

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of:)	
)	
International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act)	GN Docket No. 09-47
)	
A National Broadband Plan for Our Future)	GN Docket No. 09-51
)	
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act)	GN Docket No. 09-137
)	
Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices)	CS Docket No. 97-80
)	

VERIZON COMMENTS – NBP PUBLIC NOTICE # 27

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December 22, 2009

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I. Introduction and Summary

The marketplace, driven by consumer demand, is working to expand the capabilities of video devices, such as set-top boxes, and to increase the range of content – including Internet-based content – available to consumers on their television sets. For example, the marketplace for video devices already shows signs of convergence and a migration to Internet Protocol (“IP”) as a *de facto* standard for the transmission between devices of video content. Given the progress that is being made, it is appropriate for the Commission to turn away from the failed approach of mandating specific technologies and cable-centric standards and instead encourage network agnostic solutions and

relevant technical standards that are open, fair and accommodate the concerns of all stakeholders, including consumers.

Indeed, as the Commission recognizes in the Public Notice,¹ the Commission's previous attempts to regulate and mandate particular technological means to solve interoperability concerns, and to require the provision of specific technological features, have met with little practical success. The marketplace for video services and the devices that are used to access, store and display these services is now changing quickly and becoming more competitive, in part in response to the entry of competitive providers delivering video in innovative new ways. Technologies that may appear to be cutting edge in late 2009 could be eclipsed in 2010 or 2011 by other methods of providing service; video offerings that seem to be on the cusp of high consumer demand may quickly be replaced by other types of services.

Indeed, it is time for the Commission to remove obsolete, technology-specific mandates – such as CableCard requirements or the 1394 requirement – that only add costs without offsetting consumer benefits and that slow the adoption of newer, more suitable technologies.

In contrast, the Commission should encourage market-driven solutions that increase the range of choices available to consumers. New technologies and devices built around Internet Protocol and home networking standards are gaining popularity in the marketplace in response to consumer demand. Verizon has long advocated a preference for market-driven solutions that are not tied to incumbent cable operators' unique

¹ *Comment Sought on Video Device Innovation*, NBP Public Notice #27, GN Docket Nos. 09-47, 09-51, 09-137, CS Docket No. 97-80, DA 09-2519 (rel. Dec. 3, 2009) (“Public Notice”).

technologies. In particular, to the extent that a home gateway device of the type mentioned in the Commission's recent open meeting is truly network agnostic and incorporates open standards, such a solution would be consistent with the direction in which the video marketplace seems to be headed and may help to achieve greater video convergence.² However, while the Commission should encourage the continued work towards useful technical standards through American National Standards Institute-accredited open industry standards-setting bodies and encourage the use of standards that are platform- and technology-neutral, given the trends in the market, there is no need for the Commission to mandate or require the provision of such a device or any other particular technological standards.

II. The Marketplace Is Working To Overcome Any Technological and Market-Based Limitations on Video Devices (Q. A).

Certain technological and market-based limitations have inhibited the ability of video devices to access and share all forms of video content. These limitations can, for the most part, be traced back to the fact that video service providers deliver video services over different technologies and platforms. As a result, cross-device software may be difficult to implement for video devices. But evolution driven by the marketplace is working to overcome these limitations. In the past, marketplace forces have resolved similar problems in the area of personal computing as manufacturers converged towards interoperable system architectures. It is likely that given consumer demand, the market will drive toward a similar outcome for video devices.

² See FCC Open Meeting, Broadband Presentation, National Broadband Plan Policy Framework at 20 (Dec. 16, 2009) *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-295259A1.pdf.

