.

With respect to the specific issues raised in the Public Notice, the Commission should recognize the rapid innovation that is occurring in subscription video networks today. These networks have evolved from providing a limited number of one-way analog channels, to delivering two-way digital services, including hundreds of digital channels, high-speed Internet, and digital voice services. Internet Protocol ("IP") is the next stage in the evolution of these networks. IP enables operators and suppliers to reduce costs and

accelerate the development and deployment of new interactive applications. Motorola is an innovator in this space, and urges the Commission to accommodate this migration to IP.

Multichannel video programming distributors (“MVPDs”), consumer electronics (“CE”) manufacturers, content providers, and others also are exploring ways to deliver Internet content to the television set. Some MVPDs already deliver Internet content to their customers via “widgets” and other applications, and there is a rapidly evolving marketplace for retail devices that can access Internet content as well. These retail devices typically allow subscribers to access aggregated content from content suppliers with which the device manufacturer has entered business relationships and performed engineering work to develop, integrate, and validate the service. It may be that Internet-connected TVs and set-top box devices will be introduced into the marketplace over time that will support full-featured browsers, but marketplace demand and competition, not government mandates, should drive any such innovation, particularly given the likely added costs associated with full browser functionality and the as-yet unproven consumer interest in such a device.

The Commission also should recognize the rapid innovation that is occurring in the home-networking ecosystem. With respect to physical connections that are used to transport content around the home, technologies vary depending on the medium that is used, such as MoCA for coaxial cable, Ethernet for CAT5 cable, HomePlug for powerline, and WiFi for wireless. Above these physical layer technologies, there is the need for interoperability solutions for the discovery and management of devices in the home. The Digital Living Network Alliance (“DLNA”) is the leader in this space, and

has produced a set of interoperability guidelines through voluntary, consensus-driven, industry-led efforts. Government mandates in this area risk inhibiting further evolution in this rapidly changing area.

The Commission can play an important role in encouraging the development of, and supporting the use of, voluntary, consumer-driven solutions. In such a highly dynamic environment, it is difficult to predict what particular solutions will be embraced by consumers. The Commission can certainly help to ensure that all interested parties are working toward continued innovation, but marketplace forces, rather than government mandates, should sort out which solutions will succeed.

## **II. THE COMMISSION SHOULD LAUNCH A NOTICE OF INQUIRY TO EXAMINE NAVIGATION DEVICE ISSUES.**

The Public Notice states that the “Commission’s CableCARD rules have resulted in limited success in developing a retail market for navigation devices.”<sup>3</sup> We agree and support recent calls for an NOI to examine fresh approaches to addressing the future of navigation devices in the MVPD marketplace.<sup>4</sup> Cable operators and their customers have incurred substantial costs as a result of CableCARD requirements. Beyond the costs associated with developing the CableCARD solution and redesigning headends and equipment to support CableCARDs, cable operators have now deployed over 17.7 million CableCARD-equipped set-top boxes from a wide and growing number of suppliers, including Motorola, Pace, Samsung, Panasonic, Cisco, Evolution Broadband,

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<sup>3</sup> Public Notice at 4.

<sup>4</sup> See Letter from Kyle McSarrow, President, NCTA, to Carlos Kirjner, Senior Advisor to the Chairman on Broadband, FCC, and William Lake, Chief, Media Bureau, GN Dkt. Nos. 09-47, 09-51, 09-137, CS Dkt. No. 97-80, NBP Public Notice #27 (Dec. 4, 2009) (“NCTA Letter”).

and TiVo.<sup>5</sup> In contrast, on the retail side of the ledger, only 456,000 CableCARDs have been deployed in retail navigation devices.<sup>6</sup> This disparity makes crystal clear that the costs of the current regulatory regime -- which may now be approaching \$1 billion -- far outweigh any public interest benefits.<sup>7</sup>

