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June 30, 2016

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: ***Expanding Consumers' Video Navigation Choices,*** **MB Docket No. 16-42,**
Commercial Availability of Navigation Devices, **CS Docket No. 97-80**

Dear Ms. Dortch:

I am submitting for the record the attached "Rebuttal Comments of the National Cable & Telecommunications Association," which responds to claims made in reply comments and several subsequent ex parte filings in the above-referenced dockets. This Rebuttal further demonstrates that any Order based on spurious claims by the NPRM's proponents would be arbitrary and capricious and would not withstand judicial review.

If you have any questions, please do not hesitate to contact me.

Respectfully submitted,

/s/ Rick Chessen

Rick Chessen

Attachment

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BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Expanding Consumers' Video Navigation Choices	)	MB Docket No. 16-42
	)	
	)	
Commercial Availability of Navigation Devices	)	CS Docket No. 97-80

REBUTTAL COMMENTS OF THE NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION

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June 30, 2016

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REBUTTAL COMMENTS OF THE NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION

The National Cable & Telecommunications Association ("NCTA")[1] submits these rebuttal comments in response to the reply comments and several subsequent *ex parte* comments filed in response to the Notice of Proposed Rulemaking ("NPRM")[2] in the above-captioned proceedings. This rebuttal further demonstrates that any Order based on spurious claims by the NPRM's proponents would be arbitrary and capricious and would not withstand judicial review.

EXECUTIVE SUMMARY

Numerous parties have raised serious concerns with the NPRM's proposal, including more than 180 members of Congress, studios, networks, unions, independent and diverse content creators, directors, writers, record labels, small and large service providers, device manufacturers, and nationally-respected advocates of consumer privacy, disability access, diversity, energy efficiency, commerce, intellectual property, innovation, and labor. These parties have demonstrated the many legal, technical, and other failings of the NPRM's proposal.

[1] NCTA is the principal trade association for the U.S. cable industry, representing cable operators serving more than 80 percent of the nation's cable television households, more than 200 cable program networks, and others associated with the cable industry. The cable industry is the nation's largest provider of broadband service after investing over $245 billion since 1996 to build two-way interactive networks with fiber optic technology. Cable companies also provide state-of-the-art competitive voice service to approximately 30 million customers.

[2] Expanding Consumers' Video Navigation Choices; Commercial Availability of Navigation Devices, Notice of Proposed Rulemaking, MB Docket No. 16-42, 18 Fed. Reg. 14033 (Mar. 16, 2016) ("NPRM").

It exceeds the Commission's authority. It weakens privacy and other consumer protections. It disregards licensing requirements and copyright and devalues advertising. It jeopardizes content security. And it imposes new box costs on consumers. These dire results contrasts starkly with the apps-based model, which raises none of these issues, fully complies with Section 629, achieves the FCC's goals in this rulemaking, and has been widely embraced by consumers, device makers, programmers, MVPDs, and other stakeholders. The recent proposal based on open standards-based HTML5 apps, as introduced June 15, 2016 by NCTA, MVPDs, and independent minority-owned TV networks, provides further momentum to this apps revolution.

The various filings by the NPRM's proponents over the last month have done nothing to change these basic facts. On issue after issue, these proponents fail to allay concerns with the proposal, and their attempts at "fixes" are unavailing. All still seek an FCC-issued zero-cost compulsory copyright license – entirely unauthorized by law – to allow unlicensed tech companies to commercially exploit copyrighted works without permission from or compensation to the copyright owners. None – not even those like Writers Guild West who acknowledge how vulnerable the NPRM would leave advertising – have advanced a means for protecting content licensing and advertising requirements without MVPD apps and enforceable licenses to back them up. In fact, even the supposed "fix" offered would continue to allow device makers and app developers to subvert programmers' and distributors' sales of advertising, demand pay for priority in search listings, and evade any enforcement of self-certified good behavior. None have bridged the privacy gap opened by the NPRM – not even by enlisting the FTC, which cannot provide the privacy protection required by statute.

All the defects in the NPRM remain. Its proponents now admit it is a two-box solution. They have not cured any of the security deficiencies. They have no answer to the increased risk

of piracy. They offer no means for preserving innovation in networks and services when the proposed interfaces retard innovation, restrict new consumer offerings, and prevent effective security responses. Sloganeering with false claims does nothing to make their proposal workable or lawful, or possible to implement as quickly as they predict.

By contrast, the new HTML5 apps-based proposal just introduced by MVPDs and programmers could avoid all of these problems and give MVPD customers the option of ditching the leased box altogether. Instead, they could download open-standards-based apps that can run directly on a smart TV, connected device, or a new retail box of their choosing, with confidence it can port among the largest MVPDs and online video providers, protect privacy, protect independent and diverse programming, and strengthen the creative ecosystem that redounds to the benefit of all consumers. Far from constraining competition or consumer choice, these MVPD apps support, promote, and continue to expand the availability of their services on retail devices using the most modern and secure tools developed by the market and embraced by consumers for *enabling* choice and competition in ways that respect and enforce all other rights.

The HTML5 apps-based proposal meets all of the requirements of Section 629: consumer choice, receipt of the MVPD service, leveraging the work of standards bodies, protecting security, keeping the path open for continued innovation, and respecting copyright law and Title VI privacy and consumer protections. It supports integrated search and further enhances retail manufacturers' distinctive device user interfaces. Rather than moving consumers backward with a hardware-based mandate that would lead to renting more in-home equipment from their MVPD, the Commission should move forward with an apps-based approach.

I. NPRM PROPONENTS HAVE FAILED TO PROVIDE EFFECTIVE COPYRIGHT PROTECTION

Chairman Wheeler promised in his March 2016 testimony to Congress "that which the cable operators put out should remain sacrosanct and untouched."[3] MVPD apps provide that protection, but no proponent of the NPRM's proposal has found a way to assure that copyright protection on retail devices without them.

The proposed approach is designed for unlicensed parties to collect and monetize copyrighted material. The very purpose of the proposed approach is to strip away content that comprises cable service[4] and then give away content provided by TV One, BET, and every other program carried by MVPDs for commercial interests to monetize with advertising overlays,[5] and potentially even more subscription fees on top of their MVPD subscription. This is far beyond displaying MVPD service on a TV. It would strip out pieces of MVPD service, including proprietary guide data owned by third parties, and then "blend" some of what remains with OTT, creating unauthorized derivative works.[6] Copyright owners have the exclusive right to license

[3] *Hearing on Oversight of the Federal Communications Commission Before the S. Comm. on Commerce, Science, & Technology*, 114th Cong. (Mar. 2, 2016) (testimony of Tom Wheeler, Chairman, FCC), archived webcast available at http://www.commerce.senate.gov/public/index.cfm/hearings?ID=F3D2645F-5D15-4AC5-8323-6B64A4D2578F.