Indeed, there is already evidence of marketplace convergence and a general shift to IP, both in the provision of services and in set-top boxes and other home networking solutions.³ Additionally, competitive providers across technologies and platforms are creating innovative devices that will continue to enrich the consumer experience. For example, Verizon FiOS already brings selected Web content to the television set through applications that allow users to access content such as Twitter and Facebook.⁴ While the software necessary to provide access to these functions on video devices varies from device to device, consumer demand for access to these services provides a strong incentive for video providers to make the investment necessary to offer these innovative services to their customers. The increasing competition between video providers in the marketplace makes these incentives even stronger; the growth of FiOS and other competitive services mean that all providers must innovate and respond to consumer demand.

³ See, e.g., Todd Spangler, *Assessing Cable's IPTV Future*, Multichannel News, available at http://www.multichannel.com/article/355427-Assessing_Cable_s_IPTV_Future.php (“Increasingly for operators, the evolution to delivering video over an all-IP infrastructure is not a question of if, but when.”); see also Petition of Intel Corp. for Waiver of 47 C.F.R. § 76.640(b)(4), CS Docket No. 97-80 at 4 (filed Oct. 7, 2009) (describing range of new set top boxes that support home networking using IP, “which is the networking protocol used in the overwhelming majority of digitally-connected devices in today’s home environment”); Press Release, Broadcom Corp. Broadcom Expands its IP Set-Top Box Family with the Addition of New High Definition Decoders, (Mar. 20, 2009) available at http://files.shareholder.com/downloads/BRCM/0x0x281540/fbfc1fc6-c9bc-442a-b7a9-305f0c1244d7/BRCM_News_2009_3_20_Broadband_News.pdf (announcing new offerings in response to service provider demand for “[set-top box] solutions to address whole-home connected entertainment environments”).

⁴ Press Release, Verizon, Verizon Brings the Web to the TV With Facebook, Twitter and Internet Videos (Jul. 15, 2009) available at <http://newscenter.verizon.com/press-releases/verizon/2009/verizon-brings-the-web-to-the.html>.

Moreover, while there are some benefits to be gained from commonality and interoperability, the Commission should not lose sight of the costs. For example, mandated commonality can get in the way of continued innovation, such as by undermining or disadvantaging efforts to provide video services using non-traditional technological approaches, or by freezing obsolete technologies or standards in amber and not allowing them to be discarded when a better system is devised.

So while a market-driven, baseline level of compatibility will allow video devices to more easily access and share content, there is no need for the Commission to mandate a specific technology standard or otherwise interfere with the continued evolution of the video marketplace in directions that will best serve consumers. As discussed in more detail below in Section V, the best approach is to encourage network agnostic solutions and open industry standards-setting groups to set platform- and technology-neutral standards.

III. To Foster Competition and To Avoid Distorting the Market Any Network Agnostic Navigation Device Must Be Truly Network Agnostic (Q. B).

As Verizon has said in the past, in order to foster competition and to avoid distorting the market, the Commission should encourage ongoing industry efforts, open to participation by all providers, to develop standards for “network agnostic” navigation devices that can be adapted to work with any network through which they operate.⁵

Mandating the use of proprietary standards or technologies that do not work with particular providers’ networks – such as forcing IP-based video providers to comply with

⁵ See, e.g., Comments of Verizon, CS Docket No. 97-80, PP Docket No. 00-67 at 2-3 (filed Aug. 24, 2007) (“The Commission should endorse and encourage ongoing industry efforts, open to participation by all providers, to develop technical standards for two-way plug-and-play that are technology- and platform-agnostic and that do not advantage any type of video provider one way or another.”).

cable-centric technological standards – would undermine rather than enhance competition. Many new entrants are bringing video competition to market using a variety of technological approaches, such as IPTV and Verizon FiOS’s hybrid QAM/IP delivered over its fiber network. If navigation devices are not truly network agnostic, consumers who purchase those devices are less likely to sign up for innovative video services offered over non-traditional technologies because their home electronics equipment may not work as well, or they may lose some functionalities on a competitive provider’s service.