There are a number of possible explanations for this situation, such as consumers' preference for leased equipment. Leasing a set-top box at a low, monthly charge offers an attractive way for consumers to enjoy advanced services without significant upfront equipment costs; allows consumers to upgrade easily to newer model devices and thereby avoid the risk of equipment obsolescence; and enables consumers to switch from cable to other MVPDs without being inhibited by the sunk cost of purchased equipment.<sup>8</sup> Furthermore, CableCARD technology is becoming outdated in a video marketplace that is migrating to IP-based networks and non-CableCARD security solutions.<sup>9</sup> For

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<sup>5</sup> See *Ex Parte* Letter from Neal M. Goldberg, General Counsel, NCTA, to Marlene H. Dortch, Secretary, FCC, CS Dkt. No. 97-80, at 1 (Dec. 22, 2009).

<sup>6</sup> See *id.*

<sup>7</sup> If, as the Media Bureau has suggested, a CableCARD adds about \$56 in cost to a set-top box, see *In the Matter of James Cable, LLC et al., Requests for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, Memorandum Opinion and Order, 23 FCC Rcd. 10592, ¶ 9 n.30 (MB 2008), then the cable industry has incurred approximately \$991 million to date to comply with the integration ban (*i.e.*, \$56 x 17.7 million = \$991 million).

<sup>8</sup> See NCTA Letter at 3; see also *id.* at 3 n.4 (“Consumer preference for equipment leasing is not unique to the cable industry. DBS providers have largely migrated from a sale to a lease model for their equipment, without any apparent impact on their ability to attract new customers. Likewise, most high-speed Internet customers elect to lease modems despite the widespread retail availability of modems.”); *Ex Parte* Letter from Stacy Fuller, Vice President, Regulatory Affairs, DirecTV, to Marlene H. Dortch, FCC, CS Dkt. No. 97-80 (Dec. 15, 2009) (noting, among other things, that “customers overwhelmingly prefer to lease their set-top box,” that “low, monthly lease charge avoids large, out-of-pocket expenses for a new DirecTV customer,” and that “customers can easily take advantage of new services and upgrades without the sunk cost of purchasing a device”).

<sup>9</sup> See NCTA Letter at 3.

example, many IPTV providers utilize DRM solutions for their security. A Notice of Inquiry would provide a useful forum for examining these developments in more detail and exploring new, consumer-driven approaches that might accommodate rapid technological change in the video marketplace.<sup>10</sup> Given the complexity of the technical, economic, and regulatory issues involved, Motorola submits that a Notice of Inquiry is the appropriate next step in assessing the navigation device marketplace.

With respect to the relevance of the navigation device issue to the Commission's broadband goals, the absence of consumer interest in retail navigation devices raises questions about whether and to what extent such devices can play a significant role in increasing broadband adoption. Furthermore, as explained in greater detail below, to the extent that the Commission is interested in facilitating "over-the-top" video alternatives to existing MVPDs as a way to drive broadband adoption, there are already a significant and growing number of devices available at retail that enable consumers to access Internet video on their TV sets without an MVPD subscription. It bears emphasis that these alternatives have emerged in the absence of any government regulations.

### **III. THE COMMISSION SHOULD CONTINUE POLICIES THAT PROMOTE THE OPTIMIZATION OF BROADBAND NETWORKS.**

While Motorola supports the launch of a Notice of Inquiry to examine navigation device issues, it also believes that the Commission should, in the interim, continue to

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<sup>10</sup> In the legislative history accompanying the navigation device statute, Congress instructed the Commission to "avoid actions which could have the effect of freezing or chilling the development of new technologies and services." S. Conf. Rep. No. 104-230, at 181 (1996); *see also* Further Reply Comments of NCTA, MB Dkt. No. 07-269, at 17-19 (Aug. 28, 2009) (noting that the Commission's navigation device policies reflect "a flexible regulatory approach that promotes innovation in networks, services, and devices to the benefit of consumers").

