

531, 532, 534, 535, 536, 537, 543, 544, 544a, 545, 548, 549, 552, 554, 556, 558, 560, 561, 571, 572, 573.

4. Amend § 76.640 by revising paragraph (b)(4)(ii) to read as follows:

§ 76.640 Support for unidirectional digital cable products on digital cable systems.

* * * * *

(b) * * *

(4) * * *

(ii) Include both:

(A) A DVI or HDMI interface and

(B) An IEEE 1394, Ethernet, or USB 3.0 interface, or WiFi connectivity on all high definition set-top boxes acquired by a cable operator for distribution to customers. Effective [Date to be determined in the final rule], this interface must, at a minimum:

(1) Allow another device to transmit remote control commands via the same interface and

(2) Deliver video in an industry standard format.

* * * * *

5. Amend § 76.1204 by revising paragraph (a)(2) to read as follows:

§ 76.1204 Availability of equipment performing conditional access or security functions.

(a) * * *

(2) The foregoing requirement shall not apply

(i) With respect to unidirectional set-top boxes without recording functionality; or

(ii) To a multichannel video programming distributor that supports the active use by subscribers of navigation devices that:

(A) Operate throughout the continental United States, and

(B) Are available from retail outlets and other vendors throughout the United States that are not affiliated with the owner or operator of the multichannel video programming system.

* * * * *

6. Revise § 76.1205 to read as follows:

§ 76.1205 CableCARD support.

(a) Technical information concerning interface parameters that are needed to permit navigation devices to operate with multichannel video programming systems shall be provided by the system operator upon request in a timely manner.

(b) A multichannel video programming provider that is subject to the requirements of § 76.1204(a)(1) must:

(1) Include the charge for the CableCARD as a separate line item in the subscriber's bill;

(2) Provide the means to allow subscribers to self-install the

CableCARD if the MVPD allows its subscribers to self-install operator-leased set-top boxes;

(3) Provide a multi-stream CableCARD to any subscriber who requests one; and

(4) With respect to professional installations, ensure that the technician arrives with no fewer than the number of CableCARDS requested by the customer.

[FR Doc. 2010-11387 Filed 5-13-10; 8:45 am]

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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 76

[MB Docket No. 10-91; CS Docket No. 97-80; PP Docket No. 00-67; FCC 10-60]

Video Device Competition; Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment

AGENCY: Federal Communications Commission.

ACTION: Notice of inquiry.

SUMMARY: In this document, the Commission seeks comment on ways to unleash competition in the retail market for smart set-top video devices that are compatible with all multichannel video programming distributor ("MVPD") services. The goal of this proceeding is to better accomplish the intent of Congress as set forth in section 629 of the Communications Act of 1934, as amended. In particular, we wish to explore the potential for allowing any electronics manufacturer to offer smart video devices at retail that can be used with the services of any MVPD and without the need to coordinate or negotiate with MVPDs. We believe that this could foster a competitive retail market in smart video devices to spur investment and innovation, increase consumer choice, allow unfettered innovation in MVPD delivery platforms, and encourage wider broadband use and adoption.

DATES: Comments for this proceeding are due on or before July 13, 2010; reply comments are due on or before August 12, 2010.

ADDRESSES: You may submit comments, identified by MB Docket No. 10-91; CS Docket No. 97-80; and PP Docket No. 00-67, by any of the following methods:

• *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

• *Federal Communications Commission's Web site:* <http://www.fcc.gov/cgb/ecfs/>. Follow the instructions for submitting comments.

• *People with Disabilities:* Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: FCC504@fcc.gov or phone: 202-418-0530 or TTY: 202-418-0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For additional information on this proceeding, contact Brendan Murray, Brendan.Murray@fcc.gov, of the Media Bureau, Policy Division, (202) 418-2120 or Alison Neplokh, Alison.Neplokh@fcc.gov, of the Media Bureau, Engineering Division, (202) 418-1083.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Notice of Inquiry (NOI)*, FCC 10-60, adopted and released on April 21, 2010. The full text of this document is available for public inspection and copying during regular business hours in the FCC Reference Center, Federal Communications Commission, 445 12th Street, SW., CY-A257, Washington, DC 20554. These documents will also be available via ECFS (<http://www.fcc.gov/cgb/ecfs/>). (Documents will be available electronically in ASCII, Word 97, and/or Adobe Acrobat.) The complete text may be purchased from the Commission's copy contractor, 445 12th Street, SW., Room CY-B402, Washington, DC 20554. To request this document in accessible formats (computer diskettes, large print, audio recording, and Braille), send an e-mail to fcc504@fcc.gov or call the Commission's Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY).

Summary of the Notice of Inquiry

I. Introduction

1. In this *Notice of Inquiry*, the Commission seeks comment on specific steps we can take to unleash competition in the retail market for smart, set-top video devices ("smart video devices") that are compatible with all multichannel video programming distributor ("MVPD") services. Our goal in this proceeding is to better effectuate the intent of Congress as set forth in section 629 of the Communications Act of 1934, as amended. In particular, we wish to explore the potential for

allowing any electronics manufacturer to offer smart video devices at retail that can be used with the services of any MVPD and without the need to coordinate or negotiate with MVPDs. We believe that this could foster a competitive retail market in smart video devices to spur investment and innovation, increase consumer choice, allow unfettered innovation in MVPD delivery platforms, and encourage wider broadband use and adoption.

