

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

A National Broadband Plan)	GN Docket No. 09-51
For Our Future)	
)	
International Comparison and Survey)	GN Docket No. 09-47
Requirements in the Broadband)	
Data Improvement Act)	
)	
Inquiry Concerning the Deployment of)	GN Docket No. 09-137
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)	
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)	
Implementation of Section 304 of the)	CS Docket No. 97-80
Telecommunications Act of 1996)	
Commercial Availability of Navigation Devices)	

REPLY COMMENTS—NBP PUBLIC NOTICE #30

**REPLY COMMENTS OF THE
NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION
ON NBP PUBLIC NOTICE #27**

William A. Check, Ph.D.
Senior Vice President, Science & Technology

Andy Scott
Vice President, Engineering

Neal M. Goldberg
Steven F. Morris
The National Cable &
Telecommunications Association
25 Massachusetts Ave., N.W., # 100
Washington, D.C. 20001-1431
(202) 222-2445

Paul Glist
Paul Hudson
Davis Wright Tremaine LLP
1919 Pennsylvania Ave. NW
Washington, D.C. 20006-3402
Counsel for The National Cable &
Telecommunications Association

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Table of Contents

	Page
Executive Summary	iv
Introduction.....	3
I. THE CABLE INDUSTRY IS PURSUING MULTIPLE PATHS FOR INNOVATION AND A RETAIL NAVIGATION DEVICE MARKET.....	4
A. Television and the Internet.....	5
1. “TV Everywhere”	6
2. Alternative IP Delivery to PCs and Other IP-Enabled Devices.....	6
3. Gateway	7
4. Internet to the Television	7
B. Promoting Home Networking.....	7
1. Digital Living Network Alliance (DLNA)	8
2. Digital Entertainment Content Ecosystem (DECE).....	8
3. Multimedia over Coax Alliance (MoCA).....	9
C. Building a Retail Market in Navigation Devices.....	9
1. Software-Based and Downloadable Security.....	9
2. tru2way	10
3. Flexible Specifications for Innovation in Retail Devices	10
II. THE OVERSIMPLIFIED GATEWAY PROPOSALS ARE INCOMPLETE, AND A MANDATE TO IMPLEMENT THEM WOULD IMPOSE MASSIVE DELAYS AND COSTS AND WOULD STIFLE INNOVATION	11
A. The Gateway Proposals are Missing Essential Solutions for Delivering Commercial Television Services Over Home Networks.....	11
1. Basic “Television” Functionality is Missing	12
2. Communication Protocols are Missing.....	12
3. Security and Content Protection are Missing.....	12
4. Service Discovery is Missing.....	15
B. A Mandate the Proposed Gateway Solutions Would Impose Crippling Delays and Stifle Diverse, Innovative Approaches.....	15
C. The Gateway Proposals Would Impose Massive Costs Exclusively On MVPDs and Their Customers to Re-Invent MVPD Services	19
1. The Proposed Gateway Mandate Would Require MVPDs to Reinvent Their Services.....	19
2. The CE Industry is Not Making Any Commitment or Assuming Any Responsibility or Liability to Make a Gateway Solution Work.....	22
III. THE COMMISSION SHOULD PROCEED WITH CAUTION IN ACTIONS THAT MAY RESULT IN PICKING A TECHNOLOGY WINNER	23
A. Congressional Directives and Commission Experience Counsel for Restraint	23
B. There is No One Home Networking “Solution” for the Commission to Choose	26
C. Technology and Inter-Industry Cooperation are Rapidly Evolving	26
D. Consumer Choice has Never Been Greater	28
IV. THE COMMISSION MUST RESPECT LEGAL BOUNDS	29
V. OTHER CLAIMS AGAINST CABLE ARE UNFOUNDED	34
A. MVPDs Use Set-Top Boxes to Innovate and Compete, Not to Undermine Competition	34

B. Existing Licenses Promote Innovation and Competition While Protecting Content and Cable Customers	36
C. 1394 Failed in the Marketplace, Not From Lack of Cable Operator Support	38
CONCLUSION.....	38

EXECUTIVE SUMMARY

Cable operators are committed to providing content to consumers where and when they want it, on all possible consumer devices, and for those devices to be innovative platforms for new applications. We want consumers to be able to buy devices at retail that can be used to access and watch cable content among their video sources. And we are building a better, faster Internet that has enabled—and will continue to enable—the explosion of web-based video offerings on a variety of devices.

The cable industry is currently engaged in at least ten cross-industry projects that advance the Commission’s goals. Given the popularity of Internet content and of the proliferation of viewing devices, we believe it is a competitive necessity to bring Internet content to the television and to bring cable content to retail viewing devices.

- Cable operators are testing and exploring models like TV Everywhere that would enable multi-channel video customers to enjoy TV programming they receive from their MVPD on personal computers and other IP connected devices at no extra charge.
- Cable operators are leveraging Internet protocol (IP) technology so that cable programming and services can be delivered to personal computers and other IP-enabled devices and so that CableCARD-enabled devices can connect directly to PCs and home networks.
- Cable operators are developing residential gateways that can consolidate multiple set-top box functionalities and provide signals to a wide variety of home receiving devices.
- Cable operators are beginning to deliver Internet content to consumers’ televisions via “widgets,” which enable consumers to access services such as Facebook and Twitter, and Internet video.
- Cable operators reached agreement with the satellite, telephone, information technology (IT) and consumer electronics (CE) industries in the Digital Living Network Alliance (DLNA) to allow recorded MVPD content to be shared within home networks, and are continuing the work needed for handling live content, EAS, parental controls, closed captioning, and interactive features in the home network.
- Cable operators are working in the multi-industry Digital Entertainment Content Ecosystem (DECE) consortium to expand the “buy once, play anywhere” model used for DVDs, so that consumers may buy content from many sources (including the Internet,

retail, wireless, or cable) and have it forwarded over multiple distribution platforms to devices using different digital rights management (DRM) technologies.

- Cable operators are working across industries in the Multimedia over Coax Alliance (MoCA) to make in-home coaxial cable into a non-proprietary home networking architecture.
- Cable operators are pursuing downloadable, software-based and network-based security.
- Cable operators are deploying and supporting tru2way middleware to permit portability of interactive applications used on cable systems through a nationwide footprint.
- Cable operators have invited CE and applications developers to innovate further, and to present cable services along with new features, feeds, and functionalities.

Several comments propose that the Commission throw out the diversity of approaches outlined above and instead mandate the use of a standardized gateway to deliver all MVPD content to retail devices in the home network. The cable industry believes that a gateway is one of many possible approaches that the Commission should explore in a Notice of Inquiry on navigation device issues, but the specific gateway proposals made by commenters cannot form the basis for an immediate rulemaking in light of their many flaws and inadequacies.

Although the gateway proposals employ familiar terminology, they lack essential and fundamental elements of any basic “television” experience. They omit communication methods and protocols for the Emergency Alert System (EAS), closed captioning, parental controls, and Quality of Service (QoS). They also omit the content security and network security that protect the integrity of the cable platform and the privacy of our voice, video, and data customers. The importance of securing content is paramount for content distributors: for manufacturers, building “digital cable-ready” devices is an incremental, optional business; but for cable operators, getting it right at the outset is essential to cable operators’ entire core business. Get it wrong, and the flow of programming available to all cable consumers is put at risk.

Proposals to require an ANSI standardized gateway solution would entail crippling delays. Standards activities are extremely time consuming, often divisive, and sometimes used

by one faction to block the progress of another or to promote its own intellectual property portfolio. It would require years just to get the standards developed, at which point products would still have to be designed, manufactured, and brought to market. Technology development in the IP, Web, and home networking areas generally turn to non-ANSI, non-standards, business consortia that define specifications: DLNA, UPnP, DTLA, W3C (World Wide Web Consortium), IETF, MoCA, and others. Putting the brakes on innovation until competing industries all agree in an ANSI body is a recipe to paralyze innovation in networks and services.

There would be other marketplace disruption as well. New solutions to a host of copyright and patent issues would need to be developed. And the Commission would need to override existing contracts, technologies, and intellectual property rights, contrary to existing legal protections.

Moreover, gateway proponents are also proposing that MVPDs and their customers bear the entire cost for the development and deployment of this new method for delivering MVPD services. The actual gateway is only part of the cost. Massive reengineering in the network would also have to occur: new VOD menu structures, delivery of programming data, and program descriptions would need to be invented for interactive services, such as where key-clicks go, how fulfillment of t-commerce is achieved, or how advertising delivery is confirmed or measured.

What is conspicuously absent is any commitment from the proponents of new rules to assume any responsibilities at all. There is no commitment to design, build, deploy, or sell anything; no commitment to obtain commercial or intellectual property rights to use unbundled programming data, or even to build a guide; no commitment to support retail devices under

extended warranties, no commitment to actually update firmware as technology changes, and no commitment to answer a call when a customer has a problem.

Gateway proponents would place the Commission in the role of choosing a particular gateway technology, contrary to Congress's express admonition to the Commission *not* to pick technology winners and losers. Focusing only on cable set-top boxes or picking a "winner" in this dynamic and competitive marketplace would reduce consumer choice, eliminate other compelling and cost effective options preferred by many consumers, and derail innovation. In this case, there is not even one home networking "solution" for the Commission to choose. The market has already spoken, and as is often the case in technology, it is allowing multiple solutions to compete through millions of network-connected devices *today*. Imagine if the government had tried to "choose" a home networking solution only a few years ago: it might have chosen Token Ring, and shut out Ethernet; or chosen 802.11a, and shut out 802.11 b, g, and n; or chosen 10baseT, and foreclosed Gigabit Ethernet.