pursue policies that are promoting investment in faster and more efficient broadband networks. The Commission has taken important steps in this direction over the last year. It has granted waivers of the integration ban rule to digital transport adapters (“DTAs”) that are critical to cable operators’ ability to migrate to all-digital networks in a consumer-friendly way. DTAs are low-cost, limited-capability devices that allow operators to digitize analog channels and use the reclaimed bandwidth for faster Internet, more HD channels, and other digital services.<sup>11</sup> DTAs are having this precise effect in cable systems where they are being deployed. For example, in Comcast’s Augusta, Georgia cable system, DTAs will enable the reclamation of analog spectrum that will be used to double Internet speeds and add 45 HD channels, among other benefits.<sup>12</sup>

Likewise, the Commission should continue to pursue policies that promote the deployment of bandwidth-conservation technologies, like SDV, that also help operators to allocate more bandwidth to broadband services.<sup>13</sup> In contrast to the traditional cable architecture, in which all channels are typically delivered to all customers at all times

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<sup>11</sup> See *In the Matter of Motorola, Inc. et al. Requests for Waiver of Section 76.1204(a)(1) of the Commission’s Rules*, Memorandum Opinion and Order, 24 FCC Rcd. 10939 (2009) (granting waivers of the Commission’s integration ban for digital transport adapters manufactured by Motorola, Cisco, Pace, and Thomson); *In the Matter of Evolution Broadband, LLC’s Request for Waiver of Section 76.1204(a)(1) of the Commission’s Rules*, Memorandum Opinion and Order, 24 FCC Rcd. 7890 ¶ 15 (2009) (“*Evolution Broadband Waiver Order*”) (granting waivers of the integration ban for low-cost Evolution devices); *In the Matter of NagraVision USA Request for Waiver of Section 76.1204(a)(1) of the Commission’s Rules*, Memorandum Opinion and Order, 24 FCC Rcd. 12242 (2009) (granting waiver of the integration ban for a low-cost NagraVision device).

<sup>12</sup> See Todd Spangler, *Comcast To Hit 100-Mbps in Augusta, Ga., After Going 100% Digital*, Multichannel News, Dec. 18, 2009.

<sup>13</sup> See *In the Matter of Oceanic Time Warner Cable et al.*, Order on Review, 24 FCC Rcd. 8716 ¶ 13 (2009) (noting that, among other things, the reclamation of cable bandwidth through SDV would “facilitate the deployment of advanced broadband technologies such as DOCSIS 3.0 as well as expand broadband capabilities”); see also *Motorola Broadband Plan Comments* at 23-24.

regardless of whether anyone in a neighborhood is watching, SDV enables operators to utilize bandwidth efficiently based on usage levels. Channels that are heavily viewed continue to be delivered on a broadcast basis while more lightly viewed channels can be delivered on an SDV basis, with no noticeable difference to the customer. As cable operators begin to deploy DOCSIS 3.0 throughout their networks, enabling high-speed Internet services with potential speeds of 100 Mbps or more, additional channels that can be allocated to high-speed Internet services will allow operators to deliver even faster speeds. SDV is an essential tool for making these channels available to deliver the next generation of world class high-speed Internet services to cable consumers, which is a key priority for the Commission.

Motorola believes that there are a number of additional steps that the Commission can take to further continued innovation in broadband networks. These steps include, among other things, grant of waivers of the Commission's 1394 requirement for HD set-top boxes. As Motorola and others have explained in pending 1394 waiver requests, the IEEE 1394 interface is an outmoded technology that has been largely abandoned by the marketplace in favor of Ethernet, wireless IP, and other commonly-used IP connectors.<sup>14</sup> Granting these waivers would facilitate technological innovation in home-networking solutions while eliminating the costs associated with 1394.