[4] Section 629 addresses the availability of retail devices that can receive multichannel services and other services *"offered"* and *"provided"* by MVPDs. In the case of cable, Congress specifically recognized the evolution of cable service from one-way broadcast into two-way interactive services with integrated navigation tools for "subscriber interaction … for the selection or use of such video programming or other programming service" – defined to include "information that a cable operator makes available to all subscribers generally." 47 U.S.C. §§522(6), (14). Writers Guild West admits that cable includes these modern elements. Letter from Monica S. Desai, Counsel to Writers Guild of America, West, Inc., to Marlene H. Dortch, Secretary, FCC, MB Docket No. 16-42; CS Docket No. 97-80 (May 31, 2016) at 4-5 ("WGAW May 31, 2016 *Ex Parte*"). The NPRM proposal is based on a one-way broadcast model that is at least twenty years out of date, forcing cable operators to strip out the interactive components of modern cable service and preventing them from delivering service as it exists today.

[5] TiVo says it has never removed ads, but it designs its devices to skip them and replace them with ad overlays inserted by TiVo. TiVo Reply Comments at 12-13. Consumer Video Choice Coalition (CVCC) defends and would perpetuate the practice. CVCC Reply Comments at 51, 65. Section 111(c) of the Copyright Act prohibits retransmitted broadcast signals from being "willfully altered" "through changes, deletions, or additions" "for the purpose of deriving income." Even Writers Guild West agrees that this practice violates copyright and the compulsory license. WGAW May 31, 2016 *Ex Parte* at 3.

[6] The Copyright Act gives copyright holders the exclusive right to create and control "derivative works" based on their copyrighted material. Public Knowledge attempts to equate an MVPD that integrates programming with

and profit from the commercial exploitation of their works.[7] The NPRM's approach would allow unlicensed third parties to profit from exploitation of the copyrighted material without compensation,[8] and, as TV One's Alfred Liggins, BET's Debra Lee, and the overwhelming majority of comments from independent and diverse content creators and civil rights organizations make clear, would likely undercut the "market for or value of the copyrighted work."[9]

The proposed approach is designed for unlicensed parties to collect and monetize material known to be copyrighted. In addition to facilitating the copyright infringement of the underlying programming owned by the original content creators and /or distributors (including compilations of program, advertisements and other material), but it also by definition would infringe the MVPDs' copyright to the "collective work" and "compilation" of their assembled package of service, as presented to customers.[10] Thus, as designed, the NPRM's proposed approach always infringes the MVPD's own copyrights in its compiled work, so there is no implementation that is capable of non-infringing use. The third-party app developer or device

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search features and "other content the MVPD has licensed" with an *unlicensed* third party who would extract that programming and compile a different work. Public Knowledge Reply Comments at 3. That is the very definition of infringement. CVCC recognized that some aspects of "presentation" protection might require protecting channel lineup – but ignores all other elements of presentation. *See* CVCC Reply Comments 49-50; NCTA Comments at 58, 168; NCTA Reply Comments at 39; Legal White Paper at 48-55.

[7] As noted by the court in *LucasArts Entertainment v. Humongous Entertainment*, "the essence of a copyright interest is the power to exclude use of the copyrighted work by those who did not originate it or who are not authorized to use it. The right to license a patent or copyright (and to dictate the terms of such a license) is the 'untrammeled right' of the intellectual property owner." *LucasArts Entertainment v. Humongous Entertainment*, 870 F. Supp. 285, 290 (N.D. Cal. 1993) (citing *United States v. Westinghouse Electric Corp.*, 648 F.2d 642, 647 (9th Cir. 1981)). *See also DC Comics, Inc. v. Reel Fantasy, Inc.*, 696 F.2d 24, 28 (2d Cir. 1982) (noting that "one of the benefits of ownership of copyrighted material is the right to license its use for a fee").

[8] As explained by an array of intellectual property scholars, none of the proponents of the NPRM have even addressed this fundamental violation of copyright law. Letter from Matthew Barblan, Executive Director, Center for the Protection of Intellectual Property, George Mason University School of Law, et al to Marlene H. Dortch, Secretary, FCC, MB Docket No. 16-42; CS Docket No. 97-80 (June 15, 2016) at 2.

[9] *See Capitol Records, LLC v. ReDigi Inc.*, 934 F. Supp. 2d 640, 654 (S.D.N.Y. 2013).

[10] NCTA Comments at 58, citing 17 U.S.C. § 101.

manufacturer would be an active participant in the process of copyright infringement,[11] regardless of who presses the button. It is TiVo that designs, overlays, and profits from overlays on pause.[12] Its commercial exploitation has nothing to do with the "volitional" conduct of a consumer.

If the NPRM's proposal were designed, as CVCC suggests, to "simply allow[] third-party devices to 'render' MVPD service" on a display like a TV,[13] then no unbundled streams would be needed and none of these infringements would occur. All that would be needed is an MVPD app of the kind available for consumers to receive MVPD service on 460 million retail devices today. Today, if a movie has been licensed to an MVPD exclusively for in-home exhibition, an MVPD's app and a chain of trust protects the movie against unauthorized streaming over the Internet. It is preposterous for proponents to liken such apps to requiring a movie to be shown only in theaters that remove exit signs.[14] The proposed approach would circumvent the MVPD's technological protection measures and license restrictions, with no enforceable means to prevent streaming that movie outside the home, in clear violation of the license to the MVPD, and the content owner's copyright.

This unbundling approach is not even how Facebook, Twitter, or search engines work on the web. As DSTAC reported, the online publisher determines where and what is exposed. YouTube chose to remove the API that once permitted DIRECTV and other third parties to deep link to and play YouTube content outside of the YouTube experience. Facebook and Twitter

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[11] Programming a device to choose copyrighted content satisfies the volitional conduct requirement. *See ReDigi*, 934 F. Supp. 2d at 657 ("Given this fundamental and deliberate role, the Court concludes that ReDigi's conduct 'transform[ed] [it] from [a] passive provider[] of a space in which infringing activities happened to occur to [an] active participant[] in the process of copyright infringement.'" (quoting *Arista Records LLC v. USENET.com*, 633 F. Supp. 2d 124, 148 (S.D.N.Y. 2009)).

[12] See NCTA Comments at 44-47.

[13] CVCC Reply Comments at 57.

[14] CVCC Reply Comments at 55; Public Knowledge Reply Comments at 9.

created domains that were not automatically searchable by web browsers. Twitter was paid for allowing its tweets to be searched.[15] In June, 2016, Instagram shut down the public APIs that allowed its photo streams to be presented through third-party apps and user interfaces, returning to the Instagram app in order to end the confusion and uncertainty over "where their content is being shared and viewed."[16]

The FCC has no authority to amend copyright by stripping off technological protection measures (TPMs), removing licensing, shifting the rights of commercial exploitation from the owners of copyrighted works to unlicensed tech companies, and leaving content owners to "consult a series of Federal court decisions made over the past several decades."[17] The Copyright Office has already rejected such a claim to circumvent TPMs, and Congress has explicitly said that Title VI "does not affect the Copyright Act nor rules, regulations or orders issued thereto."[18]

Senator Reid, among many others, has warned that if the FCC strips away programmers' ability to protect their copyrighted works through licenses, "programmers may be forced to rely primarily on costly and lengthy litigation to protect their content," a remedy which he explains would be inadequate: "As we have seen in other contexts, relying on litigation as a sole remedy

[15] DSTAC Final Report at 277 (DSTAC WG4 at 142).