Marketplace developments also cast doubt on the need for the proposed technology mandates in this area. Consumer choice has never been greater, with competing MVPDs, Internet-enabled DTVs, home networks or networked PCs, Blu-Ray players, Xbox, PlayStation, Roku, Apple, TiVo, and Vudu devices, with Boxee set-tops, DivX platforms, Vudu and Skype coming soon directly to DTVs. All of these devices bring Internet video to the television, and none of them requires a cable set-top box. This explosion of diversity has developed not only in the absence of regulatory mandates but because of that regulatory flexibility. In contrast, the proposed mandates on MVPDs to reinvent their platforms to use a one-size-fits-all, consensus technology would slow or stifle the development of diverse technologies and services that drive competition, innovation, and expanded choice for consumers.

We do not claim to have all of the solutions for these complex issues, but we do know from experience that the technical, legal, economic and practical issues raised by the comments in this proceeding raise questions that require careful analysis and input from all stakeholders—just the type of situation for which a comprehensive Notice of Inquiry is appropriate.

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The National Cable & Telecommunications Association (NCTA) hereby submits its Reply Comments in response to the Public Notices issued by the Commission in the above-captioned proceedings.¹ NCTA is the principal trade association for the U.S. cable industry, representing cable operators serving more than 90 percent of the nation's cable television households and more than 200 cable program networks. The cable industry is the nation's largest provider of broadband service after investing over \$145 billion since 1996 to build two-

¹ See Public Notice, *Comment Sought on Video Device Innovation*, NBP Public Notice #27, DA 09-2519 (rel. Dec. 3, 2009) (“*Notice*”); Public Notice Reply Comments Sought In Support of National Broadband Plan, NBP Public Notice #30, DA 10-61 (rel. January 13, 2010).

way interactive networks with fiber optic technology. Cable companies also provide state-of-the-art competitive voice service to over 20 million customers.

Introduction

Several commenters have suggested a gateway approach for delivering MVPD services to consumer devices in the home network. The cable industry supports creative methods for delivering video services. In fact, as demonstrated below, cable operators and other MVPDs have been actively developing such approaches in a variety of forums such as DLNA. But making any such gateway work is by no means simple. Nor is it certain that a gateway approach would be the most effective method for providing content to consumers where and when they want it. However, one thing is certain: the range of options for consumers to access video content is *already* exploding. DBS and telephone companies now provide nearly 40% of MVPD subscriptions, and Internet-enabled DTVs, PCs, Blu-Ray players, Xbox, PlayStation, Roku, Apple, TiVo, Boxee, Slingbox, and Vudu devices are just the tip of the iceberg in a marketplace where choice and convenience are increasing exponentially.

This explosion of diversity has arisen not only in the absence of regulatory mandates, but because of that regulatory flexibility. It is precisely because innovators now have the freedom to go in different directions that many of the new ideas that are bearing fruit today were born. In contrast, attempting to mandate the specific gateway proposal technology in this highly dynamic marketplace would be a mistake. Neither the Commission, nor anyone else, can be certain that it could pick the “right” technology for the future. If MVPDs were forced to reinvent their platforms to use this one-size-fits-all technology mandate, progress and innovation would grind nearly to a halt. MVPDs would no longer be able explore other innovative content delivery alternatives to the mandated gateway, such as originating content from a “cloud” architecture.

That said, it is important that the Commission understand the dynamics and issues affecting the future of video services, and adopt targeted regulations where necessary to protect consumers. NCTA does not claim to have all of the solutions for these complex issues, but we do know from experience that these are the kinds of issues that require careful analysis and input from all stakeholders. This is why we have supported a Notice of Inquiry, and why in these reply comments we oppose a hasty issuance of a notice of proposed rulemaking based upon the gateway or other proposals in the record. These proposals lack far too many essential details to be considered ready for a rulemaking proceeding at this time. Even Public Knowledge admits that its proposal is only a “framework for conceptualizing,” a “starting point,” and that “it would be premature for [it] to suggest what the precise standards should be.”²

In Section I below, we describe our members’ diverse and extensive efforts to consider and develop new gateway and other delivery options for consumers. The depth of these efforts stands in contrast to the significant gaps in the gateway proposals offered here, as discussed in Section II below. This contrast leads to the conclusion that the Commission should be cautious in considering the gateway proponents’ proposals to pick winners and losers by mandating their particular technology approach.

I. THE CABLE INDUSTRY IS PURSUING MULTIPLE PATHS FOR INNOVATION AND A RETAIL NAVIGATION DEVICE MARKET

The video marketplace and the cable industry have undergone a sea change since 1996. Nearly four in ten subscribers are now taking their subscription video services from satellite, telephone, and other cable competitors, and still more are watching video on personal computer, Xbox, Roku, iPOD, mobile phone, Ethernet television, or other devices. Cable operators are

² CS Docket 97-80 *et al.*, Petition for Rulemaking of Public Knowledge, Free Press, Media Access Project, Consumers Union, CCTV Center For Media & Democracy, Open Technology Initiative of New America Foundation at 35 (Dec. 18, 2009)(“Public Knowledge Petition”).

committed to providing content to consumers where and when they want it, on all possible consumer devices, and for those devices to be innovative platforms for new applications. We want consumers to be able to buy devices at retail and know that cable content can be among their video sources. And we are building a better, faster Internet that has enabled—and will continue to enable—the explosion of web-based video offerings on a variety of devices.

The cable industry is currently engaged in at least ten cross-industry projects that we believe advance the Commission’s broadband and navigation device goals. Given the popularity of Internet content and of the proliferation of viewing devices, we believe it is a competitive necessity to bring Internet content to the television and to bring cable content to retail viewing devices. We are creating cross-industry home networking platforms, supporting multiple paths for a retail market in navigation devices, and building platforms for innovative application developers and device manufacturers to present cable’s video services along with new features and functionalities. Although this work is progressing rapidly, none of it is easy, fast, or without cost.

A. Television and the Internet

As we described in our December 22, 2009 comments, consumers already have a diverse and growing array of choices for bringing Internet content to their television sets.³ The 2010 Consumer Electronics Show exhibited yet another generation of devices including Boxee set-top boxes and DivX platforms bringing selected Internet video to the television; “Samsung apps” for

³ See, e.g., NCTA Comments at 10-11 (“Blu-Ray players and Xbox 360 link to Netflix. Roku streams Netflix, Amazon VOD, out-of-area Major League Baseball, and an emerging Channel Store. PlayStation Networks streams movies and TV episodes. Microsoft, Sony, and Nintendo have already sold over 45 million game consoles that can be used to watch Internet-delivered video. Apple TV, TiVo, and Vudu offer Internet video. PCs, laptops, and netbooks stream video through HDMI or other connections. Over 50 Internet-enabled TV models from Samsung, Sony, Panasonic, Vizio, and other top manufacturers are on sale now, equipped with Ethernet ports that can plug into a home network or a networked PC.”). See also NCTA Comments at 15 (explaining that some cable operators are beginning to deliver Internet content to their customers via “widgets,” which can enable access to services such as Facebook and Twitter, and Internet video, in much the same way that most retail devices do—preserving both the distributor’s and the content provider’s preferred look and feel for retail offerings.).

the TV; and CE manufacturers' announcements that they are integrating Vudu's download-to-own HD movie delivery service and Skype VoIP services into their DTVs. In addition to these marketplace developments, cable companies are pursuing similar efforts to expand the viewing options available to consumers.

1. "TV Everywhere"

One of several concepts, the TV Everywhere model would enable multi-channel video customers to enjoy television programming they receive from their MVPD on a variety of devices in addition to the television, including personal computers and IP connected devices. Comcast's Fancast Xfinity TV service already offers full-length programming from nearly 30 content providers, including major cable channels like HBO, Starz and Cinemax. Each of the TV Everywhere approaches announced by cable operators is non-exclusive. This means, for example, that Comcast's Fancast Xfinity TV offers consumers the opportunities to view the cable programming they already subscribe to on-line with no additional charge, but also allows television networks to license their content on other platforms, giving consumers more choices, not fewer.

2. Alternative IP Delivery to PCs and Other IP-Enabled Devices

Cable operators are working with multiple vendors to leverage IP technology so that their programming and services can be delivered to personal computers and other IP-enabled devices. In addition, the cable industry worked cooperatively with Microsoft to allow for interconnection of personal computers and CableCARD-enabled devices. Microsoft's keynote at CES 2010 featured a new CableCARD device delivering four simultaneous streams of live HD cable content to a Windows 7 Media Center PC.

3. Gateway

Cable operators are currently developing practical approaches to residential gateways that can consolidate multiple set-top box functionalities and provide signals to a wide variety of home receiving devices at varying bit rates suited to the analog, digital or HD capabilities of each. Time Warner Cable's most recent earnings call described one approach—a home-based gateway server. Sunflower Broadband envisions a set-top box able to download customized applications. A gateway architecture has promise, but may not be the most effective or flexible means for delivering content. Rather than pursuing a home gateway architecture, other approaches would move gateway functionality further back into the network, or even into a “cloud” architecture. Therefore, cable operators support the continued development of gateways as an option, but not current proposals that a particular gateway implementation must be used as the only means for communication with third-party devices.

4. Internet to the Television

Some cable operators are beginning to deliver Internet content to their customers via “widgets,” which can enable access to services such as Facebook and Twitter, and Internet video, in much the same way that most retail devices do—preserving both the distributor's and the content provider's preferred look and feel for retail offerings.

B. Promoting Home Networking

All of the foregoing efforts advance home networking, but in addition the industry is pursuing the following:

1. Digital Living Network Alliance (DLNA)

The cable industry has worked with the satellite, telephone, IT, and CE industries in DLNA⁴ to reach an agreement that allows recorded commercial video programming content to be shared within home networks using approved content protection technologies.⁵ Work continues to meet the more difficult challenges of handling live content in the home network, which requires consideration of such features as Emergency Alert System (EAS), parental controls, closed captioning, and interactive features.

2. Digital Entertainment Content Ecosystem (DECE)

DECE is developing a new approach to expand the “buy once, play anywhere” model used for DVDs.⁶ Comcast, Cox and other cable operators are active participants in this multi-industry consortium. Under this approach, consumers may buy content from many sources (including the Internet, retail, wireless, or cable) and have it forwarded over multiple distribution platforms to DECE devices using different DRM technologies. This will enable consumers to buy movies and other programming from multiple sources and then have it delivered to many different devices for viewing, even if the devices use different resolutions and security technologies.