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<sup>14</sup> See *In the Matter of Motorola, Inc.'s Request for Waiver of 47 C.F.R. § 76.640(b)(4)*, Request for Waiver, CS Dkt. No. 97-80, CSR- \_\_\_\_ (Nov. 25, 2009); see also *In the Matter of Intel Corporation's Petition for Waiver of 47 C.F.R. § 76.640(b)(4)*, Petition for Waiver, CS Dkt. No. 97-80, CSR-8229-Z (Oct. 7, 2009); *In the Matter of TiVo Inc.'s Petition for Clarification or Waiver of 47 C.F.R. § 76.640(b)(4)*, Petition for Clarification or Waiver, CS Dkt. No. 97-80 (Nov. 6, 2009).

#### **IV. COMMISSION POLICIES SHOULD ACCOMMODATE THE DEPLOYMENT OF IP VIDEO BY MVPDs.**

With respect to the specific issues raised in the Public Notice, Motorola shares the Commission's view that subscription video distribution is migrating to IP-based technologies<sup>15</sup> and believes that Commission policies should accommodate that trend. Cable networks have evolved rapidly over the last 20 years -- from one-way networks that provided about 30 channels of analog programming, to two-way networks that deliver hundreds of channels of HD and other digital programming and thousands of video-on-demand ("VOD") selections, innovative interactive services like StartOver, digital phone service, and high-speed Internet service. There also has been rapid innovation in cable equipment during this period. The simple descramblers of the 1990s have given way to sophisticated two-way digital devices that can support high-definition programming, digital video recording, interactive program guides, interactive television applications, and other innovative services. In addition, cable operators, such as Comcast, are deploying TV Binary Interchange Format ("EBIF") in their digital set-top boxes, including their Motorola boxes.<sup>16</sup> EBIF is a technology that can support a range of interactive TV applications, such as a "remind/record" application that lets consumers ask to be reminded to watch favored programs.<sup>17</sup>

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<sup>15</sup> See Public Notice at 1-2 (noting that subscription video services "use or plan to use Internet Protocol ('IP') to deliver their video content").

<sup>16</sup> See Todd Spangler, *Comcast Hits 8 Million EBIF-Enabled Homes*, Multichannel News, Dec. 2, 2009.

<sup>17</sup> See Leslie Ellis, *EBIF, Revisited*, Multichannel News Blog, Nov. 4, 2009.

Motorola's newest set-top boxes provide evidence of the continued innovation in cable equipment. Our DCX series set-top boxes support MPEG-4 and Dolby Digital Plus, enable the home networking of content to other set-top devices in the home via MoCA, and include support for interactive applications on the tru2way platform.<sup>18</sup> With additional software, the DCX set-top boxes can support streaming music and the downloading of photos from digital cameras, PCs, and other connected devices. Our hybrid QAM/IP set-top boxes also support a home-networking capability via MoCA, and a Home Media feature that allows the streaming of pictures and music from the customer's PC to the TV.<sup>19</sup>

IP is the next stage in the evolution of the cable network. Some subscription video providers already distribute some or all of their programming using IP-based technologies, and traditional cable operators are exploring moving in that direction as well.<sup>20</sup> IP enables operators and suppliers to reduce costs through the elimination of unnecessary functionalities (such as redundant set-top box tuners) and accelerate the development and deployment of interactive applications (such as widgets and other interactive features). Motorola strongly supports the deployment of IP networks. We

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<sup>18</sup> See, e.g., Motorola DCX3400 All-Digital, HDTV, Dual-Tuner DVR, M-Card Host Set-Top Box, at [http://www.motorola.com/Business/US-EN/Business+Product+and+Services/TV+Video+Distribution/Customer+Premises+Equipment+%28Set-tops%29/All-Digital+QAM+Set-tops/DCX3400\\_US-EN](http://www.motorola.com/Business/US-EN/Business+Product+and+Services/TV+Video+Distribution/Customer+Premises+Equipment+%28Set-tops%29/All-Digital+QAM+Set-tops/DCX3400_US-EN) (last visited Dec. 17, 2009).

<sup>19</sup> See, e.g., Motorola QIP6416 Hybrid, HD/DVR Set-Top Box, at [http://www.motorola.com/Consumers/US-EN/Consumer-Product-and-Services/Home-Digital-Video/QIP6416\\_US\\_EN](http://www.motorola.com/Consumers/US-EN/Consumer-Product-and-Services/Home-Digital-Video/QIP6416_US_EN) (last visited Dec. 17, 2009).