2. More specifically, we introduce the concept of an adapter that could act either as a small "set-back" device for connection to a single smart video device or as a gateway allowing all consumer electronics devices in the home to access multichannel video programming services. Unlike the existing cable-centric CableCARD technology, this adapter could make possible the development and marketing of smart video devices that attach to any MVPD service anywhere in the United States, which could greatly enhance the incentives for manufacturers to enter the retail market. As conceived, the adapter would communicate with the MVPD service, performing the tuning and security decryption functions that may be specific to a particular MVPD; the smart video device would perform navigation functions, including presentation of programming guides and search functionality. The Commission seeks comment on this concept. We also invite any alternative proposals that would achieve the same objective of eliminating barriers to entry in the retail market for smart video devices that are compatible with all MVPD services.

3. The Commission envisions that the proposal adopted in this proceeding would be a successor technology to CableCARD. We predict that smart video devices built to new standards that would be adopted through this proceeding would eventually replace CableCARD devices on retail shelves. Accordingly, in this *Notice of Inquiry* the Commission also seeks comment on the future of the CableCARD regime. We are separately releasing a *Notice of Proposed Rulemaking* to address a number of CableCARD implementation issues pending the completion of a successor regime.

II. Background

4. In the Telecommunications Act of 1996, Congress added section 629 to the Communications Act. Section 629 directed the Commission to adopt regulations to ensure the commercial availability of navigation devices used by consumers to access services from MVPDs. Section 629 covers "equipment used by consumers to access

multichannel video programming and other services offered over multichannel video programming systems." In enacting the section, Congress pointed to the vigorous retail market for customer premises equipment ("CPE") used with the telephone network and sought to create a similarly vigorous market for devices used with MVPD services.

5. Congress was prescient in enacting section 629 in 1996. In analog cable systems, which were common throughout the 1990s, most consumers could connect their "cable ready" video cassette recorders and television sets directly to a cable operator's system without the need for any other equipment. During that time, many people became accustomed to and appreciated the convenience of the "plug and play" aspect of connecting a coaxial cable from the wall directly into a television set to receive their video programming service. But this analog "plug and play" technology was unable to support advancements in video delivery technology such as digital cable, bidirectional video services such as pay-per-view, and the emergence of competitive services from Direct Broadcast Satellite ("DBS") providers, which were widely available by 2000. These new developments required the use of more advanced encryption and encoding techniques and bidirectional communication, among other functions, and the MVPDs built this capability into proprietary set-top boxes.

6. The Commission has adopted regulations in response to the statutory mandate in section 629 to ensure retail competition in the "navigation device" market. Those regulations have enabled competitors such as TiVo and Moxi to enter the market. However, the Commission's rules as they currently exist have yet to realize Congress' charge to develop a fully competitive retail market.

7. The Commission adopted its first *Report and Order*, 63 FR 38089, to implement section 629 in 1998. The *Report and Order* required MVPDs to make available a conditional access element separate from the basic navigation device, in order to permit unaffiliated manufacturers and retailers to manufacture and market navigation devices while allowing MVPDs to retain control over their system security. The technical details of this conditional access element were to be worked out in industry negotiations. In 2003, the Commission adopted standards on which the National Cable and Telecommunications Association and the Consumer Electronics Association had agreed in a Memorandum of

Understanding ("MOU"), with certain modifications. The MOU prescribed the technical standards for "CableCARD" compatibility. The CableCARD is a security device provided by an MVPD, which can be inserted into a set-top box or television set bought by a consumer in the retail market and enable the consumer's television to display MVPD encrypted video programming. To ensure adequate support by MVPDs for CableCARDs, the Commission prohibited MVPDs from integrating the security function into set-top boxes they lease to consumers, thus forcing MVPDs to rely on CableCARDs as well. This "integration ban" was initially set to go into effect on January 1, 2005, but that date was later extended to July 1, 2007.

8. The Commission's rules require cable operators to support only one-way plug-and-play capability for retail CableCARD devices. This largely reflects the absence of a proven market for two-way services when negotiations began, and a desire within the industry to achieve consensus on how to assure access to the most basic services first and not await the conclusion of negotiations regarding access to new services that might be introduced later. Accordingly, the Commission's rules do not require cable operators to provide access for retail devices to two-way services such as interactive program guides, pay-per-view, or video-on-demand services, which were nascent services in 2003 and would have required complex and lengthy technical consideration. For that reason among others, retail CableCARD devices have not been able to offer all of the cable services available to subscribers who lease their set-top boxes from the cable operator. This is partially responsible for the failure of the CableCARD solution to create a strong retail market for navigation devices.

9. Furthermore, although the CableCARD rules nominally apply to all MVPDs, the Commission exempted MVPDs that operate throughout the United States and offer devices for retail sale through unaffiliated vendors. In practice, this means that DBS operators are not subject to these rules. More recent entrant AT&T does not provide CableCARD devices, and Verizon supports CableCARDs to a limited extent, but not for its advanced IP services. The Commission also has given numerous integration ban waivers to cable operators who have demonstrated good cause for waiver, such as cable operators in financial distress and cable operators who have upgraded their systems to all-digital. While numerous, these integration ban waivers involve a de minimis number of

cable subscribers nationwide. The Commission also started granting waivers for low-cost, limited capability set-top boxes and, although these waivers will result in more than a de minimis number of subscribers receiving these boxes, these boxes are able to access only one-way services and provide a substantial public interest benefit by significantly reducing costs to consumers for these low-end services.