⁴ DLNA promotes home networking specifications through agreements among consumer electronics, computer and mobile device manufacturers, component and software developers, content providers, cable, telephone and satellite distributors, and retailers.

⁵ *DLNA Enables Premium Commercial Content Across Home Networks; Alliance Joins with Service Providers to Develop Standards to Enjoy Commercial Video and Music on DLNA Devices*, DLNA Press Release (Jan. 7, 2010), available at http://www.dlna.org/news/pr/view?item_key=e2c163bfab8076edc2b33eba8293e82cd2f11e3e; see also Mike Robuck, *Gateways a Keystone for Future Cable Operator Architectures*, CEDMAGAZINE (Jan. 1, 2010), <http://www.cedmagazine.com/Article-Gateways-Cable-Operator-Architectures-010110.aspx>; Jeff Baumgartner, *Will Intel Go Inside Cable Multimedia Gateways?*, LIGHT READING'S CABLE DIGITAL NEWS (Sept. 25, 2009), available at http://www.lightreading.com/document.asp?doc_id=182289&site=cdn.

⁶ DECE includes consumer electronics, computer and mobile device manufacturers, component and software developers, content providers, cable distributors, and retailers.

3. Multimedia over Coax Alliance (MoCA)

Although cable operators already provide home networking services such as multi-room DVRs and wireless routers, the cable industry is also working across industries in MoCA to make in-home coaxial cable into a non-proprietary home networking architecture.⁷ Verizon delivers FiOS over MoCA; Time Warner Cable, Cox, and Bright House Networks have publicly committed to MoCA in their networks; and Intel has a tru2way server that runs on MoCA. MoCA transforms existing cable home wiring into spectrum suitable for the delivery and sharing of many more services to connected home devices.

C. Building a Retail Market in Navigation Devices

All of the foregoing efforts advance the goal of fostering a retail navigation device market, and in addition the industry is pursuing the following:

1. Software-Based and Downloadable Security

As content providers grow more comfortable with new security technologies, major operators are actively working on software-based and network-based security approaches. Cablevision is deploying a new downloadable security technology, having been given greater room to innovate under a waiver from the requirements to include a CableCARD slot on each operator-supplied set-top box. By reducing the need for specific hardware in receiving devices, any of these approaches holds the possibility of enabling a wide variety of consumer devices to securely access two-way cable programming and services.

⁷ MoCA develops specifications for the transport of digital entertainment and information content over in-home coaxial cable. MoCA includes consumer electronics manufacturers, cable, telephone, and satellite distributors, and retailers.

2. tru2way

With help from over a dozen independent CE companies and more than 50 other equipment, application, and implementation vendors, the cable industry voluntarily developed tru2way middleware to permit portability of interactive applications to tru2way retail devices through a nationwide common software platform. The middleware is now an ANSI/SCTE, ATSC, and an ITU standard. The cable industry is rolling out the tru2way platform across the industry and deploying millions of tru2way-enabled set-top boxes. The industry is also undertaking enormous engineering efforts to port interactive applications to the tru2way platform, including multiple guides, multiple VOD applications, switched digital video applications, interactive advertising, Caller-ID on the TV, email viewers, on-screen subscriptions, and even the TiVo interface. Panasonic tru2way DTVs have been available at retail in Chicago, Denver, and Atlanta. The multi-industry tru2way effort enables a platform for development of innovative third-party applications.⁸

3. Flexible Specifications for Innovation in Retail Devices

Rather than limiting retail devices to replicating the cable set-top box, the cable industry has invited device manufacturers to present cable services along with new features, feeds, and functionalities. The licenses and specifications for building one-way and two-way “digital cable ready” retail devices invite and encourage the addition of features and functionalities—including connectors for accessing the Internet—in retail devices. They also invite the addition of new

⁸ If the goal of the Commission is to promote broadband adoption by forcing the combination of Internet and television in a ubiquitous device, it would do better to choose the television itself for its mandate rather than the set-top box. If the Commission’s goal is to bring Internet and cable content together in retail devices, the fastest route forward would be to simply require Internet-connected TVs to implement the tru2way platform which, among other things, permits the DTV manufacturer to add Internet access to any tru2way device. Approximately 35 million TVs are sold each year compared with approximately 4 million set-top boxes deployed. Almost all higher-end TVs have internet connectivity. A mandate to include both Internet access capability and tru2way in all DTVs would spur broadband adoption faster than a mandate to create new set-top boxes or new gateway devices. Tru2way has been offered for use by other MVPDs as well, and is available at no cost with an open source reference implementation.

recordable digital outputs and/or content protection technologies, either through a CableLabs process or directly through motion picture studio agreements, with specific rights to appeal to the Commission. These arrangements are only one part of the *Two-Way MOU*, which resolved the complex business terms surrounding the deployment of tru2way, including device certification, innovation, protection of consumers' experience and investment, content protection, and CableLabs' specification-setting processes.

* * * *

We cannot predict that these particular concepts will become reality. Many technical and business issues remain to be studied and addressed, and even then, it is consumers, and not the cable industry, who will ultimately decide whether new services will succeed or fail. But we can say with confidence that these projects give a flavor of the dramatic changes that are coming to the video marketplace both from MVPDs and other parties, unless such diverse innovation becomes precluded by regulation.

II. THE OVERSIMPLIFIED GATEWAY PROPOSALS ARE INCOMPLETE, AND A MANDATE TO IMPLEMENT THEM WOULD IMPOSE MASSIVE DELAYS AND COSTS AND WOULD STIFLE INNOVATION

A. The Gateway Proposals are Missing Essential Solutions for Delivering Commercial Television Services Over Home Networks

As noted above, home gateways are one of many options that cable operators are exploring to expand viewing choices for consumers. TiVo, CEA, and Public Knowledge have presented variations on seemingly simple gateway solutions for delivering MVPD services into home networks and retail devices. Their proposals employ familiar terms—MPEG-2 and MPEG-4, “UPnP,” “open source,” TCP/IP and HTTP, 100 Mb/s Ethernet, WiFi, XML, and RSS. But their proposed solutions are so lacking in detail, and fail to address so many key issues, as to be wholly unworkable even as a voluntary option, much less a regulatory mandate to the

exclusion of other approaches. It would therefore be premature and misdirected for the Commission to view these proposals as a basis for the immediate rulemaking their proponents request.

1. Basic “Television” Functionality is Missing

The gateway proposals fail to specify essential and fundamental elements of the basic “television” video experience, including communication methods and protocols for EAS, closed captioning, parental controls, and Quality of Service (QoS). DLNA is diligently working on these issues in an open multi-industry, multi-MVPD consortium, but the work is not yet complete and certainly not ready to be adopted by rule or supplanted by a rulemaking.

2. Communication Protocols are Missing

As a second example, Public Knowledge proposes http as a communication protocol for the gateway, and that no MVPD be permitted to deliver service in any other way.⁹ But http (as used on the Web) does not contain all of the fields and values needed to provide cable services. It does not include a field with a client identifier required to authenticate the client and secure delivery to an authorized user or to learn the display capability of the client in order to optimize display.

3. Security and Content Protection are Missing

As a third example, security and content protection have been essentially ignored. CEA proposes that retail devices communicate with MVPD headends over the Internet using “standard TCP/IP protocols,” rather than utilizing the two-way return path now engineered into cable

⁹ Public Knowledge Petition at 37 and Appendix Item 1.

plant.¹⁰ This could open devices and networks to undetectable rogue software that can be easily downloaded over the Internet causing harm to the cable network, as well as other consumers on the network. The mistake would undo years of work by the cable industry that protects the security and integrity of the cable platform and the privacy of our voice and data customers.

Public Knowledge and CEA are also silent or ambiguous about the extent of content protection that retail devices must provide to commercial content. Public Knowledge has even previously said that “the Commission lacks jurisdiction to mandate that technological protection measures be adopted,” and suggested that content owners should be left only to the protections afforded by copyright law.¹¹ Whether or not the Commission has the authority to mandate a particular content protection measure, it does not have the authority to impose other mandates under Section 629 that fail to protect cable content.¹² In Section 629(b), Congress specifically prohibited the Commission from adopting regulations that would “jeopardize security of multichannel video programming and other services offered over multichannel video programming systems, or impede the legal rights of a provider of such services to prevent theft of service.”¹³ The Commission has accordingly recognized that content protection tools must work in retail navigation devices to assure the operator’s access to programming: “Service theft is a serious matter. Failure of access control or security systems will both interfere with

¹⁰ CEA Comments at 10. In tru2way, return path communication is accomplished by a DOCSIS Secure Gateway (DSG) or other legacy communication protocols. These methods ensure the security of the upstream private cable network.

¹¹ Public Knowledge Petition at Appendix Item 1; CS Docket 97-80 et al., Comments of Public Knowledge et al., at 4 (Aug. 24, 2007).

¹² For example, Public Knowledge proposes that retail devices be authenticated to access all content by using software-based certificates. Public Knowledge Petition at Appendix Item 3.

¹³ 47 U.S.C. § 549(b). *See also Conference Report* at 181, *reprinted in* 1996 U.S.C.C.A.N. at 194 (“Cable and other telecommunications operators have a valid interest, which the Commission should continue to protect, in system or signal security and in preventing theft of service”).

incentives to produce programming for the market and to increase the cost of service to those who do subscribe.”¹⁴

Content suppliers insist that if cable operators do not include the end-to-end tools for securing content and accommodating new business models, or do not keep innovating in this area, content will migrate to other platforms. If new outputs and content protection technologies on retail devices do not guarantee at least the same level of security provided by the operator’s own devices, those devices could undo the secure platform on which content owners rely to make available their high-value content to cable operators and our customers. If that were to happen, gateway proposals that are intended to expand consumers’ enjoyment of content will instead reduce or eliminate consumer choices in high value content. Under Section 629(b), the Commission cannot lawfully force MVPDs to weaken the security of their services and thereby foreclose consumers from receiving content that requires stronger security.