<sup>20</sup> See Todd Spangler, *Assessing Cable's IPTV Future*, Multichannel News, Sept. 25, 2009 ("There's now an expectation that cable providers will, at some point in the future, deliver all video services over IP.").

provide IP and hybrid QAM/IP set-top boxes to MVPDs, as well as the network equipment that supports IP video distribution.<sup>21</sup> Motorola also is developing cutting-edge products that will deliver the next generation of IP video service. For example, Motorola is working on solutions with its IPTV and other set-top boxes that will enable the delivery of 3-D television service.<sup>22</sup>

**V. IN LIGHT OF THE RAPIDLY EVOLVING MARKETPLACE FOR INTERNET-CONNECTED TV AND SET-TOP BOX DEVICES, THE COMMISSION SHOULD AVOID MANDATES IN THIS AREA.**

The Public Notice focuses on innovation in the “video device” marketplace and states that “[a]s the popularity of IP delivery of video continues to increase, we believe that new applications will emerge, Internet use will increase, consumers will have more viewing options, and more viewers will want to access Internet content on their televisions.”<sup>23</sup> Motorola agrees that the expanding use of IP-based technologies to deliver video services will help increase the availability of engaging content, applications, and services. However, in light of the rapidly evolving technological and commercial landscape, the Commission should focus its efforts on facilitating discussion

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<sup>21</sup> See, e.g., Motorola, “IP Set-Tops,” at <http://www.motorola.com/Business/US-EN/Business+Product+and+Services/TV+Video+Distribution/Customer+Premises+Equipment+%28Set-tops%29/IP+Set-tops> (last visited Dec. 17, 2009); Motorola, “Hybrid QAM-IP Set-Tops,” at <http://www.motorola.com/Business/US-EN/Business+Product+and+Services/TV+Video+Distribution/Customer+Premises+Equipment+%28Set-tops%29/ch.Hybrid+QAM-IP+Set-tops.print> (last visited Dec. 17, 2009).

<sup>22</sup> See Mari Sibley, *3D Demo Upgrade in the Motorola Booth*, Motorola Home and Networks Mobility Blog (Oct. 28, 2009), at <http://connectedhome2go.com/2009/10/28/3d-demo-upgrade-in-the-motorola-booth/> (noting that Motorola demonstrated 3-D TV solutions at the SCTE Cable-Tec Expo using IP and QAM-based set-top boxes).

<sup>23</sup> Public Notice at 2.

amongst the interested parties and continuing to press for innovation in this area, rather than in mandating particular technologies or solutions.

**A. The Commission Should Recognize The Wide Array Of Options For Consumers To Access Internet Video On Their TV Sets.**

In examining these issues, the Commission should recognize the difference between subscription video services, such as cable, that are using or plan to use IP to deliver video content to the TV set and services that deliver Internet-based video to TVs. In the subscription video context, TCP/IP transport layer protocols can be used as a transmission technology to deliver traditional cable channels and VOD content in lieu of traditional broadcast QAM or analog transmission technologies, and also for widgets and other interactive service enhancements that add some Internet content to their services but that are distinct from the operator's core video services to customers.

With respect to Internet-connected TVs and set-tops, MVPDs, CE manufacturers, content providers, and others are exploring ways to deliver Internet content to the television set. Some MVPDs deliver Internet-based content to their customers via widgets and other interactive applications. For example, Verizon's FiOS TV service includes widgets that enable customers to access their Facebook and Twitter accounts and view video clips from Blip.tv, Dailymotion, and Veoh, among other features. Motorola set-top box equipment supports this functionality.<sup>24</sup>