10. Unfortunately, the Commission's efforts to date have not led to a robustly competitive retail market for navigation devices that connect to subscription video services. Most cable subscribers continue to use the traditional set-top boxes leased from their cable operator. Although following adoption of the CableCARD rules some television manufacturers sold unidirectional digital cable-ready products ("UDCPs"), most manufacturers have abandoned the technology. Indeed, since July 1, 2007, cable operators have deployed only 456,000 CableCARDs for installation in retail devices, compared with their deployment of more than 17.7 million leased devices pre-equipped with CableCARDs since the integration ban went into effect. Furthermore, while 605 UDCP models have been certified or verified for use with CableCARDs, only 37 of those certifications have occurred since the integration ban took effect in July 2007. This indicates that, with the exceptions of TiVo, Moxi, and CableCARD-equipped home theater computers, retail device manufacturers have abandoned CableCARD technology before any substantial benefits of the integration ban could be realized.

11. The Commission anticipated that the parties to the MOU would negotiate a further agreement to achieve two-way compatibility, using either a software-based or hardware-based solution. When the Commission realized in June 2007 that negotiations were not leading to an agreement for two-way compatibility between consumer electronics devices and cable systems, it released a *Third Further Notice of Proposed Rulemaking*, 72 FR 40818, seeking comment on competing proposals for two-way compatibility and other related issues. In the wake of this *Third Further Notice of Proposed Rulemaking*, the six largest cable operators and a number of consumer electronics manufacturers negotiated an agreement for bidirectional compatibility that continues to rely and build on CableCARDs by using a middleware-based solution called "tru2way."

12. We are not convinced that the tru2way solution will assure the development of a commercial retail

market as directed by Congress. As an alternative, we seek to explore the potential for fulfilling this statutory directive by providing consumer electronics manufacturers with the ability to build smart video navigation devices that can access MVPD content regardless of the delivery technology the provider employs and to ensure that necessary licensing agreements do not contain contractual terms that limit the functionality of the devices. Although tru2way is designed to be a two-way solution for traditional cable operators, it requires manufacturers to sign a license agreement that contains limitations that may hinder innovation. For example, the agreement limits a device's ability to integrate video from multiple sources into a consistent viewing experience by limiting the presentation and content of a tru2way device's graphical user interface. This could prevent a tru2way device from searching a consumer's computer, DVR, Netflix account, and cable-operator-provided video on demand offerings for a particular film or for films that include the consumer's favorite actor. Furthermore, tru2way is an unworkable solution for DBS and other non-cable providers. Even service from a cable provider like Verizon, which provides most of its video using the same QAM delivery technology as traditional cable operators, but uses Internet Protocol ("IP") for interactive functions such as video-on-demand, currently is not compatible with tru2way. Finally, the fact that the DBS providers are the second and third largest MVPDs, continue to gain market share, and yet are not subject to the integration ban also may be impeding the development of a vibrant retail market by artificially limiting the market for competitive retail devices. Despite the importance of being able to expand the retail market to reach the DBS providers' networks, most consumer electronics manufacturers acknowledge that an attempt to establish standards for navigation devices that would work with each of the different delivery technologies without some intermediation would be impractical and prohibitively expensive.

13. The approaches considered to date have a number of inherent limitations. Both the one-way CableCARD and tru2way approaches focus on television sets and digital video recorders ("DVRs") as the initial consumer device, with that device housing security (through the CableCARD), tuning, and navigation functions. Yet delivery platforms continue to evolve at a rapid pace. As these delivery platforms evolve,

consumers may need to upgrade or replace their devices to maintain compatibility with those delivery platforms, even if the device is still physically sound. It is impractical to expect consumers to spend hundreds of dollars to replace their television sets or set-top boxes to accommodate each delivery innovation. A subscriber can avoid that risk by renting an HD set-top box from a cable operator for an average cost of \$8.22 per month. This disparity can be expected to perpetuate reliance on cable operators' set-top leasing model and undermine development of a vigorous retail market in navigation devices even if tru2way is successfully deployed.

14. On December 3, 2009, the Commission's Omnibus Broadband Initiative ("OBI") released a Public Notice ("NBP PN #27") seeking comment on four issues related to the ability of manufacturers to compete and innovate in the video device market. Specifically, the Public Notice sought comment on (i) the technological and market-based limitations that prevent retail devices from accessing all types of content; (ii) whether a retail market for network-agnostic video devices could spur broadband use and adoption and achieve the goals of section 629; (iii) whether the home broadband service model could be adapted to provide for audio-visual device connectivity; and (iv) what obstacles may hinder convergence of internet and MVPD-provided video. Commenters generally agreed that the technological limitations that prevent devices from accessing all types of content can be traced to the different conditional access schemes, delivery technologies, and platforms that MVPDs use. Commenters expressed some disagreement about whether network-agnostic video devices would spur broadband use and adoption, but generally agreed that true network agnosticism is a laudable goal for navigation devices. Commenters also generally agreed that the home broadband service model could be adapted to provide for audio-visual device connectivity, but some disagreed about the specific methods that should be used for such connectivity. Finally, commenters generally agreed that the obstacles that hinder convergence of Internet and MVPD-provided video are divergent delivery technologies and content protection methods. Certain commenters also cited business practices that deter entry into the market. NCTA recently filed a letter expressing its members' commitment to a set of principles largely supportive of

our objectives in launching this proceeding.