[16] *See* Joe Rossignol, *Third-Party Instagram Apps and Websites Cease to Work*, MACRUMORS (June 2, 2016), http://www.macrumors.com/2016/06/02/instagram-third-party-apps-websites-dead/; Juli Clover, *Instagram Institutes API Changes That Will Kill Off Malicious Third-Party Apps*, MACRUMORS (Nov. 17, 2015), http://www.macrumors.com/2015/11/17/instagram-new-api-changes/; Instagram, *Instagram Platform Update*, INSTAGRAM FOR DEVELOPERS BLOG (Dec. 2015), http://developers.instagram.com/post/133424514006/instagram-platform-update.

[17] Letter from the Honorable Tom Wheeler, Chairman, FCC, to Karen Bass, US House of Representatives (June 3, 2016).

[18] H.R. Rep. No. 934, 98th Cong., 2nd Sess. at 70, reprinted in 1984 U.S. Code Cong. & Admin. News 4655.

for copyright infringement creates an environment where piracy may flourish and the ensuing damage cannot be undone."[19]

II. PROPOSED LICENSE "CONDITIONS" WOULD NOT PROTECT COPYRIGHT

NAB's comments shared NCTA's concern that the NPRM's proposal would be inadequate to protect programmer license terms between content providers. NAB warned that the "Commission cannot simply wave a magic wand" to protect these vital interests.[20] In a subsequent ex parte, "NAB emphasized the importance of ensuring that the Commission's effort to promote a competitive marketplace for navigation devices and applications does not undermine the vibrant video content marketplace," and reiterated that programming and advertising "must pass through to third-party devices and applications" in conformance with these license terms.[21] NAB asked whether its concerns could be remedied via a mechanism whereby license terms such as channel lineup and advertising could be reduced to machine readable standard rights expression language to which third parties "certify" their compliance, but no party has advanced any means for making such a model workable or enforceable without an MVPD app.

- There is no standard language that expresses the complexity of content licensing rights in a standard one-way broadcast instruction.[22]

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[19] Letter from Senator Harry Reid to the Honorable Tom Wheeler, Chairman, FCC (June 14, 2016).

[20] National Association of Broadcasters (NAB) Comments at 2.

[21] Letter from Rick Kaplan, General Counsel and Executive Vice President, National Association of Broadcasters, to Marlene H. Dortch, Secretary, FCC, CS Docket No. 97-80, MB Docket No. 16-42 (May 23, 2016) ("NAB May 23, 2016 *Ex Parte"*).

[22] Katie Benner, *TV Bundles Challenge Apple to Make a Deal*, N.Y. TIMES (Sept. 13, 2015), http://bits.blogs.nytimes.com/2015/09/13/tv-bundles-challenge-apple-to-make-a-deal/ ("'Television broadcast and digital rights are incredibly complicated, especially when you get into international rights,' said Dan Cryan, senior director, media and content at IHS, a research firm. … In many cases, the digital rights to a single show are held by several different parties, which means that companies that want to offer them, like Apple, have to wait for some of those contracts to expire. Mr. McQuivey [of Forrester Research] points out that HBO doesn't even have the rights

- There is no means to assure that television producers and distributors can continue to invent and market new rights not captured within any standardized expression of rights.[23]

- Even if an infinite number of rights could be expressed, there is no technical or legal enforcement regime to make it work without apps and the chain of trust. Neither DRM systems nor conditional access systems can be relied upon to ensure protection of these license terms without the MVPD app and an enforceable trust infrastructure. A DRM can secure an MVPD's application, but without the app, once the program is decrypted and exposed to a device the DRM cannot protect its channel assignment or neighborhood, maintain distance from adult programming, keep the platform free of pirate content, or assure any number of other essential license terms.[24]

The proposed rules would remove apps and enforceable licenses, so that even if the FCC declares that retail devices must honor licensing agreement terms, there would be no tools to practically or legally enforce them against device manufacturers and third-party app developers over which the FCC has disclaimed enforcement jurisdiction.

III. THE PROPOSED APPROACH WOULD IMPEDE ANTI-PIRACY MEASURES

The NPRM's proponents seek to dismiss the increased risk of piracy as "discomfort with the potential for piracy"[25] and applicable on "a few obscure devices,"[26] that would not pass certification anyway.[27] Piracy is a significant concerns,[28] and low-cost boxes preloaded for

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to everything it has created for its own app, since it's waiting for agreements that it made with other distributors to expire.").

[23] NCTA Comments at 109-111, 142-143; Sidney Skjei, A Technical Analysis of the FCC's Navigation Device Proposal, attached to NCTA Comments as Appendix B, at 31,34 ("Technical White Paper").

[24] NCTA Comments at 41-42, 92; NCTA Reply Comments at 35.

[25] CVCC Reply Comments at 18.

[26] Public Knowledge Reply Comments at 14.

[27] CVCC Reply Comments at 59.

piracy are for sale today on Amazon.[29] There is no certification proposed that would preclude device makers from providing pirate content.

The NPRM's proponents offer unsupported claims that the proposal would reduce piracy by making MVPD service more convenient; but a common problem with pirate boxes such as those using Kodi is that a consumer may not even know that the free version of the movie in search returns is the pirate version, not a promotional freebee.[30] The more knowledgeable can exploit the proposed information flows by paying for one valid subscription and redistributing the content to many others – the so-called "three musketeers" approach of "all for one and one for all."[31]

The Commission cannot dismiss these concerns as imaginary on the basis that they did not occur with TiVo and CableCARDs. TiVo operates under industry-prescribed security (sufficient 20 years ago but sufficient no longer); CableLabs' certification and testing; specific, enforceable license obligations to MVPDs and to content providers; rules that limit it to one-way linear programming; and an inter-industry agreement that viewed the entire regime as transitional, with the eventual migration to apps-based solutions for interactive services. When this entire array of security protocols is rejected by the NPRM, and MVPDs are denied the right

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[28] World Intellectual Property Organization (WIPO), Standing Committee on Copyright and Related Rights, Current Market and Technology Trends in the Broadcasting Sector at 34 (June 2, 2015), http://www.wipo.int/edocs/mdocs/copyright/en/sccr_30/sccr_30_5.pdf ("WIPO Trends Report").

[29] For example, one "Android TV" device, described as "FULLY LOADED KODI / XBMC -FULLY UNLOCKED -WATCH ANYTHING," is available for sale on Amazon at http://www.amazon.com/ANDROID--FULLY-LOADED-UNLOCKED-ANYTHING/dp/B00HVFLKD8/ref=sr_1_4?ie=UTF8&qid=1465059991&sr=8-4&keywords=kodi+box+fully+loaded (last visited June 8, 2016).