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<sup>24</sup> Motorola also makes available IPTV set-top boxes that utilize Motorola's KreaTV Application Platform, which can support cable subscribers' access to online music and video content and the subscribers' ability to transfer music and video seamlessly between the set-top box and their mobile handsets, among other features. Motorola News Release, *Motorola's IP-Set-Tops Enable New KDDI's 'au Box' to Drive Fixed Mobile Broadband Convergence*, Sept. 25, 2008, at [http://www.motorola.com/mediacenter/news/detail.jsp?globalObjectId=10198\\_10127\\_23&pageLocaleId=1214](http://www.motorola.com/mediacenter/news/detail.jsp?globalObjectId=10198_10127_23&pageLocaleId=1214). This device has been deployed by KDDI, a cable operator in Japan.

At the same time, there is a rapidly evolving marketplace for retail devices that can access Internet-based content. A growing array of Blu-ray players, video game consoles, HDTVs, and other devices can use a high-speed Internet connection to stream video from select Web sites to the TV set. For example, Roku sells a set-top box device that enables TV access to videos from Netflix, Amazon, and other content providers through a “Channel Store.”<sup>25</sup> Devices from TiVo, Apple, Vudu, and others provide similar capability, as do Internet-connected HDTVs manufactured by Sony, Samsung, Vizio and others.<sup>26</sup> Users of these services have the option of accessing video on the TV set without paying for an MVPD subscription.<sup>27</sup> In addition, TiVo’s and Moxi’s CableCARD-enabled DVRs allow customers to access both Internet content and cable services,<sup>28</sup> and a product recently launched by Sezmi in Los Angeles integrates live feeds of 23 cable networks, 50 local broadcast channels, VOD, and Internet video through its DVRs using a combination of broadcast spectrum and a high-speed Internet connection.<sup>29</sup>

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<sup>25</sup> See Todd Spangler, *Roku Plugs ‘Channel Store’ Into Internet Set-Top*, Multichannel News, Nov. 23, 2009.

<sup>26</sup> For example, HDTVs and Blu-ray players from Samsung, Sony, LG, and Vizio support Yahoo’s TV Widgets, which enable customer access to Netflix, Twitter, and Flickr. See Rob Pegoraro, *Verizon Adding Widgets, Web Video to FiOS TV*, Wash. Post, July 15, 2009.

<sup>27</sup> In this respect, these devices already provide a vehicle for advancing the Commission’s broadband adoption goals in the absence of any government regulation.

<sup>28</sup> See TiVo Petition at 2; see also <http://moxi.com/us/home.html>.

<sup>29</sup> See Todd Spangler, *Sezmi Tells L.A. Story*, Multichannel News, Nov. 16, 2009. CableLabs’ tru2way solution also enables CE manufacturers to build retail devices that “bring Internet content and cable content together in the same device, have their own menus and user interfaces, include cable channels in their own guides, create and manage their own home networks, and add gaming, widgets, and other features and functions.” Further Reply Comments of NCTA, MB Dkt. No. 07-269, at 15-16 (Aug. 28, 2009).

These devices typically allow the subscriber to access aggregated content from content suppliers with which the device manufacturer has entered business relationships and performed engineering work to develop, integrate, and validate the service. So, in the case of the Roku device, the customer has the ability to access Netflix's library of content that is available for online streaming.<sup>30</sup> By having a managed list of content sources, the device manufacturer can add value for consumers by ensuring compatibility between the content streamed from a particular web site and the capabilities of the device. Other device manufacturers, such as Boxee, are developing products that also allow customers to have more general access to media on other sites on the Internet, but the user's experience with such sites will be less than PC quality.<sup>31</sup>

Given the rapid pace of innovation, it may be that Internet-connected TVs and set-top box devices will be introduced into the marketplace over time that will support full-featured browsers -- *i.e.*, browsers that can support Flash, Javascript, DRM systems, media players, and other applications that are commonplace in the PC environment. However, marketplace demand and competition, not government mandates, should drive any such innovation, particularly given the likely added costs associated with full browser functionality<sup>32</sup> and the as-yet unproven consumer interest in such a device.<sup>33</sup> In

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<sup>30</sup> See "Roku Is Netflix Members' Top Rated Streaming Device," at <http://www.roku.com/netflix-partner>.