The importance of securing content is paramount for cable operators: for manufacturers, building “digital cable-ready” devices is an incremental, optional business; but cable operators that fail to protect content risk losing the content that is essential to their entire core business. The Commission therefore needs to elicit more information from content owners regarding the expectations they have for video delivery systems, and the technological measures available to MVPDs and other video providers to meet those expectations, before it can be ready to consider any gateway-related rules.

¹⁴ *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, CS Docket 97-80, Notice of Proposed Rulemaking, 12 FCC Rcd 5639, 5654, ¶ 31 (1997).

4. Service Discovery is Missing

As a fourth example, TiVo claims that service discovery can be implemented through a mechanism that only provides link layer and IP address allocation.¹⁵ This is not sufficient to provide a networking solution for MVPD services any more than it would be sufficient to merely plug a PC into a network and expect it to operate as a fully functional home network for all services. DLNA's experience in this area underscores the complexity of implementing home networking solutions. In 2007, DLNA claimed that it had already solved home networking. Since then, DLNA discovered the need to create a commercial video profile to handle retrieval of recorded content. It is not enough to say "just use MPEG-2," when DLNA has many MPEG-2 and MPEG-4 formats which would have to be specified in any gateway solution. DLNA is diligently working to meet the more difficult challenges of handling live content, such as EAS, parental control, closed captioning, interactive features and other features that are part of live "television." The Commission cannot responsibly entertain proposed rules that lack any solution for EAS, closed captioning, or protecting children. Among the other features to be defined by DLNA are tuner sharing; support for content streaming using RTP; parameterized QoS to support bandwidth reservations; enhanced remote user interface (RUI); diagnostics support; and expanded video/audio formats (e.g., Flash). Gateway proponents have grossly over-simplified what is needed to deliver commercial "television" services into the home network.

B. A Mandate the Proposed Gateway Solutions Would Impose Crippling Delays and Stifle Diverse, Innovative Approaches

Every MVPD today is delivering its services to consumers through highly sophisticated networks and devices that are managed end-to-end and updated to meet new competition and the

¹⁵ TiVo Comments at 14 (proposing Zero config); *see also* Public Knowledge Petition at Appendix Item 4.

demand for new services from consumers (e.g., DVR, HD, 3D, advanced codecs, or IPv6 addressing). Gateway proponents argue that instead of using any of the set-top boxes in use today, each MVPD must instead deliver services through a new, to-be-invented gateway. In some formulations, the gateway is “agnostic” and “universal,” with the capability of receiving services from all MVPDs.¹⁶ In other formulations, the gateway might be unique to each MVPD network, but has a standardized output and can somehow convert all home networking upstream traffic into the proprietary upstream signaling of each network.¹⁷ Public Knowledge proposes that the gateway would include a 100 Mb/s Ethernet port and possibly Wi-Fi.¹⁸ In CEA’s formulation, no MVPD gateway may offer recording or viewing capabilities, or have other features. Public Knowledge adds that no MVPD may use any other approach to delivering service, which would forbid MVPDs from providing simple connections for consumers who do not have or want home networks.¹⁹ Public Knowledge proposes that the gateway must be standardized in an ANSI standards process.²⁰

These demands call for massive standards activities required in multiple standards bodies for multiple services, interfaces, and technologies. Standardization and related intellectual property clearances are extremely time consuming. Even where parties agree on a solution, such as bringing EAS into joint CEA and SCTE standards, the process of comment resolution and reconsideration ballots (in SCTE) or pre-ballot comment resolution (in CEA) and adoption took

¹⁶ *See e.g.*, Net Magic Comments at 3.

¹⁷ Public Knowledge Petition at Appendix Item 1.

¹⁸ *Id.*

¹⁹ *Id.* at 37 and Appendix Item 1.

²⁰ *Id.* at 32.

two and one-half years. It took CEA *thirteen years* to reach consensus among its members on how to standardize channels for television reception of analog cable channels.²¹

Where parties' interests diverge, standards processes take even longer, and can be turned into forums where some factions seek to block the progress of another, seek to promote their own intellectual property portfolios, or try to shift costs from one party to another. There are numerous instances in which standards proceedings have been delayed for years as one industry or group of parties sought changes to shift costs or other burdens or promote the use of their own favored technology.²²

In today's highly competitive video marketplace, MVPDs and new entrants alike design, deploy, and utilize network and premises technologies to innovate quickly and deliver new features to consumers. This in turn spurs competitive response by others in the market.²³ Each MVPD seeks to augment its own technology to compete with the best features of the others, and the consumer is the beneficiary. As the Department of Justice recently told the Commission, "the advent of DBS competition, which introduced digital delivery systems, has spurred cable companies to upgrade their facilities to include more channels, video-on-demand, HD

²¹ Under the CEA standards process, IS-6 became IS-132, which became EIA-542, which became CEA-542B. It took more than 13 years to produce the very simple Cable Channel Plan standard. This slow process was one of the reasons that led to the development of CableLabs, so that the cable industry could innovate more rapidly.

²² For example, ten years before the *One-Way MOU*, the cable industry had chosen QAM rather than VSB as the method for digital cable transmission. Zenith, the intellectual property holder for the rejected VSB system, sought to use the process of amending SCTE 40 to put VSB transport into SCTE 40. It slowed the standards process by submitting the majority of objections to SCTE 40 and an unsuccessful appeal to ANSI, in an effort to impose VSB transport onto the cable architecture. This process took years to resolve. Similar efforts delayed efforts by cable and CE manufacturers to adopt a joint test suite for UDCPs, which makes normative reference to SCTE 40. CE manufacturers refused to build retail devices that met the specifications followed by manufacturers of leased set-top boxes to isolate signal from noise. At the time, all cable-operator leased set-top box vendors used dual conversion tuners in order to work well across the nation on cable systems with various degrees of noise. CE manufacturers insisted on cutting their own costs by pennies with single conversion tuners and sought to shift the costs of the change to cable operators' networks. After years of dispute, and with the pressure of looming Commission deadlines, CE got what it wanted in the test suite, but the upshot was that these (cheaper) retail devices would not work where leased devices would, unless cable installers rewired the entire premises.

²³ See NCTA Comments at 8 ("Satellite uses QPSK; cable responds with QAM, DOCSIS 3.0, and tru2way. Verizon devotes an entire fiber wavelength to its linear video offering and goes all-digital; AT&T switches all channels to gain bandwidth; cable responds with switched digital video of its own.").

programming, and personal video recorders,” and that competition from telephone companies is promoting quality improvements as well.²⁴

Subjecting this dynamic marketplace to an ANSI standards process in which each industry participant can delay or veto the innovations of the other would thwart, not advance, innovation. DBS could not have offered MPEG-4 if it had to await elaborate industry consensus or rule change. AT&T still would not have deployed U-verse if it were required to wait until IPTV issues were set through industry consensus or by an ANSI-accredited body. Had Verizon deferred its hybrid IP/QAM offering until such processes were completed, it too would still be waiting to enter the marketplace.

This is why technology development in the IP, Web, and home networking space does not require that all specifications be developed in an ANSI standards body. Smart Grid, for example, already has millions of devices based on UPnP (which is the foundation for DLNA), but UPnP is not an ANSI body. Neither are W3C (World Wide Web Consortium) or IETF, both important to the web. MoCA is not an ANSI standard, but Verizon and DirecTV use it; Time Warner Cable, Cox, and Bright House Networks have publicly committed to MoCA in their networks; and Intel has a tru2way server that runs on MoCA. NIST approved PacketCable specifications for Smart Grid, even though they were developed as CableLabs specifications. It is common in technology to allow design to evolve from competing solutions to specifications and then eventually to move specifications into standards.²⁵ Putting the brakes on innovation until competing industries all agree in an ANSI body is a recipe to paralyze innovation in networks and services.

²⁴ GN Docket 09-51, *ex parte* submission of Department of Justice at 16 (Jan. 4, 2010).

²⁵ Under the *Two-Way MOU*, an Advisory Board composed of representatives of the cable television, content, consumer electronics, and information technology industries has a formal role in requesting a vote on specifications to consider whether specification changes that raise costs have adequate justification.

C. The Gateway Proposals Would Impose Massive Costs Exclusively On MVPDs and Their Customers to Re-Invent MVPD Services

Every MVPD today has made massive investments in order to deliver its services to consumers. Gateway proponents are proposing an entirely different method for delivering MVPD services as the new, and only, means for delivering MVPD service, developed and paid for exclusively by MVPDs and their customers. One comment suggests that the “technology exists.”²⁶ As discussed above that is simply not true for the gateway itself, nor for the massive changes required in the network to make a gateway actually function.

1. The Proposed Gateway Mandate Would Require MVPDs to Reinvent Their Services

The gateway proposals would require current MVPD technology development and deployment to be stopped and redesigned. As we illustrate below, the CEA proposal would discard all of cable’s work and require the creation, development and deployment of many new inventions.

- New connections would need to be invented, developed, and standardized between the headend and set-top to enable delivery of VOD programs and “trick play” playback such as fast forward or pause. Today, cable operators use a variety of VOD back end and delivery systems and combinations that are “translated” by tru2way middleware so that they can operate on retail devices.
- The unique and proprietary menu structure used by each VOD vendor would need to be restructured, and the upstream channel from the home to the headend redesigned, so that CE devices could browse the new menu through a yet to be invented, standardized folder-subfolder architecture.

²⁶ DLNA Comments at 5.

- All cable operator VOD vendors would also need to revise their programming data and program descriptions, and somehow “give up” their intellectual property rights in these areas.

Commission rules would need to override existing contracts, technologies, and intellectual property rights.

- CEA has made no provision for integration of this new VOD protocol with the many different cable billing systems that exist today. The cable operator’s billing for customer purchase of VOD titles and payment to VOD program suppliers would be entrusted to an uninvited, untested native application inside a retail device that CEA does not wish to present for testing or certification. Again, the solution that exists today is to translate the network and billing system for retail devices by using the tru2way platform.