III. Discussion

15. In this *Notice of Inquiry*, we seek comment on ways to achieve the objective that Congress established nearly fifteen years ago. While MVPD services have become far more robust in the intervening years, for the most part the consumer experience with respect to the equipment that is required to access those services has not. Consumers have shown limited interest in purchasing retail devices that can access MVPD services under our existing rules, and we believe that two fundamental defects in the current regime account for this reluctance. First, with few exceptions retail navigation devices are unable to provide functionality beyond that available in devices that subscribers can lease from their providers and often are unable to access many of the MVPD services that leased set-top devices are able to access. Second, as a general matter a retail navigation device purchased for use with one MVPD's services cannot be used with the services of a competing MVPD. We seek comment on these premises, and we invite commenters to offer other explanations for the failure of a retail market for navigation devices to emerge.

16. Assuming that these premises are in the main correct, we propose a solution that could address these two fundamental problems and seek comment on them. We believe that the concept discussed below could give device manufacturers the ability to develop "smart" products that can access any service that an MVPD provides without the need to enter into restrictive license agreements with MVPDs. The concept also could give device manufacturers the ability to develop smart video devices that can access MVPD programming regardless of the delivery technology that the MVPD uses. Accordingly, we introduce and seek comment on a model that would require MVPDs to provide a small, low-cost adapter that would connect to proprietary MVPD networks and would provide a common interface for connection to televisions, DVRs, and other smart video devices, as described below. This adapter, a further development of the concept of the "gateway device" recommended in Chapter 4 of the National Broadband Plan, would perform the conditional access functions as well as tuning, reception, and upstream communication as directed by the smart video device. The adapter and the smart video device would communicate with each other using a standard interface, but each

adapter would be system-specific to a particular MVPD in order to communicate with its network. Innovations in a MVPDs' delivery technology might require substitution of a new adapter but would not require the consumer to replace her smart video device or other in-home equipment. While the Commission seeks comment on this concept, we also encourage commenters to present other proposals that would remove barriers to the establishment of a retail market for smart video devices compatible with all MVPD services. If commenters disagree that the root problems involve limits on device functionality and portability across MVPDs, we invite them to identify what they believe are the obstacles to a competitive retail market in navigation devices and to propose solutions.

17. *The AllVid Concept.* Ideally, the Commission's all video ("AllVid") solution would work for all MVPDs and lead to a nationwide interoperability standard, much as Ethernet and the IEEE 802.11 standards have led to nationwide interoperability for customer data networks while allowing broadband service providers to deploy differing proprietary network technologies. The AllVid solution would be designed to accommodate any delivery technology that an MVPD chooses to use and allow MVPDs to continue unfettered innovation in video delivery, because the MVPD-provided AllVid adapter, rather than the consumer-owned smart video device, would be responsible for all communication with the MVPD. At the same time, it would allow consumer electronics manufacturers to design to a stable interface and to integrate multiple functions within a retail device. This approach would provide the necessary flexibility for consumer electronics manufacturers to develop new technologies, including combining MVPD content with over-the-top video services (such as videos offered from, for example, Amazon, Hulu, iTunes, or Netflix), manipulating the channel guide, providing more advanced parental controls, providing new user interfaces, and integrating with mobile devices.

18. Two previous standardization approaches help to illustrate how this solution could unleash competition and innovation in equipment used with MVPD services, while allowing unfettered innovation in the services themselves: (i) The Carterfone and Computer Inquiry decisions required that the telephone network be terminated in a standardized RJ-11 interface; and (ii) broadband services

developed using divergent and rapidly developing network technologies terminated in an adapter that presents a standardized Ethernet interface.

19. The RJ-11 interface requirement allowed the development of a vibrant retail market for answering machines, cordless phones, fax machines, modems, and other customer-premises equipment used with the telephone network. The requirement that the network terminate in a standardized interface with no carrier-supplied terminating device was implemented in the context of a single telephone network that used a single, stable delivery technology. It was a workable and successful solution in that context because our telephone network was based on a nationwide standard.

20. Broadband services differ from telephone service in two key respects that have led to a significantly different approach. Multiple broadband operators provide services using divergent network technologies; and those technologies are not static but are rapidly developing. Numerous broadband delivery technologies exist—among them cable, digital subscriber line ("DSL"), satellite, wireless broadband, and optical fiber to the home. In each system, the operator provides a customer with an interface device such as a cable modem that performs all of the network-specific functions and connects via an Ethernet port to a multitude of competitively provided customer-premises devices including computers, printers, game consoles, digital media devices, wireless routers, and network storage devices. This approach has promoted an innovative and highly competitive retail market for devices used with broadband services. At the same time, because each operator terminates its service in an interface device that it can swap out as needed to accommodate innovations in delivery technologies, this approach has freed service providers to innovate in their networks without changing the Ethernet connection to which customers attach their devices. For example, a DSL provider can introduce a new, faster technology in its network and, if necessary, swap in a new DSL modem that incorporates the new technology, without changing the customer interface or requiring customers to replace devices they use with the service. This allows consumers to benefit from new and improved services without incurring the cost of replacing devices they have purchased at retail—replacing a single modem is more cost-effective than replacing each device that accesses broadband services.