That said, a retail market for truly network agnostic video devices likely would bring consumer benefits, in the form of increased innovation, lower costs, and greater options for consumers. But such a market should not be mandated at the expense of equipment provided to the consumer by the video provider because doing so would undermine consumer choice and potentially impose barriers for consumers who are simply looking to sign up for video service and would prefer to have a simple, low-cost solution for accessing video content.

Moreover, while there are likely to be a number of consumer benefits from a market for truly network-agnostic video devices, it is not clear what effect such a market would have on *broadband* use. Consumers may ultimately wish to access the Internet using set-top devices, or other video devices, but this is far from a certainty. It is not clear that a consumer would prefer to use a full featured video device in order to consume Internet content rather than the many other devices available to consumers today. Indeed, aside from traditional personal computers, personal computers optimized for web access using WiFi, commonly called “netbooks,” and handheld WiFi-enabled devices, such as

the iPod Touch, are available and becoming increasingly popular with consumers. In addition, mobile broadband has also seen a profusion of so-called “smartphones,” including Motorola’s Droid, that enable consumers to access Internet content. It may well be that even for consumers lacking home computers, these other avenues for accessing the Internet could prove preferable over television-based Internet access. In any event, to the extent consumer demand exists for video devices enabling Internet access, the marketplace will deliver.

For these reasons, rather than mandate a specific technology or standard, the Commission should encourage the industry’s shift towards IP and home networking, and by doing so, allow consumers to continue to drive convergence.

IV. The Commission Should Allow Consumer Demand To Drive Innovation in Home Networking, and It Should Remove Technology-Specific Mandates, Such As the Outmoded 1394 Requirement, To Further Encourage Innovation (Q. C).

The types of device, software and service offerings that the Commission describes, Public Notice, Question C, are already available from a number of manufacturers and service providers, and work is well underway within industry standards setting bodies that will increase the number of potential methods for offering services of this type. For example, as the Commission notes, certain standards like the Digital Living Networking Alliance (“DLNA”) have already been developed and are already incorporated into a number of devices.⁶ Similarly, work is underway within the RVU Alliance – a group including a wide range of industry of consumer electronics and video companies such as Broadcom, Cisco, Samsung, DirecTV and Verizon – to develop

⁶ Currently, 1,692 devices are DLNA-certified including over 500 televisions, 866 PCs, 22 digital video recorders, and 32 digital media adapters. *See* DLNA™, Search & Match, *at* <http://www.dlna.org/products/>.

technology that will enable consumers to watch live or recorded video programming on televisions or other devices throughout the house (and without multiple set-top boxes) while experiencing a consistent user interface. The Commission should encourage these developments, and as the marketplace works to foster technological innovation in response to consumer demand, the means for achieving integration of video delivery with home networks will only proliferate.

However, while home networking standards such as these hold promise, the Commission should not presume that consumers are interested in a specific type of home networking integration, and need not and should not intervene to distort the development of these technologies. As the Commission has recognized, specific technological mandates can result in regulating the inclusion of technological dead-ends.⁷

Accordingly, the Commission should act to remove existing technology-specific mandates such as IEEE 1394 interfaces and CableCards.⁸ Such requirements inherently limit innovation because they do not contemplate alternative technological approaches to

⁷ *A National Broadband Plan for Our Future*, Notice of Inquiry, GN Docket No. 09-51, FCC 09-31, ¶ 22 (rel. Apr. 8, 2009) (“With technology developing at such a rapid pace, it is important that we do not lose sight of the potential for monumental shifts in technological platforms that would render definitions obsolete or indeed harmful to developments that might otherwise take place in the market.”); *see also Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services*, Notice of Proposed Rulemaking and Order, 16 FCC Rcd 596, ¶ 21 (2001) (“The Commission traditionally has taken a flexible approach to standards and generally does not mandate a particular type of technology, leaving such an outcome to the marketplace. As an example, there are several standards being used for PCS, such as CDMA, TDMA, and GSM. We anticipate that a similar approach would occur with the onset of advanced wireless services.”).