- The proposal would also require that programming data necessary to populate EPGs would be made available without middleware, via yet-to-be-invented protocols. Cable and CE companies specifically agreed that interactive devices would provide EPGs via middleware, first in the 2002 *One-Way MOU*, and again in the 2008 *Two-Way MOU* signed by leading cable, CE, and IT companies.²⁷ Cable operators’ interactive guides have since been ported to tru2way to provide retail devices with full access to the EPG. Cable operators further agreed to help

²⁷ See *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Docket 97-80, Further Notice of Proposed Rulemaking, FCC 03-3, 18 FCC Rcd 518, 539-48 (attaching “Cable-CE MOU”) (“*Navigation Devices FNPRM*”); CS Docket No. 97-80, Joint Status Report of the Consumer Electronics Association and the National Cable & Telecommunications Association, (Oct. 14, 2005) (“The parties have agreed to proceed on the basis that interactive Digital Cable Ready devices (iDCRs) will use the OpenCable Application Platform (OCAP). (OCAP is a middleware to which interactive cable services may be written so that they may run on multiple device platforms.”); CS Docket No. 97-80, Letters from Kathryn Zachem, Comcast, to Monica Desai, Chief, Media Bureau (May 28, 2008) (summary of two-way MOU) and (June 10, 2008) (text of two-way MOU); CS Docket No. 97-80, Joint Status Report of the National Cable & Telecommunications Association and the Consumer Electronics Association (July 29, 2008) (providing information about additional signatories to MOU); CS Docket No. 97-80, PP Docket No. 00-67 Letter from Neal Goldberg, NCTA, to Marlene Dortch (July 31, 2008) (providing information about additional signatories to MOU). The *Two-Way MOU* agreement was signed by the nation’s top six cable providers—Comcast, Time Warner Cable, Cox, Cablevision, Charter and Bright House Networks—serving more than 82% of all U.S. cable subscribers and passing over 105 million homes, as well as major CE and IT companies—Sony, Samsung, Panasonic, LG Electronics, Funai (known in the US under the brand names Philips, Magnavox, Sylvania, and Emerson), Digeo, ADB, and chip maker Intel.

populate an alternative CE guide with guide data for linear channels delivered via the CBS digital channel, so that consumers may have a choice of user interfaces within the same device.²⁸ Under CEA's proposal, all cable operator program guide vendors would instead need to deliver data in a yet-to-be-standardized guide form. Equally important, this proposal ignores the fact that cable operators do not own the EPG metadata they use in their own guides. This is the property of other companies who charge service providers and device manufacturers alike for the data. Commission rules would need to override existing contracts, technologies, and intellectual property rights in this area.

- The proposals assume without discussion that MVPDs will find new solutions to a host of copyright and patent issues, so that parts of service—such as VOD and EPGs—can be altered without running afoul of the hundreds of patents (e.g., SeaChange, Gemstar) around which current implementations have been developed. These are complex issues that were raised in some detail in prior rulemaking comments, but have never been answered.²⁹

- One proposal would require cable operators to provide free downloads of CE code images to retail DTVs (for example, to change software and firmware on defective or outdated televisions, or to add new services and functions at the behest of the CE manufacturer) rather than using the commercially-available alternatives.³⁰ Firmware updates to TVs are already available to CE companies in the commercial data distribution market. For example, Update

²⁸ The guide data is delivered via the CBS digital channel for use by CE manufacturers who have license rights to use such guide data from the owner of the guide data. Comments by TiVo suggest that cable operators have opposed such competing guides. TiVo Comments at n. 8. What TiVo omitted was NCTA's actual statement in 2007: that CE could not assemble guides "regardless of ownership of the data or their lack of intellectual property rights to use such data." CS Docket 97-80 *et al.*, Reply Comments of the National Cable & Telecommunications Assn. at 27 (Sept. 10, 2007). The *Two-Way MOU* since negotiated a solution that provides guide data while protecting the property rights of the owners of the data and the owners of patents on grid guides.

²⁹ See CS Docket No. 97-80, Comments of the National Cable & Telecommunications Association (Aug. 24, 2007) at 43.

³⁰ CEA Comments at 16.

Logic offers a service using the PBS feed to directly update firmware in CE devices, to which Funai has already subscribed.³¹ Similar services may continue to emerge through other ubiquitous networks, such as CBS's recent data distribution agreement with Gemstar.³²

- The proposals include no apparent solution for interactive services, such as where key-clicks go or how fulfillment of t-commerce is achieved. As with VOD, t-commerce services would be entrusted to uninvented, untested native applications inside retail devices that CEA does not wish to present for testing or certification.

- Advertising is a cornerstone of the television business, and there is rapid innovation in advertising technologies—for replacement ads, pause ads, telescoping capabilities that invite the interested viewer to see a longer, stored video, and measurement techniques to confirm audience size and ad delivery. The gateway proposals reflect no consideration for how advertising delivery is confirmed or measured, or any of these other advanced features.

- Gateway proponents fail to explain how the gateway can rapidly evolve to meet new demands. MVPDs, like CE manufacturers, launch services quickly in response to consumer demand, without awaiting multi-industry consensus or ANSI standardization. Consumers gain immediate choice: video-on-demand, DVRs, technologies to allow more HD, faster broadband, advanced codecs, IPv6 addressing. A 3D channel has already been announced by DirecTV. There is no indication of how a universal standardized gateway can meet this pace of innovation.

2. The CE Industry is Not Making Any Commitment or Assuming Any Responsibility or Liability to Make a Gateway Solution Work

Gateway proponents appear to take the view that this massive redesign of all MVPD architecture and set-top boxes will be entirely at the MVPD's expense—with all MVPD

³¹ See Update Logic website: <http://www.updatelogic.com/updatetv.html>

³² *CBS to Carry Gemstar-TV Guide IPG Data*, MULTICHANNEL NEWS (Apr. 19, 2007), available at <http://www.multichannel.com/article/CA6435011.html>.

customers ultimately bearing that cost, whether they want it or not. What is conspicuously absent is any commitment from the CE industry to assume any responsibilities at all. CEA asks for massive redesign, but no CE manufacturer makes any commitment to design, build, deploy or sell anything. CEA asks for the dismantling of guides into free guide data, but CE makes no commitment to obtain commercial or intellectual property rights to use that data, or even to build a guide. CEA seeks free cable carriage of firmware updates to CE devices, but it makes no commitment to support retail devices under extended warranties, no commitment to actually provide the updated firmware to the consumer, and no commitment to answer a call when a customer has a problem.³³ Rather CEA would leave MVPDs to foot the entire bill.

III. THE COMMISSION SHOULD PROCEED WITH CAUTION IN ACTIONS THAT MAY RESULT IN PICKING A TECHNOLOGY WINNER

A. Congressional Directives and Commission Experience Counsel for Restraint in this Area

Gateway proponents would place the Commission in the role of choosing a particular gateway technology. Public Knowledge proposes that the gateway would include a 100 Mb/s Ethernet port and “possibly” Wi-Fi. CEA proposes that the gateway should exclude recording or viewing capabilities. If it adopted their call for a gateway mandate, the Commission would be forced to decide what is “in” the gateway and what is “out.” The Commission should be cautious in proposing to make such technology mandates, particularly based upon proposals that are not fully developed, that would specify features that MVPD customers may or may not want, and that would delay or prohibit MVPDs from launching innovative new services. Congress and the Commission have repeatedly counseled against having the government try to pick winners or

³³ Jenna Wortham, *Hey Google, Anybody Home?*, NEW YORK TIMES (Jan. 13, 2010) (detailing consumer problems after Nexus One was sold directly by Google to customers without carrier relations and without customer service support).

losers, which can lead to dead-ends (like 1394) or impede innovation.³⁴ Congress warned the Commission that in implementing Section 629, the Commission must “avoid actions which could have the effect of freezing or chilling the development of new technologies and services.”³⁵ Congress also narrowed the Commission’s prior technical authority to the minimum, leaving all features, functions, protocols, and other product and service options for selection through open competition in the market.³⁶ And it made clear that Section 629 was intended to allow equipment to receive MVPD services, not to receive some supplemental or derivative service that a CE manufacturer may wish its product to provide.³⁷

³⁴ *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.”); *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.”); *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.”)

³⁵ H.R. Rep. No. 104-458, at 181 (1996) (Conf. Rep.), *reprinted in* 1996 U.S.C.C.A.N. 124, 194.

³⁶ In 1992, Congress sought to address incompatibilities between premium functions and features of television receivers and video cassette recorders (“VCRs”) and cable scrambling, encoding, and encryption technologies, by directing the Commission to report on “means of assuring compatibility between televisions and [VCRs] and cable systems...,” and to establish technical requirements for “cable-compatible” or “cable-ready” retail converter boxes and remote controls. 47 U.S.C. § 544A(a)(1). The Commission was in the process of establishing overreaching technical standards when Congress stepped back in 1996 and expressly retracted the Commission’s technical authority and sought balance. 142 Cong. Rec. H1145, H1160 (daily ed. Feb. 1, 1996) (“Section 301(f) modifies the FCC’s authority in order to reign in the Commission’s ongoing rulemaking on cable equipment compatibility”). It stated that Congress’ compatibility goals could be achieved through much narrower technical standards that leave features, functions and protocols to be determined through the open market: “[C]ompatibility among televisions, video cassette recorders, and cable systems can be assured with *narrow technical standards* that mandate a *minimum degree of common design and operation*, leaving *all features, functions protocols*, and other product and service options for *selection through open competition in the market*. Telecommunications Act of 1996, § 301(f)(1), codified at 47 U.S.C. § 644A(a)(4) (emphasis added).