<sup>31</sup> See Brad Stone, *Boxee, a Start-Up, to Offer a Device to Put Web Video on TV*, N.Y. Times, Dec. 8, 2009 ("Boxee says it is currently working on a Web browser, based on open-source technology from Mozilla, maker of the Firefox browser, so its users can manually go to any site and watch the video there. 'Its not as good an experience, but we want to make as much content available as possible on Boxee,' said Andrew Kippen, a Boxee spokesman.").

<sup>32</sup> Including such a browser capability in Internet-connected TVs and set-top box devices will likely add costs compared to typical MVPD set-top boxes as such devices require greater CPU horsepower, better  
(footnote continued...)

addition, the Commission needs to be mindful of the effect that any browser mandate would have on equipment obsolescence. The average shelf life for a device with a full-featured browser is two to three years, so customers might need to obtain newer model devices to access the latest Internet content, as is the case with PCs today. It is also likely that any Commission mandates relating to navigation device browsers would quickly become outdated in light of the rapid pace of software development for Internet-based content.

**B. There Also Is Rapid Innovation In Marketplace For Home-Networking Solutions.**

The Public Notice also asks about video home-networking solutions.<sup>34</sup> This also is a rapidly innovating space, and different solutions are evolving for different parts of the home networking ecosystem. With respect to the physical connections that are used to transport content around the home, technologies vary depending on the medium that is used. For example, there is MoCA for coaxial cable, 802.3/Ethernet for CAT5 cable,

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(...footnote continued)

graphics, and more memory, and also need to be equipped with wireless keyboard and mouse functionality to enable consumers to engage the content.

<sup>33</sup> Prior experiments with this type of product, such as WebTV, Worldgate, ICTV, Peach Networks, and AOL-TV, were not successful in the marketplace. More robust Internet video offerings, faster high-speed Internet connections, and the proliferation of HDTVs (for which open Internet content is better suited) may make such a product more compelling today. However, many consumers may still prefer a TV experience with a pre-selected menu of widgets and integrated media selections rather than using the TV as a general purpose Internet device. *See, e.g.,* Matt Richtel, *What Convergence? TV's Hesitant March to the Net*, N.Y. Times, Feb. 16, 2009 (“Sony’s stance is that consumers don’t want an Internet-like experience with their TVs, and we’re really not focused on bringing anything other than Internet video or widgets to our sets right now,” said Greg Belloni, a spokesman for Sony.”); *see also id.* (“Some industry analysts say TV makers have a point, in that many consumers associate their television with one-way communications they ingest while leaning back on the couch. Browsing the Internet, the thinking goes, is a more immersive, active pursuit.”).

<sup>34</sup> *See* Public Notice at 3-4.

HomePNA for phone lines or coaxial cable, HomePlug for powerline, and HDMI for TV connections, among other solutions. Likewise, in the wireless space, 802.11/Wi-Fi is the dominant technology, but there are others, such as ZigBee and WHDI, and development work is progressing on new wireless solutions in the 60 GHz space. Most of these solutions support TCP/IP for transferring content in the home network.

Above these physical layer technologies, there is the need for interoperability solutions for the discovery and management of devices and content in the home. DLNA has produced a set of interoperability guidelines to address this need. These guidelines are largely based on widely-adopted and publicly-available standards from the Internet Engineering Task Force and Universal Plug and Play. DLNA was formed in 2003 and currently has 245 corporate members, including consumer electronics, information technology, and content providers. It is important to emphasize that the DLNA guidelines have been the result of industry-led, consensus-driven voluntary efforts, not government requirements,<sup>35</sup> and that DLNA's efforts are ongoing. For example, DLNA is currently working on a profile for commercial video.