⁸ 47 C.F.R. §§ 76.1200 – 1205 (requiring CableCards); § 76.640(b)(4)(requiring IEEE 1394 interfaces).

delivering video programming or home networking and do not allow consumers to drive demand.

As several recent petitions request, the Commission should eliminate the IEEE 1394 interface requirement. In 2003, the Commission’s 1394 requirement was adopted as a “means of ensuring the connectivity” of set-top boxes.⁹ At the time, IEEE 1394 was the only interface available that could accomplish both home networking and the recording of protected of cable video content.¹⁰ But since then, the 1394 output has gone largely unused, yet it imposes substantial costs on consumers.

As the pending waiver petitions document, the requirement to provide set-top boxes that incorporate an IEEE 1394 interface hinders rather than promotes innovation, interoperability and consumer benefit.¹¹ Manufacturers can provide consumers with a richer media experience at lower cost through the use of current technologies. As Intel Corporation reported to the Commission, “the implementation costs of IP are a few cents per device, as compared to more than \$5 for a chip that supports IEEE 1394.”¹² As home networks become more common and consumers demand more connectivity between their home entertainment systems, personal computers, and mobile devices, the marketplace is responding to those demands with new and better technologies. Most home networks today

⁹ *Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, Second Report and Order and Second Further Notice of Proposed Rulemaking, 18 FCC Rcd 20885, ¶ 24 (2003).

¹⁰ Petition of Intel Corp. for Waiver of 47 C.F.R. § 76.640(b)(4), CS Docket No. 97-80 at 7 (filed Oct. 7, 2009) (“Intel Petition”).

¹¹ *See, e.g.*, Request for Waiver of Motorola, Inc. CS Docket No. 97-80 (filed Nov. 25, 2009) (“Motorola Request”); Intel Petition.

¹² Intel Petition at 5.

rely on commonly-used IP connectors, such as Ethernet, Multimedia over Coax Alliance (“MoCA”), and wireless IP, rather than 1394. To the extent that consumers do use the 1394 interface, such use is generally limited to the transport of data files from digital cameras and other electronic devices to personal computers.¹³ But even in that context, the 1394 interface is being replaced with USB and other digital connectors, and virtually every network router sold today uses IP. Thus, a broad waiver that applies to all set-top boxes is appropriate here because compliance with Section § 76.640(b)(4) uniformly harms consumers and providers with no redeeming benefits. This waiver should apply universally to all set-top boxes and not simply to set-top boxes in the retail market as TiVO suggests;¹⁴ doing otherwise would distort the market and hinder competition.

Similarly, it is time to do away with the expensive and unsuccessful CableCard mandates. As the Commission recently acknowledged, “CableCARD has not achieved its intended goals,”¹⁵ yet this cable-centric approach has added significant costs to consumers and competitive providers. In September, the National Cable & Telecommunications Association reported that over the last five years, consumers have only requested 443,000 CableCards from the ten largest incumbent cable multiple system operators.¹⁶ And the provision of CableCards and CableCard interfaces add significant costs without adding functionality for users. In fact, the inclusion of CableCard

¹³ See Motorola Request at 5.

¹⁴ Petition for Waiver of Tivo Inc., CS Docket No. 97-80 (filed Nov. 6, 2009).

¹⁵ *National Broadband Plan Policy Framework Presentation* at 19 (Dec. 16, 2009).

¹⁶ Letter from Neal M. Goldberg, National Cable & Telecommunications Association, to Marlene H. Dortch, Secretary, FCC, CS Docket No. 97-80 (filed Sep. 29, 2009).

interfaces is estimated to add \$200 to the cost of manufacturing televisions.¹⁷ CableCards also add substantial costs and inefficiencies for new video providers like Verizon that do not deliver video the same way as a traditional cable operator. These providers must either reengineer their networks to accommodate CableCards – as Verizon did – or offer two separate pieces of equipment to permit decryption and navigation of their video networks. Both options are costly and deter competition from new entrants.