[30] Nathan Betzen, *The Piracy Box Sellers and YouTube Promoters Are Killing Kodi*, KODI.TV (Feb. 14, 2016), https://kodi.tv/the-piracy-box-sellers-and-youtube-promoters-are-killing-kodi/ (explaining that "[e]very day a new user shows up on the Kodi forum, totally unaware that the free movies they're watching have been pirated" and that "[t]hese sellers are dragging users into the world of piracy without their knowledge").

[31] *See* WIPO Trends Report at 34 ("In a typical use case a legitimate receiver is equipped with software which allows it to share the control word over the internet to pirate set top boxes (STB), this allows them to access the content as if they had their own subscription.").

to use modern security technologies, it is fallacious to invoke TiVo as a proof point for security. The proposal impermissibly impedes the legal rights of MVPDs "to prevent theft of service."[32]

IV. PROPOSED LICENSE "CONDITIONS" WOULD NOT PROTECT ADVERTISING

No proponent of the NPRM has proposed any solution that would protect the advertising that funds content and its distribution. For example, none of the supposed "fixes" for the proposed unbundling approach even addresses these essential requirements for advertiser-supported content and services:

- Interactive advertising, audit trails, frequency caps and audience reporting tools are commonplace today and expected of accountable ad platforms, but the NPRM's approach would not support any of those interactive features, and no party offers any "fix" to even address those failings.[33]

- Chairman Wheeler promised that, "[n]o one will say there's a frame around it saying you can go to Joe's auto repair."[34] But the NPRM would in fact permit retail devices to frame content with new ads, sell access to the television audience, and bypass the programmers' and distributors' sales of television advertising, with no compensation to the content provider for that new use or the dilution in value of their TV advertising. No party offers any "fix" to address that failing.

- None of the proponents would restrict TiVo and other companies from overlaying ads on top of programming when the consumer hits "pause" trying to skip the commercials.[35]

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[32] 47 U.S.C. § 549(b).

[33] NCTA Comments at 52-53.

[34] NCTA Comments at 44.

[35] CVCC specifically seeks to perpetuate the practice. CVCC Reply Comments at 51, 65.

Writers Guild West acknowledges that the NPRM leaves advertising vulnerable, but what little it offers as supposed "fixes" does not work because it is unenforceable. Writers Guild West proposes that the "'Compliant Security System' license for competitive navigation devices must specify that such devices may not alter, replace, overlay, or remove protected content, which would include embedded advertising content."[36]

- First, as a technical matter, DRMs do not have control over altering, replacing, overlaying, or removing protected content. In any adaptive bit-rate system, the portions of the software that perform ad insertion and implement the adaptive bit rate algorithm are *outside* of the DRM or content protection system. In an iOS, Android or HTML5 web app environment, these requirements are enforced by the app, not DRM. As the record makes clear, security includes the MVPD app.[37]

- Second, as a contractual matter, one cannot reasonably expect any DRM vendor to step up to the service of an ongoing monitoring and enforcement role that they could not enforce.[38]

- Third, as a legal matter, Writers Guild West is wrong in suggesting that the Commission can rely on Section 503 of the Act to assure that retail device and app providers prepare and comply with self-certifications of compliance.[39] A "certificate" issued by a *device manufacturer*

[36] WGAW May 31, 2016 *Ex Parte* at 2.

[37] *See, e.g.*, Technical White Paper at 5-7, 34; ARRIS Comments at 14-15 ("DRMs and other licensable security solutions are just one aspect of creating a secure environment for content. Programmers generally require other security assurances and terms that MVPDs implement as part of their apps and user interfaces in addition to relying on DRMs … DRMs and MVPDs' app configurations work in tandem to create a trusted environment for content. For example, DRMs may not always convey output controls, but MVPDs implement these restrictions in their apps. This trusted environment would be jeopardized if third parties, who are not parties to programming agreements, can create their own derivative services using their own interfaces that strip out the security features embedded in MVPD apps.").

[38] *See* ARRIS Comments at 14 (explaining that "security vendors do not always have the capability to confirm that their security solutions are properly integrated on devices or apps. Even in instances where ARRIS can confirm proper integration, third parties could modify configurations and compromise security after any such check.").

[39] Writers Guild West states that the "Commission has used its enforcement authority to take action against companies violating the terms of FCC-ordered certification requirements," and cites to Section 503(b)(1)(A) of the Act, which gives the FCC the authority to penalize an entity that "willfully or repeatedly failed to comply

claiming that it will not interfere with advertising or copyright is not an FCC "certificate … issued by *the Commission*" covered by Section 503(b)(1)(A). Nor may the FCC enforce compliance with self-certifications pursuant to Section 503(b)(1)(B), which authorizes it to sanction any party that "willfully or repeatedly failed to comply with any of the provisions of this chapter or of any rule, regulation, or order issued by the Commission under this chapter."[40] Writers Guild cites cases of forfeitures issued pursuant to Section 503 for devices operating without a required license and causing harmful interference to licensed spectrum users, in violation of Part 15 of the Commission's rules.[41] But Section 503 only gives the Commission authority to enforce the rules it has jurisdiction to adopt in the first place; it is not an extension of the FCC's authority to penalize parties that do not comply with "rules" that the FCC has no authority to adopt. The NPRM does not propose to impose substantive regulatory obligations on unregulated parties who self-certify their good behavior, and it is doubtful that the Commission could establish jurisdiction to directly regulate such parties, given the constraints on Commission authority imposed by Section 629(f)[42] and judicial authority,[43] and the Commission's own repeated disclaimer of any intention to regulate these parties.[44] If the FCC really had the

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substantially with the terms and conditions of any license, permit, certificate, or other instrument or authorization issued by the Commission." WGAW May 31, 2016 *Ex Parte* at 6.

[40] *Id*. at 6, citing 47 U.S.C. § 503(b)(1)(B).

[41] All of the forfeitures cited by WGAW in note 22 of its May 31, 2016 *Ex Parte* deal solely with such cases.

[42] 47 U.S.C. § 549(f) ("Nothing in this section shall be construed as expanding or limiting any authority that the Commission may have under law in effect before February 8, 1996.").

[43] *EchoStar Satellite L.L.C. v. FCC*, 704 F.3d 992, 997-1000 (D.C. Cir. 2013) (rejecting FCC's imposition of encoding rules upon satellite providers in order to fulfill consumers' expectations that their digital televisions and other equipment will work to their full capabilities and thereby enhance consumer confidence in a retail market, finding that Congress did not grant the FCC authority to adopt measures with only a "tenuous . . . connection to § 629's mandate," and dismissing as an "obvious implausibility" any claim that section 629 "empower[s] the FCC to take any action it deems useful in its quest to make navigation devices commercially available."); *Am. Library Ass'n. v. FCC*, 406 F.3d 689, 691-92 (D.C. Cir. 2005) (no authority to require equipment manufacturers to honor "broadcast flag" rules designed to protect copyright interests).