21. One possible reason for the lack of success in the implementation of Section 629 to date is that it was modeled on the earlier telephone service approach, rather than the second, broadband approach. As NCTA has pointed out, the interface requirement as it applies to telephone service is not completely analogous. We agree, and we believe that the approach to assuring device compatibility with broadband services may provide a better model for MVPD device compatibility. MVPDs, like broadband providers, use divergent and rapidly developing delivery technologies, and our experience with the CableCARD regime indicates that a static implementation of section 629 that incorporates network-specific interface functions into the navigation devices that consumers purchase in the retail market is unlikely to succeed. A more innovative, pragmatic, and long-term approach may be to separate those network interface functions from the consumer devices through the use of an adapter, as is the case with broadband services.

22. The AllVid concept would follow the broadband approach. It would place the network-specific functions such as conditional access, provisioning, reception, and decoding of the signal in one small, inexpensive operator-provided adapter, which could be either (i) a set-back device—which today could be as small as deck of cards—that attaches to the back of a consumer's television set or set-top box, or (ii) a home gateway device that routes MVPD content throughout a subscriber's home network. The adapter would act as a conduit to connect proprietary MVPD networks with navigation devices, TV sets, and a broad range of other equipment in the home. The AllVid adapter would communicate over open standards widely used in home communications protocols, as outlined below, enabling consumers to select and access content through navigation devices of their choosing purchased in a competitive retail market. MVPDs would, of course, be free to participate in the retail market by offering navigation devices for sale or lease to consumers, but those devices would be separate from the adapter and marketed separately.

23. We believe that this model could unleash an expanding retail market for innovative and portable smart video devices and could also maintain MVPDs' freedom to innovate in and protect their networks. As we envision the AllVid concept, it could lead to "[c]ompetition in the manufacturing and distribution of consumer devices" as Congress envisioned, which "has always

led to innovation, lower prices and higher quality," because retail devices would be able to access the full array of services offered by all MVPDs and to integrate those services with other video sources—something that today's plug-and-play devices and tru2way devices cannot do. More specifically, we believe that this new AllVid model could: (i) Spur the development of a competitive retail market in navigation devices, thus providing subscribers with viable alternatives to leasing or buying a set-top box from their MVPD, (ii) drive down retail prices for devices used to access MVPD services without increasing the prices of those services, (iii) encourage MVPDs to develop and introduce innovative services without being inhibited by the need to consult with navigation device manufacturers, and (iv) encourage device manufacturers to develop and introduce innovative smart video devices without being deterred by the need to consult with MVPDs. In the following section, we seek comment on a framework designed to achieve those goals; we also encourage commenters to propose alternative plans that could achieve the same goals.

24. *AllVid Standards.* The AllVid adapter would perform only the functions necessary to support devices connected to the home network, and should connect to home network devices using a nationally supported standard interface that is common across MVPDs. We expect that an AllVid adapter could be inexpensive and physically small but, as set forth below, seek comment on those assumptions. We also envision that MVPDs would provide subscribers with the AllVid adapters (included in the price of service, or for a nominal lease fee, or with the option to purchase), and that AllVid adapters would likely not be portable across carriers. We seek comment on these expectations, as well as on the specific elements we believe would be necessary to bring the concept to fruition. For example, in a petition for rulemaking filed in the wake of NBP PN #27, Public Knowledge suggests that an AllVid-type device would require "standards for (1) a physical connection, (2) a communication protocol, (3) authentication, (4) service discovery, and (5) content encoding." We seek comment on Public Knowledge's proposal, as well as the list of functions discussed in detail below that we believe would be necessary to implement the AllVid concept. We seek comment on any other functions for which standards would be necessary to develop an AllVid adapter. In this

Section, we also seek comment on standards for the adapters, with the understanding that these standards may not encompass the entire universe necessary to develop and deploy AllVid adapters.

25. *AllVid Equipment.* The AllVid equipment would be designed to operate specifically with one MVPD and offered through the MVPD's preferred mechanism, whether leased or sold at retail, manufactured by one company or competitively. We foresee two possible physical configurations for the AllVid equipment. In the first configuration, the AllVid equipment would be a small "set-back" device, capable of communicating with one navigation device or TV set and providing at least two simultaneous video streams to allow for picture-in-picture and to allow subscribers to watch a program on one channel while recording a program on another channel. In the second configuration, the AllVid equipment would act as a whole-home gateway, capable of simultaneously communicating with multiple navigation devices within the home, and providing at least six simultaneous video streams within the home (which would allow picture-in-picture in three different rooms), possibly through a modular system that could accommodate more streams as necessary. We seek input on each of these configurations and whether one of these configurations is more appropriate than the other, or if there are other superior configurations that should be considered.