Therefore, to further encourage progress and innovation in home networking, the Commission should sweep aside outmoded requirements such as these that have not produced useful benefits and have been overtaken by technological advances. And as the Commission considers ways to further its video and broadband goals, the Commission should avoid similar results going forward by turning away from the failed approach of imposing technology mandates, encouraging market-based solutions that follow consumer demand, and removing existing, outdated requirements related to these issues.

V. To Address Obstacles to Video Convergence, The Commission Should Encourage the Industry To Work Openly and Diligently on the Development of Platform- and Technology-Neutral Solutions (Q. D).

As the Commission has recognized in the past, its most effective role is “to ensure that the marketplace is conducive to investment, innovation and meeting the needs of consumers.”¹⁸ With this in mind, Verizon is encouraged by the Commission’s initial

¹⁷ Jeff Baumgartner, *Whiter the CableCard?*, Light Reading’s Cable Digital News (Dec. 7, 2009) available at http://www.lightreading.com/blog.asp?blog_sectionid=419&doc_id=182456&site=cdn.

¹⁸ *Deployment of Wireline Service Offerings Advanced Telecommunications Capability*, Mem. Op. & Order & Notice of Proposed Rulemaking, 13 FCC Rcd 24011 ¶ 2 (1998); *Deployment of Wireline Service Offerings Advanced Telecommunications Capability*, 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 and losers, or favor one technology over another.”).

consideration of home gateway devices and looks forward to more information on this proposal.¹⁹ Such devices may be beneficial so long as they are truly network agnostic and incorporate standards that are created by groups open to (and with broad participation by) all types of providers and other interested stakeholders. The Commission should thus further encourage the industry to work openly and diligently on the development of platform- and technology-neutral solutions that benefit consumers while encouraging continued evolution of the technology. The use of such standards will promote consumer welfare and competitive neutrality as well as video convergence. For the reasons noted above, however, the Commission should not create new technology-specific mandates related to home gateway devices, as new regulatory requirements are unlikely to keep pace with the evolution of the technology and marketplace.

As a general matter, consumers and video competition will benefit when technical standards are set by open American National Standards Institute-accredited standards-setting bodies with broad participation and open membership, not private coalitions or groups beholden to one subset of the industry. In fact, the Alliance for Telecommunications Industry Solutions (“ATIS”) is already working on several relevant projects in this area. For example, the ATIS IPTV Interoperability Forum has been developing a suite of global IPTV standards that defines an end-to-end interoperable solution for the next generation of multimedia services.²⁰ ATIS is also currently

¹⁹ See *National Broadband Plan Policy Framework Presentation* at 20.

²⁰ See ATIS, IPTV Interoperability Forum, *available at* <http://www.atis.org/IIF/index.asp>.

developing an IPTV Downloadable Security specification that is interoperable and agnostic as to the choice of video delivery system.²¹

Standards established by neutral and open industry standards-setting groups avoid many of the problems associated with standards created by exclusive bodies like CableLabs, including the need for providers and manufacturers to use proprietary technology and enter into restrictive agreements such as the CableCARD-Host Interface License Agreement. In the past, the Commission has largely focused on cable-centric technological approaches when considering navigation devices. Proprietary cable-centric technologies developed by and for the cable industry assume the existence of traditional cable networks, and as a result, suppress innovation and hamper competition from alternative video providers. Rather than repeat those mistakes and hamper continued innovation and competition by embracing standards that only work for traditional cable providers, the Commission should encourage the use of standards that are platform- and technology-neutral.

VI. Conclusion

Consumer demand is driving video device innovation and video convergence. The Commission should further encourage innovation and competition by broadly waiving failed and outdated technology mandates, such as the 1394 requirement, and instead encouraging network agnostic solutions and platform- and technology-neutral standards setting through open industry standards setting groups.

²¹ See ATIS, AISP.6-IPTV Downloadable Security Incubator (IDSI), *available at* <http://www.atis.org/idsi/>.

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