[44] *See Consumer Watchdog Petition for Rulemaking to Require Edge Providers to Honor 'Do Not Track' Requests*, Order, RM-11757, 30 FCC Rcd 12424 ¶ 1 (WCB Nov. 6, 2015); *Protecting and Promoting the Open Internet*,

authority to expand its jurisdiction without limit by certification, the Commission would not have had needed FTC staff to volunteer to police privacy self-certifications.

Writers Guild West and others validate the problems with the NPRM, but they are unable to come up with effective or enforceable solutions.

V. NPRM PROPONENTS HAVE FAILED TO CLOSE THE PRIVACY GAP

Chairman Wheeler promised that manufacturers and app developers must meet Title VI privacy protections: "To be able to license the standard, you're going to have to comply with the Title VI Section 631 privacy rules which apply to cable operators."[45] Apps provide that protection. The NPRM's unbundling approach does not. No proponent of the proposal has found a way to assure that cable and satellite subscribers using retail devices under the NPRM's unbundling requirements would receive the same privacy protections and rights that Congress provided in the Communications Act – nor could they.

TiVo admits to collecting and monetizing private viewing data and the record is replete with privacy abuses by proponents of the NPRM's unbundling proposal.[46] NTIA agrees that the Commission has not protected against the unacceptable erosion of existing privacy protections for consumers.[47] No proponent has moved beyond the sound bite that the FTC might play some undefined role in enforcing an Act over which it has no authority. None explain how the FTC,

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Report and Order on Remand, Declaratory Ruling, and Order, GN Docket No. 14-28, 30 FCC Rcd 5601 ¶¶ 462, 467, 382, n.725 (2015); Press Release, American Cable Association (ACA), ACA's Statement on Netflix's Throttling of Wireless Video Streaming Traffic (Mar. 25, 2016), available at http://www.americancable.org/node/5668; *Protecting the Privacy of Customers of Broadband and Other Telecommunications Services*, Notice of Proposed Rulemaking, WC Docket No. 16-106, 31 FCC Rcd 2500 ¶ 13 (2016); *Chairman Wheeler's Proposal to Give Broadband Consumers Increased Choice, Transparency & Security With Respect to Their Data* (Mar. 10, 2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-338159A1.pdf; NPRM at ¶¶ 77-78.

[45] Remarks of Chairman Wheeler, Press Conference following February 2016 Open Meeting (Feb. 18, 2016), archived webcast available at https://www.fcc.gov/news-events/events/2016/02/february-2016-open-commission-meeting.

[46] TiVo Reply Comments at 15-16; NCTA Comments at 82-84.

[47] National Telecommunications and Information Administration (NTIA) Comments at 5.

without contractual or technical tools, would determine what data a third party is collecting, how it is using the data, or whether it is unlawfully sharing it with other parties, or how the FTC may reach foreign device manufacturers and app developers.[48] Even if the FTC could see and detect all violations, the FTC does not have the authority to award private damages or to create a consumer's private right of action.[49] As Senator Reid explained, "As a result [of the NPRM being implemented], a consumer using a third-party set-top box could have minimal recourse to ensure the strong privacy protections that the FCC currently obligates for MVPDs, leaving consumers without any meaningful remedy."[50]

Public Knowledge acknowledges the privacy gap and proposes that the FCC exercise ancillary jurisdiction over device manufacturers' privacy practices.[51] But neither Public Knowledge nor any other unbundling proponent has addressed the ample case law confining that authority or the limitations that Congress provided in Section 629(f).[52] Nor have they addressed the FCC's own decision to refrain from imposing any privacy rules on the same tech companies that the NPRM now would favor. Replacing MVPD apps and licensing with reliance on unenforceable self-certifications would expose consumers to an unbridgeable privacy gap.[53]

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[48] NCTA Reply Comments at 13-15.

[49] NCTA Reply Comments at 13.

[50] Letter from Senator Harry Reid to the Honorable Tom Wheeler, Chairman, FCC, (June 14, 2016).

[51] Public Knowledge Reply Comments at 15-16.

[52] Theodore B. Olson, Helgi C. Walker, and Jack N. Goodman, The FCC's "Competitive Navigation" Mandate: A Legal Analysis of Statutory and Constitutional Limits on FCC Authority, attached to NCTA Comments as Appendix A, at iii, v-vi, 29-30, 63-65 ("Legal White Paper").

[53] Proponents follow the same playbook in simply asserting that other documented consumer protection problems do not exist. They falsely claim that the proposal would meet or exceed accessibility requirements. *See* CVCC Reply Comments at 44-47. But disabilities groups identify the same gap as NCTA, with no enforceable remedy other than asking the FCC to create authority over third-party app developers that the FCC has disclaimed. *See* Consumer Groups and DHH-RERC Reply Comments at 2-5. Proponents claim that because EAS works on VidiPath and CableCARD, it can work under the proposal. *See* Public Knowledge Reply Comments at 27-28; CVCC Reply Comments at 26. To the contrary, EAS works on VidiPath *by using an MVPD app*, which is essential to making the functionality work. *See* Technical White Paper at 17; *see also* NCTA Comments at 13. CableCARD is a physical intermediary device just for cable, not for the many other protocols used across MVPDs. The FCC also adopted a

VI. THE NPRM'S PROPONENTS FAIL TO PRESENT A TECHNICALLY FEASIBLE APPROACH

A. The Proponents Have Again Failed to Deliver a Cloud-Based Solution, Requiring a Two-Box Approach.

Although the NPRM claims that MVPDs need not deploy a new in-home device to feed retail devices, the proponents' most recent technical claims say otherwise. Even in concept, CVCC only considers cloud-based solutions to be available for IP networks, leaving the remaining 90% of the industry in installing in-home devices to feed retail equipment.[54] When trying to address the privacy and security vulnerabilities the unbundling proposal, CVCC would explicitly place a new MVPD device into the home as a network shield.[55] CVCC offers "MVPD CableCARD devices, DirecTV Ready TVs and VidiPath compatible TVs"[56] as analogies – which all rely on MVPD-provided in home equipment. Public Knowledge explicitly invites a "gateway device."[57] Their proposal is mapping a path backwards toward more boxes and thus more energy consumed in the home.[58] Rather than double-down on the set-top box, the MVPD solution provides a path to eliminate it.

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regulation requiring CableCARD devices to respond to EAS signals – an obligation since vacated in court as beyond FCC jurisdiction and nowhere mentioned in the NPRM.

[54] CVCC explains that "*MVPDs that have not moved to IP delivery"* – which is about 90% of the industry – "*can utilize efficient gateways, including outputs from their set-top devices."* CVCC Reply Comments at 29 (emphasis in original).

[55] CVCC Reply Comments at 36-38 ("Where an MVPD has not moved to IP delivery, data on entitlements are carried via existing security systems to a device at or near the home, where they are delivered to competitive devices via Internet Protocol.")

[56] CVCC Reply Comments at 31.

[57] Public Knowledge Reply Comments at 25.