Mandating particular solutions risks inhibiting further evolution in the rapidly changing home-networking ecosystem. New technologies are being developed all the time -- to extend existing technologies, to try and merge multiple existing technologies, or even to completely displace existing technologies. While sometimes such rapid

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<sup>35</sup> As a related example, the WiFi Alliance successfully evolved the 802.11 technology over a number of years without any government mandate. Today WiFi is the *de facto* standard for home wireless technology and currently on its third generation.

innovation can create confusion in the marketplace, over time the result is that the most viable solutions gain traction with consumers.

**C. The Commission Can Play A Constructive Role In Supporting The Development And Use Of Voluntary Solutions.**

To the extent the Public Notice is asking about what role the Commission can play in fostering continued innovation in the video device marketplace, Motorola believes that the Commission can play an important role in encouraging the development of, and supporting the use of, voluntary solutions. The marketplaces for high-speed Internet-connected TVs and set-top box devices and home-networking solutions are innovating at a rapid pace. In such a highly dynamic environment, it is difficult to predict what particular solutions will be embraced by consumers. The Commission can certainly help to ensure that all the interested parties are working toward continued innovation, but marketplace forces, rather than government mandates, should sort out which solutions will succeed.<sup>36</sup>

If the Commission were to mandate specific technical solutions, it risks chilling investment and innovation, imposing unnecessary costs on providers and consumers, and ultimately limiting options for consumers. The Commission's CableCARD and 1394 requirements are proof positive of the risks associated with such technology mandates.

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<sup>36</sup> See, e.g., Gary Shapiro: *Washington's Fear of Failure Threatens To Foster Bad Economic Policy*, CBS News, July 23, 2009, at <http://www.cbsnews.com/stories/2009/07/22/opinion/main5180932.shtml> ("For the technology industry, creative destruction forces even the most established players to adapt to the changing demands of the market or risk fading away. The American economy and consumers have historically benefited from this perennial cycle of improvement. Innovations get better, faster and less expensive for consumers. Meanwhile, more jobs are created to make room for new opportunities and evolving consumer demand."); Erica Ogg, *Reflecting on the DTV Transition*, CNET News, Aug. 4, 2009, at [http://news.cnet.com/8301-1001\\_3-10303225-92.html](http://news.cnet.com/8301-1001_3-10303225-92.html) (quoting Gary Shapiro as saying that "we have a position that we believe in the free market and we don't think we should be asking government for special favors for our industry.").

Both requirements have saddled operators and consumers with unnecessary costs without producing any clear public interest benefits. There are similar risks associated with any new mandates surrounding video devices.

In other proceedings, the Commission has avoided taking steps that would effectively “pick winners or losers,” instead recognizing that its most effective role is “to ensure that the marketplace is conducive to investment, innovation, and meeting the needs of consumers.”<sup>37</sup> The Commission should take a similar pro-innovation approach as it examines the marketplace for video devices in this and any follow-on proceeding.

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<sup>37</sup> *In the Matter of Deployment of Wireline Services Offerings Advanced Telecommunications Capability*, Memorandum Opinion & Order & Notice of Proposed Rulemaking, 13 FCC Rcd. 24011 ¶ 2 (1998); *see also Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Second Report and Order, 20 FCC Rcd. 6794 ¶ 30 (2005) (“It is not our intent to force cable operators to develop and deploy new products and services in tandem with consumer electronics manufacturers. Cable operators are free to innovate and introduce new products and services without regard to whether consumer electronics manufacturers are positioned to deploy substantially similar products and services.”); *In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability*, Fourth Report and Order, 16 FCC Rcd. 15435 ¶ 7 (2001) (“Indeed, we have previously recognized that, in adopting the 1996 Act, Congress consciously did not try to pick winners or losers, or favor one technology over another.”)

## **VI. CONCLUSION**

Motorola urges that the Commission adopt a National Broadband Plan that acknowledges the competitive and rapidly evolving marketplace for Internet-connected TV and set-top box devices and home-networking solutions and recommends against imposing mandates in this area.

Respectfully submitted,

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