26. *Physical connection.* The 100-BASE-TX Ethernet could act as the physical layer technology used to connect the AllVid adapters with navigation devices. 100-BASE-TX Ethernet operates at speeds adequate to allow transfer of multiple high definition MPEG-2 signals (nominally 15 Mbps each), and it has developed as a de facto connection for data transmission. Current and next-generation audio-visual equipment has and will continue to include Ethernet ports for connectivity for the foreseeable future. Therefore, adoption of Ethernet as the physical connection for AllVid adapters and navigation devices could enable compatibility with existing devices. In addition, the ubiquity of Ethernet could allow the AllVid adapter and navigation device manufacturers to defray costs to a large extent. We seek comment on these predictions. We seek comment on whether using Ethernet for the physical connection would be limiting if Internet video were not passed through the AllVid adapter. We also seek comment on any other

physical connectors (for example, Multimedia over Coaxial Cable ("MoCA")) that could serve as the bridge between AllVid adapters and retail navigation devices, or whether the Commission would need to mandate a physical layer technology at all.

27. *Communication Protocol.* Internet Protocol ("IP") could act as the communication protocol between the AllVid adapter and navigation devices. Like Ethernet, IP is the de facto standard protocol for data transmission, and current and next-generation audio-visual equipment is capable of handling IP communication. As a widely adopted protocol, IP is familiar to hardware and software developers, which would allow the retail market to flourish for smart video devices. We seek comment on whether IP would be the best choice for an AllVid communication protocol. We also seek comment on any other communication protocols that could serve as a standardized communication protocol between AllVid adapters and retail navigation devices.

28. *Encryption and Authentication.* Both the MPAA and CableLabs have approved digital transmission content protection over Internet protocol ("DTCP-IP") technology as an acceptable method of content encryption to prevent content theft, and it is the content protection scheme used in the Digital Living Network Alliance ("DLNA") standard. For these reasons, we believe that the DTCP-IP standard would be a logical choice for content encryption and device authentication, and we seek comment on that assessment. We also seek comment on whether it would be practical to give each navigation device its own specific key. We believe that this could prevent a situation in which entire model classes of navigation devices would need to be deauthorized in the event that a key were compromised. Should the Commission select a party to administer the public key database in the same manner that the Commission handled the white spaces database, or would the relevant industry parties be able to agree on a third party to handle maintenance of a public key database? In the event that commenters are in favor of a third party maintaining the public key database, we seek proposals regarding parties that can handle that task. We seek comment on the ideas presented here with respect to encryption and authentication. We seek comment also on any other proposals that could serve the encryption and authentication functions in an AllVid-connected home network.

29. *Content Ordering and Billing.* At least one party has indicated that

MVPDs need the ability to verify that their subscribers have actually ordered pay-per-view and subscription content. What specific methods could the AllVid and navigation device use to facilitate ordering of pay-per-view and subscription content? We envision that the AllVid adapter would perform video rendering for the purpose of verifying a subscriber's purchase of MVPD content such as Video on Demand ("VOD") or a subscription service. We seek comment on these issues, including any other proposals that would allow MVPDs to verify that a subscriber wishes to purchase a specific MVPD service.

30. *Service Discovery.* TiVo suggests that Universal Plug and Play ("uPnP") protocols would be "an obvious technology choice for service discovery." TiVo explains that the only protocols that the Commission would need to adopt for service discovery are "gateway advertisement, which allows a gateway to announce its presence to consumer devices on the home network, and service browsing, in which a consumer device can browse and access the available services on the gateway." We seek comment on TiVo's proposal and invite commenters to propose any other protocols that would allow a navigation device to discover MVPD content on a home network with an AllVid adapter. For example, to achieve the efficiencies that come with switched-digital video, devices attached to a cable network need to inform the cable headend when a subscriber stops watching a program. What protocols would be necessary for the AllVid adapter to query whether the navigation device still requires access to the program stream?

31. *Content Encoding.* A recent controversy over audio-visual codec support has led to heightened awareness about the issue of content encoding. Ideally, navigation devices should be designed to decode content that has been encoded in a number of specified formats and the AllVid adapter should be designed to transfer content in at least one of those formats. This would allow MVPDs to encode their content as they wish without the need for the AllVid adapter to transcode the content, which could make the AllVid adapter more expensive and less energy efficient. We seek comment on whether the Commission would need to specify the formats, and, if so, on the audio-visual codecs that the Commission should require navigation devices to handle.

32. *Intellectual Property.* The Commission seeks comment on intellectual property issues related to proposed standards for the AllVid

adapter. How long would it take for the necessary standards to be developed, and what costs would be involved? Would a requirement that all rights holders license their relevant intellectual property on reasonable and nondiscriminatory terms allow the market to flourish and provide adequate incentives for innovation? Does the Commission have the legal authority to mandate such terms? We seek comment on whether patent pools exist for any technologies that might be adopted. We seek comment on the licensing fees charged by patent holders for these technologies, and which parties hold those rights. We also seek comment on any other intellectual property issues relevant to the AllVid concept.

33. *Other Issues.* The Commission also seeks comment on any additional standardization work that would be necessary to implement the AllVid regime. For example, we seek comment on how the AllVid adapter should resolve resource conflicts. If a subscriber's home is equipped to handle six separate video streams and seven people in the home want to watch programming on seven different devices, which devices take precedence? Should the most recent device to make a request have the ability to override the conflict and choose which device to exclude? We seek comment on innovative ways to resolve device conflicts.