[58] The NPRM's proponents falsely claim that set-top boxes are energy inefficient and cannot sleep. Public Knowledge Reply Comments at 26. But the Independent Administrator for the set-top box energy efficiency Voluntary Agreement documents exactly the opposite. Annual Report of the Independent Administrator of the Voluntary Agreement for Ongoing Improvement to the Energy Efficiency of Set-top Boxes at 1-4, 8-12, 18 (July 31, 2015), http://www.ce.org/CorporateSite/media/Government-Media/2014-Annual-Report-STB-Voluntary-Agreement.pdf. Natural Resources Defense Council (NRDC) concluded "it appears to us that the FCC did not take into account the energy use and environmental implications of its proposal," and urged "the FCC to carefully review its proposal and to consider making modifications to its proposal that may be needed to remove barriers it may be creating that could prevent attainment of these energy reductions." NRDC Comments at 1.

B. The NPRM Proponents Have Again Failed to Provide a Means to Revoke Non-Compliant Devices.

Proponents place great stock in the ability of an MVPD to see into devices and detect behaviors that do not comply with promises in certificates, and then to revoke such devices. Yet none have addressed the lack of any visibility into the device or into the device manufacturer's practices.[59] Nor has any proponent produced a means for identifying and then revoking a non-compliant device. An app or device must be uniquely identified and associated with a specific subscriber's account in order to allow or revoke access to specific content. But the proponents reject such essential identification,[60] reject all proposals for strengthening of digital certificates or authentication, and propose no substitute that can ensure that a device can be authenticated and identified.[61] A predictable trusted application execution environment resolves all of these issues.[62]

C. The NPRM Proponents' "Content Protection" Approach Jeopardizes Security.

Rather than addressing security holes, proponents simply pretend that DTCP link-protection, DRM or CAS is sufficient "security." Content protection alone does not provide security. CVCC views security as only content protection for linear and VOD programming, rather than the security system that protects the distribution, packaging, presentation, protection and funding of television content.[63] As DSTAC reported, "CAS and DRM are a small but necessary part of the secure delivery of commercial content and multichannel service. … CAS

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[59] *See* Technical White Paper at 15-17, 40-42; Ralph W. Brown, A Technical Analysis of the Multiple "Competitive Navigation" Proposals, attached to NCTA Reply Comments as Appendix A, at 8, 14 ("Technical Analysis").

[60] CVCC Reply Comments at 36 ("It would not be necessary to 'identify' particular apps or devices to prevent authentication or enable termination.").

[61] CVCC Reply Comments at 39.

[62] *See* Technical White Paper at 5-11.

[63] CVCC Reply Comments at 41-43.

turns video on and off, but there are many other threats that MVPDs must address: threats that arise through circumvention of content license restrictions; threats to the chain of trust model that assures secure flow of content from content supplier to the distributor to the consumer; threats to privacy protections; and threats to the service itself, such as failure to render service, failure to support billing, or interference with advertising. MVPDs address these threats through a variety of technological measures."[64]

Proponents mistakenly claim that apps are not part of security because security only applies to "output protection settings."[65] The MVPD app and other tools removed by the NPRM function as part of the security to detect fraud and unauthorized credential sharing; to enforce restrictions on the number of registered devices/concurrent streams; to enforce geographic restrictions; to effect secure boot for authorized device verification; and to deliver "signed code" to match a security certificate, among other security functions.[66] The MVPD app enforces privacy, channel line-up, and advertising, which a wide array of parties on all sides of the NPRM agree is jeopardized under the NPRM's unbundling approach.[67] The unrebutted evidence is that an MVPD's app is required to secure and deliver the MVPD service, because it operates as part

[64] DSTAC Final Report at 33 (DSTAC WG2 at 6). Among the major security deficiencies is failure of the NPRM or its supporters to account for cybersecurity. The NPRM fails repeatedly to even acknowledge, let alone address, cybersecurity requirements, the NIST Cybersecurity Framework, or even the recommendations of the FCC's own CSRIC. *See* NCTA Comments at 93-97. In response to pointed inquiries from the House and Senate Homeland Security Committee's on these cybersecurity risks, the Commission's response mentions network security, encryption, privacy protection, and content protection, none of which address the cybersecurity failures of the NPRM. Letter from the Honorable Tom Wheeler, Chairman, FCC, to Thomas R. Carper, US Senate (June 10, 2016).

[65] CVCC claims "[t]he 'apps' themselves are not a part of the security regime. While apps interact with video displays and output and audio controls, they do not handle output protection settings." CVCC Reply Comments at 4, 42.

[66] Comcast Comments, Declaration of Tony G. Werner at ¶ 23; Technical White Paper at 7.

[67] *See* Technical White Paper at 15-16, 19-20, 22-23; *see also* Writers Guild of America, West (WGAW) Comments at 12; WGAW May 31, 2016 *Ex Parte*; Letter from Corrina Freedman, Political Director, Writer's Guild of America, West to Marlene Dortch, Secretary, FCC, MB Docket 16-42; CS Docket 97-8 (June 8, 2016) at 3-4; National Telecommunications & Information Administration (NTIA) Comments at 4-5; NAB Comments at 2; NAB May 23, 2016 *Ex Parte*.

of a chain of trust including apps, agreements, privacy, content provider third party beneficiary rights, device testing and certification.

Security professionals have detailed the security deficiencies of the proposal. For example, Technicolor confirms that "the approach suggested by the NPRM eliminates applications as technological protection measures, fails to provide a trusted application execution environment available on retail devices, artificially constrains the choice of security options, fails to support user authentication, and ignores NIST best practices such as network segregation. Such an approach fails to provide a meaningful trust infrastructure within which retail devices can securely access MVPD services."[68] Technicolor faults multiple security failings of the proposal:

- "[T]he NPRM provides no effective means for validating a device or preventing a device from impersonating legitimate devices … any rogue, pirate or hacked device or app could simply pretend to be a compliant device or app by substituting the URL for a known compliant device."
- "Because the NPRM provides no technical or contractual mechanisms for an MVPD to detect intrusion, customer exposure for device compromise and personal information is ripe and inevitable."
- "Without clear recourse and penalties for misuse of content or data, any security is merely hypothetical."[69]

Other security professionals provided similar critiques in their comments.[70] None of these deficiencies have been corrected or even addressed by the proponents.

D. DTLA Does Not Provide a Sufficient Security Solution.

DTLA promotes its DTCP-IP content protection technology as a supposed security solution for retail devices, but it cannot assure compliance. The use of DTCP-IP as a single link

[68] Technicolor Reply Comments at 1, n.1.

[69] Technicolor Reply Comments at 3, 2.