³⁷ See *Gemstar Int’l Group, Ltd.*, Mem. Opinion and Order, 16 FCC Rcd 21531, 21542, ¶ 31 (2001) (“Section 629 is intended to assure the competitive availability of *equipment*, including ‘*converter boxes*, interactive communications *equipment*, and other *equipment* used by consumers to access multichannel video programming and other services offered over multichannel video programming systems.’ The Commission has not found that the right to attach consumer electronics equipment to a cable system can be expanded to include the obligation by cable operators to carry any service that is used by such equipment, nor is the legislative history supportive of such a requirement. Indeed, the scope of Section 629 apparently was ‘narrowed to include only equipment used to access services provided by multichannel video programming distributors.’” (quoting S. Conf. Rep. No. 104-230 at 181 (1996)).

The Commission's prior attempts to anticipate marketplace developments in this area have been less than successful. It mandated the inclusion of a costly 1394 output in HD devices that almost no one uses.³⁸ Its integration ban has cost consumers approximately a billion dollars and counting,³⁹ in the name of supporting fewer than a mere 500,000 retail devices. In 2005, the Commission predicted that the integration ban would bring down the cost of CableCARDs and increase competition, but five years later the price of CableCARDs and CableCARD devices remain a significant burden and there continues to be a \$200 per unit cost to include a CableCARD slot in a television.⁴⁰ In 1998, the Commission predicted that it was unnecessary to impose any regulation on DBS set-top devices in order to assure that they would offer support for a retail market, but instead DBS has moved almost entirely away from retail to operator-owned, leased devices.

These were the predictions that the Commission made in this area at a time when the future of the video market was clearer than it is today. And the regulations based upon these past predictions were far more modest than the imposition of a single "right" gateway technology mandate for all home video services and devices. NCTA is not saying that the Commission should not try to predict the future, but in doing so it must learn from the past. Predictions that consumers will demand new means of accessing video content likely are accurate. Predictions of which technologies or parties will be best able to meet that demand likely are not. And

³⁸ See Section V.C., *infra*.

³⁹ See *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 (2008)(estimating that CableCARD adds about \$56 in cost to a set-top box). Even if a CableCARD only adds about \$56 in cost to a set-top box, then the cable industry has incurred approximately \$935 million to date to comply with the integration ban (*i.e.*, \$56 x 16.7 million = \$935.2 million).

⁴⁰ Jeff Baumgartner, *Whither the CableCard?*, LIGHT READING'S CABLE DIGITAL NEWS (Dec. 7, 2009) available at http://www.lightreading.com/document.asp?doc_id=185469&site=cdn (CableCARD slot and set top functionality adds about \$200 to cost of DTV); Comments of ACA and Comments of Baja (CableCARD requirements impose debilitating costs on many cable operators).

technology mandates based upon inaccurate predictions would likely hinder, rather than advance, the revolution in delivering next-generation video programming and broadband to American consumers.

B. There is No One Home Networking “Solution” for the Commission to Choose

A mandatory gateway would presumably be aimed to feed the home network, but there is no one home networking “solution” for the Commission to choose. The market has already spoken, and, as is common in technology, it is allowing multiple solutions to compete such as MoCA and HPNA. There are millions of network-connected devices *today*. Should they be outlawed? Imagine if the government had tried to “choose” a home networking solution only a few years ago: it might have chosen Token Ring, and shut out Ethernet; or chosen 802.11a, and shut out 802.11 b, g, and n; or chosen 10baseT, and foreclosed Gigabit Ethernet. Today, the Commission is being asked to jump into a fast moving market prematurely and propose adoption of a specific home networking “solution” in an immediate rulemaking.

C. Technology and Inter-Industry Cooperation are Rapidly Evolving

A brief look at what has happened in the area of navigation devices demonstrates how rapidly technologies and inter-industry cooperation are evolving. In 2007, CEA attempted to retrofit the cable industry with a “DCR+” approach which also offered *no* functional specifications, *no* standards, *no* intellectual property clearances, *no* prototypes, and *no* firm and enforceable commitment by *any* CE company to build anything. The DCR+ effort also began as a seemingly simple and effective way to make today’s interactive digital cable content as easily accessible as one-way unenhanced analog broadcasts. Public Knowledge endorsed the approach as “superior.”⁴¹ But when DCR+ was analyzed by engineering professionals with a deep

⁴¹ CS Docket 97-80 et al., Comments of Public Knowledge et al., at 2 (Aug. 24, 2007).

understanding of MVPD networks and services, it turned out that the proposal was anything but simple or effective. Within 18 months, every major CE manufacturer had abandoned the proposal and signed the *Two-Way MOU*.

The cable industry and CE and IT industries negotiated the *Two-Way MOU*, resolving the complex business terms surrounding the deployment of tru2way, including device certification, innovation, protection of consumers' experience and investment, content protection, and CableLabs' specification-setting processes. The cable industry provided the development tools and support for bringing two-way tru2way devices to market; and developed and deployed a tuning adapter to help TiVos built exclusively as "one-way" receivers to operate as "two-way" cable devices for the tuning of SDV signals. Under the *Two-Way MOU*, CE companies have a meaningful voice in CableLabs' specification change processes. The tru2way license terms clearly invite, encourage, and allow the innovations noted above for both networks and devices—including offering all linear cable content under a CE-branded and managed guide. The certification process provides for short-form certification and a path to self-certification.⁴² The licenses and specifications for building one-way and two-way "digital cable ready" retail devices invite and encourage the addition of features and functionalities—including connectors for accessing the Internet—in retail devices. They also invite the addition of new recordable digital outputs and/or content protection technologies, either through a CableLabs process or directly through motion picture studio agreements, with specific rights to appeal to the Commission.

⁴² CableLabs has worked closely with CE manufacturers to streamline the certification process so that products can get to market as quickly as possible. CableLabs provides certification testing on-demand every week, development lab time and interoperability events to any interested manufacturer, and even a free reference implementation to facilitate development and manufacture. Testing and certification are widely used to provide distributors, developers, consumers and retailers the assurance that products actually work. For example until Best Buy demanded testing and certification of HDMI, differing CE implementations prevented these "standard" interfaces from interoperating. *See* NCTA Comments at 20.

There are numerous other examples of such inter-industry cooperation. Cable, satellite and telcos cooperatively worked within DLNA to develop a better approach for delivering recorded content, and are now working on handling live television. In fact, DLNA is a prime example of a private, marketplace driven, multi-industry effort to solve complex technical issues for the benefit of consumers. In 2007, TiVo suggested that each cable operator be required to re-write its applications in order to run in a custom format unique to TiVo. Today, TiVo has ported its user interface to Comcast set-top boxes and sells DVRs directly to cable operators for use as leased devices (although it continues to advocate that the cable business model be dismantled). Likewise, cable is working across industry lines in DLNA, Digital Entertainment Content Ecosystem (DECE), Multimedia over Coax Alliance (MoCA), and in many other projects create cross-industry home networking platforms, support multiple paths for a retail market in navigation devices, and build platforms for innovative application developers and device manufacturers.

D. Consumer Choice has Never Been Greater

There is one sure way that the Commission can assure that consumers will be winners—by allowing the market to continue to develop without proposing premature and unwarranted technology mandates. As detailed in our Comments and in this Reply, consumers have never had so many options for bringing Internet video to the TV screen: Internet-enabled DTVs, home networks or networked PCs, Blu-Ray players, Xbox, PlayStation, Roku, Apple, TiVo, and Vudu devices, with Boxee set-tops, DivX platforms, Vudu and Skype coming soon to DTVs. Consumers may also access Internet video from. *All of these devices bring Internet video to the television, and none of them require a set-top box from a cable operator.*

IV. THE COMMISSION MUST RESPECT LEGAL BOUNDS

The proponents of a gateway mandate appear to be pursuing a goal of forcing MVPDs to deliver disaggregated content, stripped of the MVPD's unique guide, to be repackaged and rebranded as a third party's own service. Such an unbundling mandate is well beyond the scope of the Commission's authority. Section 629 is directed only to the assurance of a retail market for devices for the receipt of MVPDs' services.⁴³ Even if Section 629 allowed regulations requiring an MVPD's devices to receive the services of other parties, a mandate for all MVPD devices to use the gateway would violate Section 629(b)'s prohibition on regulations that would "jeopardize security" of MVPD services, and also Section 629(a)'s prohibition on regulations that would prohibit MVPDs from continuing to offer their own traditional set-top boxes.⁴⁴ And in any case, Section 629 simply cannot be read to authorize the Commission to forcibly unbundle and disaggregate MVPD systems and services, such as by requiring them to provide the underlying metadata for their guides. When Congress directs unbundling, it spells out highly detailed plans, as it did with for limited portions of the telephone networks of certain incumbent local exchange carriers. There is no hint of such legislative intent for MVPD systems.

Because a gateway mandate is not authorized by Section 629, the Commission cannot adopt it unless it identifies some other express authorization. This is because, among other reasons, Section 624(f)(1) bars any "Federal agency, State, or franchising authority" from "impos[ing] requirements regarding the provision or content of cable services, except as expressly provided in [Title VI]." In addition, Section 621(c) prohibits the Commission from

⁴³ See 47 U.S.C. § 549(a); see also *Gemstar*, *supra* note 37.

⁴⁴ 47 U.S.C. § 549(a) ("Such regulations shall not prohibit any multichannel video programming distributor from also offering converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, to consumers, if the system operator's charges to consumers for such devices and equipment are separately stated and not subsidized by charges for any such service.").

imposing any type of common carrier regulation on a cable operator's provision of cable services. The gateway proposals, in essence, are a call for turning MVPD systems into common carrier pipes for the delivery of disaggregated video content, by requiring cable operators to provide, on an indifferent and nondiscriminatory basis, guide data and access to content to all third parties.

To be clear, the cable industry has no objection to the use of competing guides: under the landmark *Two-Way MOU*, cable operators agreed to help populate a guide provided by the CE manufacturer in a tru2way device and agreed with CE manufacturers on specifications allowing multi-functions, multi-screens, and multi-feeds to work together. But cable operators are not unbundled transport carriers or one-stop shops for free content. Cable operators are video retailers. They operate under carefully negotiated programming licenses⁴⁵ and (in many cases) a dual revenue stream (subscription plus advertising) that has funded the cable industry, advanced networks, broadband deployment, cable programming networks, content producers, production staff, writers, actors, producers, directors—all to the benefit of consumers. Proposals to dismantle cable service ignore these basic economic underpinnings.