34. Several commenters have highlighted issues regarding how a home network would handle emergency alert system ("EAS") messages, closed captioning data, and MVPD parental controls. We note that there are existing standards to transmit closed captioning data and parental control data for broadcast television and unencrypted cable television. We seek comment on whether these standards can be adapted readily to perform these functions in the AllVid regime or whether new standards development is necessary. We note that development of a next generation EAS system is underway and seek comment on how EAS messages formatted in the Common Alerting Protocol could be carried in the AllVid system and received by devices. CEA and the Society of Cable Telecommunications Engineers (SCTE) have both adopted standards for the carrying of EAS within the home network. We seek comment on what additional standards work is necessary to assure that retail devices receive and display EAS messages.

35. We seek comment also on whether navigation devices in the AllVid system should include over-the-air ATSC tuners. The Commission's rules require

unidirectional digital cable devices to include an ATSC tuner. In the *Second Report and Order*, the Commission concluded that “the public has come to understand that television receivers labeled or marketed as ‘cable ready’ universally include the capability of receiving over-the-air broadcast service.” Would consumers similarly expect this equipment to receive over-the-air broadcast service? Does the Commission have the authority under the All-Channel Receiver Act to impose such a requirement?

36. We seek comment also on differences in delivery technology that might require specific MVPD providers to include functionality beyond what is necessary for conditional access, provisioning, reception, and decoding of the signal. For example, given the DBS industry’s inherently one-way distribution model, DISH Network and DIRECTV have indicated that home gateway devices for DBS would need to include hard drives for video caching to allow their subscribers to view VOD programming instantly and might need to include additional “intelligence.” We seek proposals on any network-specific functions that may need to be included in particular operators’ AllVid adapters. We also seek comment on how we could enable evolution of the AllVid system, with respect to both the components of the device and the output standards, in order to accommodate technological innovation over time. Finally, we seek comment on any other issues regarding the AllVid regime and specific proposals that would allow the Commission to resolve those issues.

37. *AllVid Support Requirements.* The National Broadband Plan calls for Commission action to require MVPDs who offer digital navigation devices for lease to be prepared to offer AllVid equipment to their subscribers by December 31, 2012. We seek comment on that deadline, including measures that would be effective in enforcing it. To encourage MVPDs to adhere to this deadline, should the Commission take supplemental measures that would apply to MVPDs that are unable to deploy AllVid equipment to all new subscribers and to any subscribers who request AllVid equipment after this deadline (such as denying extensions of certain CableCARD waivers), or do the Commission’s existing enforcement mechanisms, which allow the imposition of forfeitures, provide sufficient incentives for MVPDs to meet such a deadline? How can the Commission prevent an overabundance of waiver requests similar to the ones filed in response to the integration ban,

which some have argued have brought about policymaking by waiver?

38. In concept, the AllVid approach would provide a successor technology to CableCARD. While the Commission is separately proposing steps to ameliorate shortcomings in the retail market for CableCARD devices in the interim, we anticipate that AllVid devices could over time replace CableCARD devices on retail shelves. Accordingly, we seek comment on whether the Commission should consider eliminating its CableCARD rules, and if so, the appropriate date for such a change. We seek comment on consumer expectations regarding the lifespan of their devices, and whether the AllVid approach or any other approach could be implemented in a way that limits the number of CableCARD devices that become obsolete.

39. *Navigation Device Economics.* Certain parties suggest that a retail market for navigation devices may be destined to fail because consumers are not interested in owning navigation devices. We seek comment on this assessment, including whether consumers prefer to lease at government-regulated “cost-plus” rates, whether consumers wish to avoid the risk of obsolescence of navigation devices, and whether consumers’ inability to “port” a retail navigation device when he or she changes MVPDs limits the attractiveness of the retail option. The cable industry has adopted the leasing model, charging customers a monthly fee that allows consumers to avoid a larger upfront cost entailed by a retail purchase. To evaluate the leasing versus retail equipment models, we seek data on consumer behavior when faced with a lease versus purchase decision, concerning navigation devices and analogous consumer electronic devices. We expect that MVPDs will want to continue to offer devices for lease or sale that provide greater functionality than an AllVid adapter. Should we require those devices to attach to the AllVid network, through an adapter? How would our decision on whether operator-provided navigation devices must commonly rely on the AllVid network affect the economics of the retail and leasing markets?

40. What are consumer expectations with respect to “navigation devices?” Traditionally, the Commission and interested parties have considered the term navigation devices to include televisions, set-top boxes (including DVRs), and home theater computers. Do these devices comprise the universe of navigation devices, and if not, what other devices could perform navigation device functions? Are there specific

minimum functions that a navigation device needs to perform? Should there be different classifications of navigation devices, and if so, should the Commission dictate the minimum functionality requirements of specific classes? What steps can the Commission take to increase economic and energy efficiencies that will allow consumers to connect fewer devices to their television display by consolidating functionality into one device?