[70] *See, e.g.*, Verimatrix Comments at 8, 11; Technical White Paper at 36-45; Technical Analysis at 12-14; AT&T Comments at 27-28, 45-47.

protection technology for all content would create a single point of attack.[71] DTLA admits that it has never revoked a certificate. But far from demonstrating compliance, it is because DTLA does not revoke for non-compliance.[72] DTCP-IP does not support current business models and even when it tries to change, it is years behind the market.[73] The one update it trumpets has never been implemented and its next proposed update was once suggested but remains undeveloped and unlaunched.[74] And in any case, the content community has never considered DTCP alone, stripped of other layers, to be sufficient protection.[75]

E. The Proposed Interfaces Are Neither Flexible Nor Adaptable.

CVCC claims that the "information flow" interfaces will be flexible and adaptable,[76] but just because the proposed interfaces have a software element does not make them flexible or adaptive. They in fact introduce rigidity that retards innovation, restricts new consumer offerings, and prevents effective security responses.

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[71] *See, e.g.*, Cisco Comments at 9-10 ("absolute standards and frameworks provide a single point of attack and thus are easy targets for malicious actors").

[72] DTLA will only revoke if a certificate is cloned, lost, stolen, intercepted, or under an NSA order. Digital Transmission Protection License Agreement §4.2. DTLA specifically provides that "DTLA shall not Revoke a Device Certificate (a) based on Adopter's general implementations of the Specification in a model or product line that is not Compliant or otherwise based on Adopter's breach of this Agreement." *Id.* at §4.2.4.

[73] NCTA Comments at 98, 128; NCTA Reply Comments at 66.

[74] NCTA Reply Comments at 66.

[75] NCTA Comments at 128; DSTAC Final Report at 282-83, 293 (DSTAC WG4 at 147-48, 158). CVCC claims that Skjei "overlooks" the link protection already in use in home networking outputs. To the contrary, the Technical White Paper discusses in detail why link-layer security such as DTCP-IP alone does not technically enforce essential requirements of content licenses, data security, or the protection of networks, content, and customers. Technical White Paper at 20, 21, 23, 38. Skjei also discusses in detail how the proposal fails to meet EAS and accessibility requirements. *Id.* at 17-19. *See also* Motion Picture Association of America (MPAA) and SAG-AFTRA Comments at 31 ("Using a link-protection technology like DTCP-IP as the sole content protection technology between a navigation device and a display does not fortify these products from outside attacks nor does it enable the content provider to track how the content is manipulated when it resides in either of these devices. As the MPAA stated as part of the DSTAC proceeding, a layered approach to security is the best way to promote a secure system. The proposal runs counter to that.").

[76] CVCC Reply Comments at 25.

Constraining Innovation. For example, because parity constrains an MVPD's commercial offerings to those which can be replicated through the standardized interfaces, an MVPD could not launch a cloud- and app-based licensed service to one retail device unless it created an equivalent solution without an app or a license.[77] Parity would forbid new services that can only be offered through a new security system which has outpaced the static mandatory interfaces and their limited security.[78] An MVPD could not migrate its network to ISO media formats, HEVC, and new DRM systems, until the "standard" can be made to a co-equal least common denominator. An MVPD could not adopt IP multicast today, unless it simulcast two different forms of IP multicast—one for the FCC set-top box mandatory interfaces, and one for the rest of the network so that it can keep evolving and not be stuck in a frozen standard dictated by FCC rule. [79] No party has contested any of this.[80]

Restricting new consumer offerings. No two MVPD entitlement systems are the same (and they are continually evolving), and there is no standard that expresses the complexity of new offers through the standardized entitlement interface. For example, parity would forbid a studio from trialing a new offer with an MVPD. An MVPD could not sell video by the 50 or 100

[77] NCTA Comments at 109-110, 141-142.

[78] NCTA Comments at 142-143.

[79] NCTA Comments at 109-111. CVCC does not address the detailed record on how adoption of the rules would significantly delay the adoption of IP multicast for streaming of linear video content, Technical White Paper at 35-36, and that, as DSTAC reported, the multicasting used in IPTV systems like U-Verse also include unicasting essential for instant channel change, which would be broken by adoption of the proposed rules. *See* DSTAC Final Report at 142, 287 (DSTAC WG4 at 7, 152) ("For AT&T to build a Virtual Headend as called for in the Device Proposal it would need to re-architect its multicast end-to-end model to one that breaks the multicast at a new gateway device and translates it into multiple uni-cast streams."); *id.* at 286 (DSTAC WG4 at 151) ("In order to implement instant channel change, the retail device must implement the proprietary Media Room protocols, otherwise, ICC cannot be implemented, nor can it be implemented in a U-Verse gateway.").

[80] TiVo says only that it has been able to transition its equipment to MPEG-4 – which does not address this issue at all. TiVo Reply Comments at 19. CVCC claims that it is the capacity of fielded set-top boxes that constrains the use of new codecs. CVCC Reply Comments at 30. The issue is that under the proposed FCC rules, an MVPD could not upgrade codecs in its plant and devices if retail devices choose not to support new codecs for the three interfaces and insist upon continued carriage of obsolete codecs.

hours of viewing unless the standardized entitlement interface had anticipated that new way to market. Bound by "parity," the MVPD could not offer anything more than is enabled through the standard entitlement stream.[81]

The proponents do not refute this. They call for a device in the home as a bridge, proxy, or translator. This writes off cloud delivery and would impose a fundamental change on MVPD networks and/or systems. But even installing an in-home device would not fix the underlying problem of translating the rich rights that can be conveyed through MVPD apps and a dynamic DRM rights expression language into the limited rights expression language constrained by a standardized entitlements "information flow" and the limited rights expression of systems like DTCP.[82]

Disabling effective security responses. Security must defend against malicious attacks and build in renewability so that the system can be refreshed when it is ultimately compromised. DSTAC itself agreed to this unanimously,[83] but the proposal fails these requirements. As Technicolor explained, "three interfaces imposed by technology mandate that cannot be changed without standards-based consensus or regulatory permission … is incapable of responding nimbly, organically and proactively to any zero-day exploit."[84] The entire platform is only as

[81] Technical White Paper at 31, 34.

[82] Proponents' other supposed "fixes" for entitlements display an amazing lack of understanding of how content protection works. They claim that entitlements are an information stream only, but a DRM or CAS system requires both an Entitlement Management Message (or DRM license) to convey the subscriber's rights in addition to the Entitlement Control Messages (or DRM keys) necessary to decrypt the content. The Entitlement Information Interface cannot be purely informative, it must be cryptographically protected and directed to a particular device. But the proposal does not provide that mechanism. The proponents resort to "free form text" addresses only transactional VOD and ignores the many other variants such as StartOver or LookBack.

[83] DSTAC Final Report at 67, 71 (DSTAC WG3 at 9, 13).

[84] Technicolor Reply Comments at 4. *See also* Cisco Comments at 8 ("DRMs evolve quickly against moving targets of attackers and to support moving evolving business models … security changes cannot wait for a standard to change").

secure at the weakest link created by the proposal,[85] and parity prohibits MVPDs from using content protection systems that allow for greater (higher value) content access, unless it is available on the RAND systems supposedly protecting these weak links. The proponents have no answer.[86]

Arresting Development. These constraints mean MVPDs (but not OVDs) must go to the standards body for a change in the standard (typically requiring years of work, and consensus among the members of the standards body), or to the FCC for waivers (which have taken years under the FCC's last set-top box mandate). New codecs, formats resolution (like 4K and HDR), and other technical innovations would be on hold. MVPDs would have to lay out in public their proposed innovative offer, and let others steal the idea and beat them to market while the standards body or FCC considers it. Security would remain compromised.