In the *Two-Way MOU*, the major CE manufacturers agreed that there should be no requirement for cable operators to provide services, metadata, or guide data in such a

⁴⁵ Negotiating such programming, copyright and content rights involves much more than technical bridges. Google and Microsoft are reported to have paid \$25 million for rights to incorporate the Twitter feed into their respective search engines. MVPDs collectively pay about \$28 billion annually for programming licensed from content suppliers under hundreds of individually-negotiated contracts and copyright licenses. Just as a terrestrial TV broadcaster may have limited license rights from many content suppliers only to broadcast content over the air in its market area, cable operators (and other distributors) license very specific rights. Affiliation agreements might define channel placement, presentation, security, and permissible devices to address the content provider's interest in penetration, appearance, reputation, content protection, and right to repurpose content for other uses, platforms or windows. It is not enough to invent new presentation technologies like StartOver; rights have to be negotiated. As a practical matter, every independent content security regime—DTCP, AACCS, DLNA, and DECE, to name a few—also negotiates with content owners rather than simply assuming that content that appears on one platform or device is automatically authorized to be moved or shared with another device.

disaggregated way.⁴⁶ As we noted above, Section 629 was intended to allow equipment to receive MVPD services, not to receive some supplemental or derivative service that a CE manufacturer may wish its product to provide.⁴⁷ But there are additional legal constraints against dismantling cable services.

Some of these constraints are constitutional. The Supreme Court has long recognized that a cable operator's choice and arrangement of programming and services is protected editorial expression under the First Amendment.⁴⁸ The Supreme Court has also protected intangible interests as "property" for purposes of the Fifth Amendment's Taking Clause.⁴⁹ Creators develop valuable content with the understanding that they can use the content, license the content, restrict its uses, and even refuse to provide the content if they cannot reach a reasonable economic agreement as to price and usage. Licensees in turn use and sublicense the content on their own terms, consistent with the scope of their own rights. Each of these creators and purchasers/licensees base long-term business decisions and strategy upon these intangible interests and the confidence that they will not be arbitrarily taken away (or their value destroyed) by the government, but rather are protected by the Constitution's guarantee to respect works of authorship brought to the public. "The copyright owner's exclusive ability to exercise this

⁴⁶ Other parties have previously warned of the danger of mandating disaggregation. See CS Docket 97-80, *et al.*, Comments of Microsoft Corp. at 6 (Aug. 24, 2007) ("As Craig Mundie, Chief Technology Officer of Microsoft, explained to the Commission in 2006, the Commission's rules should not 'interfere with the ability of cable operators to aggregate content and to establish and control the 'basic look and feel' of its offering' In short, giving consumers maximum choice in retail navigation devices does not require disaggregation, just as giving consumers maximum choice does not mean taking away from network operators the ability to make technology choices." (quoting CS Docket 97-80, Letter from Craig Mundie to Chairman Martin (Nov. 13, 2006)).

⁴⁷ See *Gemstar Int'l Group, Ltd.*, Memorandum Opinion and Order, 16 FCC Rcd 21531, 21542, ¶ 31 (2001).

⁴⁸ See *Turner Broadcasting System, Inc. v. FCC*, 512 U.S. 622, 636 (1994) ("Cable programmers and cable operators engage in and transmit speech, and they are entitled to the protection of the speech and press provisions of the First Amendment"). *Hurley v. Irish-American Gay, Lesbian and Bisexual Group of Boston*, 515 U.S. 557, 570 (1995) (likening cable channel lineup newspaper's opinion page and advertising selections).

⁴⁹ *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1003 (1984).

bundle of rights allows him to safeguard, in large measure, the pecuniary value of the copyrighted work.”⁵⁰

Cable operators apply the protection needed—such as limits on copying and constraints against redistribution outside the home—to induce program suppliers to license works for cable distribution. Yet cable service is not just the delivery of news, drama, movies, and sports. Cable operators also create or license original graphic, text, video and other content for use in their program guides and user interfaces. They create original packages or bundles of underlying materials as “collective works”⁵¹ or as “compilations” that are protected under copyright law whether all of that underlying material is independently protectable under copyright law or not.⁵² If a third-party manufacturer were to copy this underlying content, disaggregate it, and reassemble it with a different organizational structure and presentation, this would constitute copyright infringement.⁵³

⁵⁰ *Governmental Use of Copyrighted Property: The Sovereign’s Prerogative*, Robert R. Kwall, 67 Tex. L. Rev. 685, 686 (1989).

⁵¹ A collective work is defined in the Copyright Act as “a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole.” 17 U.S.C. § 101.

⁵² The original selection, order and arrangement of even factual data are protectable even when the facts themselves are not protectable. See *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991) (“Factual compilations . . . may possess the requisite originality. The compilation author typically chooses which facts to include, in what order to place them, and how to arrange the collected data so that they may be used effectively by readers. These choices as to selection and arrangement, so long as they are made independently by the compiler and entail a minimal degree of creativity, are sufficiently original that Congress may protect such compilations through the copyright laws.”). The content being provided by other parties may itself qualify as a collective work or compilation, such as an entire “broadcast day” of television programming from a network. See *National Assoc. of Broadcasters v. Copyright Royalty Tribunal*, 675 F.2d 367 (D.C. Cir. 1982).

⁵³ Depending on the circumstances, the manufacturer might be directly liable for such infringement, but regardless cable operators likely would seek to hold the manufacturer secondarily liable for the infringement. This is not “fair use,” among other reasons, since repackaging is designed as a market substitution that merely “usurp[s] the demand” for the original. *Castle Rock Entertainment, Inc. v. Carol Publishing Co.*, 150 F.3d 132, 145 (2d Cir. 1998).

Even non-copyrightable portions of cable service can be protected against unfair competition by misappropriation.⁵⁴ If a CE manufacturer sought to mine content—created at great expense by cable operators—in order to give the manufacturer the advantage of “free” data they did not have to pay to develop/acquire, cable operators would certainly claim unlawful misappropriation.

Regardless of the copyright status of the material in question, to the extent that a valid property right exists that is recognized by state or federal law, the taking of that property on the basis of a federal mandate is constrained by the Fifth Amendment, even when dealing with regulated industries. For example, the Supreme Court has rejected government efforts to convert data developed at great cost and expense into a commodity for third-party commercial use.⁵⁵

Cable operators also brand their goods and services with trademarks and other identifying information. Cable subscribers generally know which provider is supplying them with cable channels; but as cable services grow more interactive, tailored, and sophisticated, branding becomes even more essential to identify cable as the source of these services. How will a subscriber know that a particular cable operator is the supplier of t-commerce, telescoped features, caller ID on the TV, StartOver, parental controls, and widgets if the service is

⁵⁴ See *Internat'l News Serv. v. Assoc. Press*, 248 U.S. 215 (1918) (recognizing tort claim where “hot news” collected by the Associated Press was being intercepted and used by a competing service). The tort remains actionable today, and has been expanded to include even more types of property. Courts have defined the elements of misappropriation as: “(i) the creation of plaintiff’s product through extensive time, labor, skill, and money, (ii) the defendant’s use of that product in competition with the plaintiff, thereby gaining a special advantage in that competition (i.e., a “free ride”) because defendant is burdened with little or none of the expense incurred by the plaintiff, and (iii) commercial damage to the plaintiff.” *Aldridge v. The Gap, Inc.*, 866 F.Supp. 312, 313 (N.D.Tex.1994); see also *National Basketball Ass’n v. Motorola, Inc.*, 105 F. 3d 841 (2d Cir. 1997); *US Golf Ass’n v. Arroyo Software Corp.*, 81 Cal. Rptr. 2d 708 (Cal. Ct. App., 1st Dist. 1999).

⁵⁵ In *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1003 (1984), the Environmental Protection Agency required a chemical company to submit proprietary research and testing data that it had developed at great effort and expense for use by commercial competitors. The court held that the EPA could not simply “preempt” the company’s reasonable investment-backed expectation. “If Congress can ‘pre-empt’ state property law in the manner advocated by EPA, then the Taking Clause has lost all vitality. This Court has stated that a sovereign, ‘by *ipse dixit*, may not transform private property into public property without compensation . . . This is the very kind of thing that the Taking Clause of the Fifth Amendment was meant to prevent.’ *Webb’s Fabulous Pharmacies, Inc. v. Beckwith*, 449 U. S., at 164.” *Id.* at 1012.

dismantled and repackaged by a third party? Dismantling cable service will damage or dilute the source-identifying capability of, and the goodwill associated with, the cable operator's name and trademarks in connection with cable products.⁵⁶ The Lanham Act and state unfair competition laws protect against the creation of such confusion among consumers.⁵⁷ Stripping the trademarks off of a cable operator's guide and service and repackaging them under another's mark is reverse passing-off, that is, the provision of products or services of the trademark owner as if those products or services originate from the infringer.⁵⁸ It will cause significant economic and non-economic damage to the valuable trademark rights developed by the cable operators, and lead to greater consumer confusion as to the source of cable services, which in turn may cause consumers to undervalue cable services and make uninformed decisions about which products and services to select in the future. Further, just as is the case with copyright interests, forcing cable operators to give up their trademark protection in the name of a disaggregated platform constitutes a government taking of a valuable property right that severely interferes with reasonable investment-backed expectations.

V. OTHER CLAIMS AGAINST CABLE ARE UNFOUNDED

A. MVPDs Use Set-Top Boxes to Innovate and Compete, Not to Undermine Competition

Our initial Comments described how MVPD competition has produced significant innovation in cable equipment and services. The simple descramblers of the 1990s have given

⁵⁶ In *Dastar Corp. v. Twentieth Century Fox Film Corp.*, 539 U.S. 23 (2003), the Supreme Court was careful to distinguish between elements of branding for DVDs that identified the source of the product, which were protectable under trademark law, and those that identified the creator or owner of the copyrighted work (*i.e.*, the motion picture stored on the DVD), which were not. Cable operators have every right to brand the *service* being provided whether or not they originate the content itself.