41. Would MVPDs be at an advantage in providing set-top boxes because they could provide home installation whereas consumers typically would have to install devices purchased in the retail market themselves? Do MVPDs earn a profit on home installations or, if not, would self-installations of retail devices by MVPD customers save MVPDs money? We seek comment also on the assertion that the cost of bringing navigation device functionality into television sets exceeds what consumers are willing to pay at retail. We seek data on consumer purchasing behavior regarding home entertainment equipment. To what extent are consumers willing to pay for additional functionalities in the equipment they purchase? Would the AllVid concept change the economics of consumer preferences? How much would an AllVid adapter cost? How much would it cost to add AllVid compatibility to a navigation device? Should the cost of an AllVid adapter and charges for installation by the MVPD be calculated according to the Commission’s rate regulation rules under section 76.923 in rate-regulated communities? Finally, we seek comment on whether economic or technological factors dictate that AllVid adapters would have to be provided by the MVPD, or whether AllVid adapters could be sold at retail, as NCTA has suggested in the past.

42. *Alternative Proposals.* In response to NBP PN #27, several MVPDs expressed reservations about a “home gateway” technology mandate. These commenters suggest that the Commission should encourage market-driven negotiations and standards development to achieve the goals of section 629. In this vein, we seek alternative proposals to the AllVid concept that could lead to the implementation of a competitive market solution for smart video devices by December 31, 2012. We also seek input on whether the movement of functions away from navigation devices and into the cloud or network might represent a viable alternative. How would the AllVid proposal affect the development of downloadable security? Are there specific incentives that the Commission

could create that would expedite market negotiations and address the shortcomings of the current CableCARD regime discussed above?

43. *Other Issues. Content*

Presentation. Much of the innovation in television reception devices is related to easy-to-use graphical user interfaces; device manufacturers distinguish their products from one another by providing better user experiences. MVPDs argue, however, that a graphical user interface that is standard across its footprint makes consumer education and support easier; they also state that marketing agreements often require the MVPD to provide certain content within the electronic program guide. Providers also argue that multiple graphical user interfaces would create customer confusion with regard to whom subscribers should call with questions about problems associated with the user interface, service, and hardware compatibility. What steps should be taken to minimize any potential for confusion with regard to the appropriate provider of customer service for retail device product performance, warranty, and service-related issues? Given the inherent conflict between innovation and standardization, we seek comment on whether the Commission should adopt rules governing the way in which MVPD content is presented. What steps should be taken to protect agreements between MVPDs and content providers? Is there a way to balance MVPDs' interests in improved customer service and adherence to their marketing contracts against the consumer benefits that result from electronics manufacturers differentiating their products from competitors? We seek comment on the best way to resolve this issue.

44. We also seek comment on intellectual property issues associated with electronic programming guides. The Consumer Electronics Association asserts that consumers already pay for programming guide data as part of their subscription fees, that the data is not subject to intellectual property protection, and that therefore MVPDs should provide programming guide data in a form that would allow competitive devices to display the data as they wish. MVPDs disagree, arguing that the intellectual property issues related to electronic programming guide presentation and data are more complex than the Consumer Electronics Association suggests. In addition to seeking comment on the intellectual property issues, we seek specific proposals for solutions or reasonable compromises that could address those issues and achieve the objectives of this

proceeding. For example, would it be reasonable for MVPDs to charge separately for guide data, thereby saving subscribers who use third-party data from having to pay for the same data twice?

45. **Authority.** The DC Circuit has found that section 629 gives the Commission broad discretion to adopt regulations to assure a competitive market for navigation devices. Throughout this proceeding, certain parties have argued that the Commission lacks the authority to require MVPDs to disaggregate their programming guides and allow retail devices to "repackage" their content. Section 629 directs the Commission to adopt regulations to assure the retail commercial availability of navigation devices, and the DC Circuit's review has been "particularly deferential" in cases where the "FCC must make judgments about future market behavior with respect to a brand-new technology." We seek further comment on our authority under section 629 of the Act.

IV. *Procedural Matters*

46. **Ex Parte Rules.** This is an exempt proceeding in which ex parte presentations are permitted (except during the Sunshine Agenda period) and need not be disclosed.

47. **Filing Requirements.** Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments on or before July 13, 2010; reply comments are due on or before August 12, 2010. Comments may be filed using: (1) The Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

48. **Electronic Filers:** Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/> or the Federal eRulemaking Portal: <http://www.regulations.gov>.

49. **Paper Filers:** Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

50. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

51. Effective December 28, 2009, all hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW., Room TW-A325, Washington, DC 20554. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. The filing hours are 8 a.m. to 7 p.m.

52. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

53. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW., Washington, DC 20554.

54. **People with Disabilities:** To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

55. **Availability of Documents.** Comments, reply comments, and ex parte submissions will be available for public inspection during regular business hours in the FCC Reference Center, Federal Communications Commission, 445 12th Street, SW., CY-A257, Washington, DC 20554. These documents will also be available via ECFS. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.

56. **Accessibility Information.** To request information in accessible formats (computer diskettes, large print, audio recording, and Braille), send an e-mail to fcc504@fcc.gov or call the FCC's Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY). This document can also be downloaded in Word and Portable Document Format (PDF) at: <http://www.fcc.gov>.

57. **Additional Information.** For additional information on this proceeding, contact Steven Broecker, Steven.Broecker@fcc.gov, Brendan Murray, Brendan.Murray@fcc.gov, of the Media Bureau, Policy Division, (202) 418-2120, or Alison Neplokh, Alison.Neplokh@fcc.gov, of the Media Bureau, Engineering Division, (202) 418-1083.

Federal Communications Commission.

Marlene H. Dortch,
Secretary.

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