⁵⁷ *Virgin Enters., Ltd. v. Nawab*, 335 F.3d 141, 146 (2d Cir. 2003) (“claim of trademark infringement ... is analyzed under [a] familiar two-prong test[.] ... The test looks first to whether the plaintiff's mark is entitled to protection, and second to whether [the] defendant's use of the mark is likely to cause consumers confusion as to the origin or sponsorship of the defendant's goods.”).

⁵⁸ See *Peaceable Planet, Inc. v. Ty, Inc.*, 362 F. 3d 986 (7th Cir. 2004).

way to sophisticated two-way digital devices. Using these advanced devices, cable operators have been able to digitize, switch, and repurpose their spectrum for more services including HD,, faster broadband, DVRs, interactive program guides, interactive television applications, and other innovative services, such as advanced codecs, IPv6, 3-D TV, DSG and widgets. In a two-way digital world, the network is constantly interacting with set-top devices with up- and down-stream signaling and set-top applications to run sophisticated programs. These services work only through careful platform management and the integration of networks, servers, systems, and set-top boxes, all of which continue to change and improve with innovation—a phenomenon that some comments also see on the web.⁵⁹

But some commenters suggest that MVPDs use set-tops for ulterior motives, such as to keep customers “captive,”⁶⁰ or to “lock in” customers by “raising switching costs” for consumers who wish to chose another platform;⁶¹ to milk consumers with “inflated” leasing fees⁶² or (alternatively) to unfairly discount.⁶³ Some deny that the CE industry has ever sought a subsidy from cable operators, while simultaneously asking the Commission to impose one by regulation.⁶⁴

The actual facts are straightforward. Far from imposing “switching costs,” set-top boxes have done nothing to prevent customers from moving from cable to satellite, U-Verse, FiOS, and back again. DirecTV, Dish, AT&T, and Verizon already collectively serve more than 37 million

⁵⁹ See DLNA Comments at 1 (“Various Internet video services (*e.g.*, Netflix, Vudu, Hulu) use different content protection mechanisms, proprietary signaling methods, proprietary player software, etc. Additionally, each also has differing contractual requirements for reception and decoding which may preclude retransmission onto a home network—even one with secure link protection such as what DLNA Guidelines describe. We do not believe there is a panacea to be found in this area.”).

⁶⁰ CEA Comments at 19.

⁶¹ Public Knowledge Petition at 7.

⁶² Public Knowledge Petition at 12, 14.

⁶³ Public Knowledge Petition at 27.

⁶⁴ CEA Comments at 14-15, CERC Comments at 9.

customers and their market share continues to grow while cable's declines. Nearly four in ten subscribers are now taking their subscription video services from satellite, telephone, and other cable competitors, and still more are watching video on other devices.

As to set-top box rents, cable operators buy set-top boxes supplied by a growing number of consumer electronics manufacturers, including Pace, Motorola, Cisco, Evolution Broadband, Samsung, Panasonic, and TiVo, and Commission rules limit cable operators to recovering cost plus rate of return. Whatever memories may linger from the Bell System's wholly-owned Western Electric equipment division, cable operators do not own any of their set-top box vendors nor do they aim to enrich them.

As to subsidies, whatever may have been said ten years ago by a bankrupt retailer, which is the authority quoted by CERC,⁶⁵ the market has changed. Tru2way TVs launched publicly in retail stores with \$300 rebates. Denver radio spots offered \$450 cash back. Other marketplace arrangements have also emerged between retailers and cable operators, although their financial terms have not been disclosed. Oddly, CEA and CERC both ask the Commission to impose such a subsidy by rule, which is well beyond Commission authority.⁶⁶

B. Existing Licenses Promote Innovation and Competition While Protecting Content and Cable Customers

Among MVPDs today (including Verizon, AT&T, DISH and DirecTV), only cable operators make their services, VOD, and EPGs available for CE retail devices to access without using a set-top box and to combine with their own, unique navigation tools and other features, pursuant to the *Two-Way MOU*. Some comments complain that the licenses under which such

⁶⁵ CERC Comments at 9.

⁶⁶ 47 U.S.C. § 543(a)(1) (prohibiting Commission from regulating the rates for the provision of cable service except to the extent provided in Sections 623 or 612); 47 U.S.C. § 544(f)(1) (prohibiting Commission from "impos[ing] requirements regarding the provision or content of cable services, except as expressly provided in [Title VI]."

retail devices may be built contain restrictive terms, including compliance and robustness rules protecting content and warranties protecting consumers from harm to service. Our comments have already explained that tru2way invites and encourages the addition of innovative features and functionalities—including connectors for accessing the Internet—in retail devices.⁶⁷ Some comments appear to take issue with content protection itself,⁶⁸ or the very concept that “cable ready” CE devices should actually deliver the cable operator’s services⁶⁹—which is the basic purpose of Section 629;⁷⁰ or frame objections in terms of the license when they are actually asking that cable stop using its well defined return path over coax and redesign itself to use the Internet for security and signaling.⁷¹ Frankly, challenges nominally made against the license are in fact challenges to underlying business issues—such as the need to protect content. The existing licenses for two-way host devices have been widely accepted by the world’s leading television manufacturers as exemplified by the major CE companies who were involved in the negotiations leading to the *Two-Way MOU* with CEA’s members. NCTA provided a detailed explanation of those license terms, and a critique of CEA’s contrary approach, in earlier comments, which we incorporate herein by reference.⁷² These licenses reflect significant input from MPAA and content suppliers, consumer electronics and IT companies, software developers, chip manufacturers among other interested parties.

⁶⁷ NCTA Comments at 3-4, 19-21.

⁶⁸ Public Knowledge Petition at 26, 34; *see also* CS Docket 97-80 et al., Comments of Public Knowledge et al., at 4-5 (Aug. 24, 2007) (claiming that content protection is “ineffective” and that “It is for copyright law, not ‘content protection’ technologies approved by the Commission, to decide what consumer activities are or are not permitted after legitimate reception.”).

⁶⁹ CEA Comments at 16.

⁷⁰ *Gemstar Int’l Group, Ltd.*, Memorandum Opinion and Order, 16 FCC Rcd 21531, 21542, ¶ 31 (2001) (noting that Congress in the conference report “narrowed [the scope of Section 629] ... to include only equipment used to access services provided by multichannel video programming distributors” (quoting S. Conf. Rep. No 104-230 at 181 (1996))).

⁷¹ CEA Comments at 10.

⁷² CS Docket 97-80, *et al.*, Reply Comments of the National Cable & Telecommunications Association (Sept. 10, 2007) at Exhibit D.

C. 1394 Failed in the Marketplace, Not From Lack of Cable Operator Support

Some comments claim that cable has disabled and blocked the full functionality of the 1394 connector.⁷³ The fact is that 1394 failed in the marketplace, not only in the United States, but worldwide, as connectors such as IP over Ethernet took off. International industry press has included 1394 as among the “Top 10 disappointing technologies.”⁷⁴ Intel has called 1394 “a technological ‘bridge to nowhere.’”⁷⁵ CEA itself has supported waiver of the requirement that 1394 be included on set-tops.⁷⁶ The cable industry included 1394 connectors in operator set-top boxes exactly as promised, as a video output with simple controls like on/off, and put millions of 1394 connectors into the field—without effect. CE retail products could have all adopted 1394 as a standard, like HDMI, but chose not to. Texas Instruments receives royalties on 1394, so understandably will continue to argue for it. But if consumers are not using it, it is wasteful to insist on including it on operator-supplied set-top boxes.

CONCLUSION

Cable operators are committed to providing content to consumers where and when they want to watch it, on devices chosen by consumers. We are fully engaged in efforts to get there and would like to work with the Commission on thoughtful approaches to do so. However, the Commission must be cautious in considering any action that would impose a technology mandate in a dynamic competitive market, and should therefore not prematurely initiate a proposed rulemaking based upon the incomplete and inadequate proposals in the record.

⁷³ 1394 Trade Association at 1-2; Texas Instruments at 1; CEA Comments at 12.

⁷⁴ Top 10 Disappointing Technologies, PC AUTHORITY.COM (May 18, 2009), available at <http://www.pcauthority.com.au/News/145271,top-10-disappointing-technologies.aspx>.

⁷⁵ *Intel Corporation Petition for Waiver of 47 C.F.R. § 76.640(b)(4)*, CSR-8229-Z, Petition for Waiver at ii, 9 (Oct. 7, 2009); see also *Intel Corporation Petition for Waiver of 47 C.F.R. § 76.640(b)(4)*, CSR-8229-Z, Reply Comments of Motorola, Inc. at 1-2 (Dec. 22, 2009) (concurring).

⁷⁶ See *Intel Corporation Petition for Waiver of 47 C.F.R. § 76.640(b)(4)*, CSR-8229-Z, Comments of the Consumer Electronics Association (Dec. 10, 2009).

Accordingly, the Commission should instead launch a comprehensive Notice of Inquiry to gather the facts and data to reach an understanding of the technical, economic, business, legal, and practical complexities involved. An NOI would also give the Commission an opportunity to review the major cross-industry projects in which the cable industry and others are engaged that we believe are already advancing the Commission's navigation device-related goals. The Commission could then move promptly to consider whether regulatory action may be necessary to facilitate the commercial availability of video devices in the retail marketplace.

Respectfully submitted,

/s/ Neal M. Goldberg

William A. Check, Ph.D.
Senior Vice President, Science & Technology

Neal M. Goldberg
Steven F. Morris

Andy Scott
Vice President, Engineering

The National Cable &
Telecommunications Association
25 Massachusetts Avenue, N.W.
Suite 100
Washington, D.C. 20001-1431
(202) 222-2445

Paul Glist
Paul Hudson
Davis Wright Tremaine LLP
1919 Pennsylvania Ave. NW
Washington, D.C. 20006-3402
Counsel for The National Cable &
Telecommunications Association

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