No stream management. Contrary to CVCC claims,[87] proponents have not provided a means for controlling the number of IP channels that are open at the same time. This critical aspect of network management is not about adaptive bit rate. Neither switched digital video nor AT&T's U-Verse make use of adaptive bit rate, yet still exercise control over the number of concurrent streams. In the case of HTML5, it is the web app that implements the adaptive bit rate algorithm, not the browser or underlying platform, giving the MVPD or OVD control over the adaptive bit rate streaming algorithm. It is not sufficient, as CVCC suggests,[88] to simply trust device manufacturers to conserve bandwidth: low cost manufacturers and hackers have no

[85] NCTA Comments at 99; Technical White Paper 5, 36-45.

[86] Instead, they simply ask the FCC to "discount" those well-documented problems. CVCC Reply Comments at 39. CVCC insists that the security solutions required by the proposal are already "in widespread use or in development," that DTCP or "future adaptations of DTCP" are sufficient, and that apps are not part of MVPDs' security regimes. *Id.* at 39-42; *but see supra* at 19-21(discussing security issues created by the proposal).

[87] CVCC Reply Comments at 32, 36.

[88] CVCC Reply Comments at 32.

incentive to conserve an MVPD's bandwidth for other uses. The proponents offer no defense against the video equivalent of the peer-to-peer takeover of Internet bandwidth or a denial-of-service attack on video servers.

F. The NPRM Proposal Is Not "CableCARD Done Right"

The proponents offer the slogan that their proposal is "CableCARD done right."[89] But unrefuted facts show their solution to be all wrong.

CableCARD-enabled "plug and play" devices were limited to one-way linear programming. FCC rules required manufacturers to warn consumers of that limit.[90] By agreement between the cable and consumer electronics industry, these devices were transitional, with the eventual migration to apps-based solutions for interactive services.[91] The NPRM proposal, by contrast, simply strips out interactivity, reverses decades of innovation and reduces two-way cable service to one-way broadcast—which is not even the service offered or provided by cable today.

CableCARD devices operated under a DFAST agreement that was limited to that one-way world. It did not address connected devices with modern interactive service, out-of-home viewing, over-the-top video or the cloud.[92] The NPRM proposal discards even that license. While borrowing a few phrases from the proposal, it neither replicates DFAST nor provides any adequate enforceable rules for handling today's cable service.

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[89] CVCC Reply Comments at 59.

[90] *See* former rule 47 C.F.R. §15.123(d) ("Manufacturers and importers shall provide in appropriate post-sale material that describes the features and functionality of the product, such as the owner's guide, the following language: 'This digital television is capable of receiving analog basic, digital basic and digital premium cable television programming by direct connection to a cable system providing such programming. A security card provided by your cable operator is required to view encrypted digital programming. Certain advanced and interactive digital cable services such as video-on-demand, a cable operator's enhanced program guide and data-enhanced television services may require the use of a set-top box. For more information call your local cable operator.'").

[91] NCTA Comments at 61.

[92] NCTA Comments at 61.

NPRM proponents do not dispute the years of industry support provided for retail CableCARD devices. But CVCC blithely blames all CableCARD start-up problems on the cable industry,[93] when the FCC has a 40+ page in-depth report documenting the problems with the *retail* equipment and how cable operators received the service calls and worked with consumers on fixes to *retail* problems.[94] A retail CableCARD-enabled TV designed to receive full interactive cable service was launched, but the product failed as overpriced.[95] CVCC even claims that there is no evidence of the downloadable security proposed by the industry in 2005.[96] But Charter and Cablevision use downloadable security today – only after overcoming opposition by TiVo and other CE interests to the FCC waivers necessary for the test bed and for commercial deployment. And every top MVPD provides secure downloadable apps.

The undisputed fact is that consumers have chosen apps over CableCARDs. Even with Comcast and Cox VOD apps running on CableCARD-enabled TiVOs, the app-based Roku still outsells TiVo 10:1, and Microsoft moved on from the CableCARD platform on which the CableCARD-enabled OCUR was based. Trying to base any proposal on CableCARD is not "CableCARD done right." Rather than "unlocking the box," the proposal will lock in the box and force consumers to use two boxes, and waste electricity needlessly, when an app could provide service with no box at all.

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[93] CVCC Reply Comments at 22-23.

[94] NCTA Comments at 115 n.271. Letter from Neal Goldberg, NCTA to Marlene H. Dortch, Secretary, FCC, CS Docket 97-80 (Jun. 29, 2006) (Retail device problems included defective power supplies, bad tuners, bad solder joints, projector lamps that interfered with the CableCARD interface, defective main boards, bad wave solder processes, component tolerance issues, bent pins, and software/firmware problems such as improperly designed software, corrupt software, and firmware that did not function properly. Manufacturers even sought to hide problems from the cable industry, from consumers, from the FCC and from each other.).

[95] *See* DSTAC Final Report at 46 (DSTAC WG2 at 19) (citing John Falcon, *First Panasonic Tru2way TVs Hit Stores in Chicago, Denver*, CNET (Oct. 16, 2008), http://www.cnet.com/news/first-panasonic-tru2way-tvs-hit-stores-in-chicago-denver/).

[96] CVCC Reply Comments at 21-22, 24.

Hauppauge falsely claims that no reason has been advanced for not restoring all vacated CableCARD support rules and extending Charter merger conditions to the entire industry.[97] NCTA's Comments made clear that technology mandates in general and these rules in particular create ill effects that endure long after their adoption, derailing innovation in their wake.[98] In adopting Section 629, Congress instructed the FCC to "avoid actions which could have the effect of freezing or chilling the development of new technologies and services."[99] NCTA's Comments and the DSTAC Report itself noted the considerable economic and academic literature documenting that the risks of government-induced market failure and the high costs to innovation when the government intervenes in such markets.[100] Given the absence of record support for the necessity of additional CableCARD regulation, the Commission should not impose any new CableCARD rules and should eliminate the quarterly CableCARD reporting obligation.

[97] Hauppauge Reply Comments at 3.

[98] NCTA Comments at 116 ("The mandated inclusion of costly IEEE 1394 outputs on cable boxes continued for years even after HDMI won out in the marketplace. The Commission took two years to grant waivers from its integration ban and encoding rules for early-release theatrical content; well over a year to authorize the DTAs essential for cable's digital transition; and well over a year to deny a waiver that NCTA requested to provide a testbed for downloadable security. Later, the lengthy waiver process also delayed deployments of downloadable security under waivers that were finally granted to two operators. … Cable operators paid over $1 billion and wasted over 600 million kilowatt hours of energy ($60 million in residential electric bills) annually on the integration ban, and that technology mandate failed famously and expensively for nearly a decade before it was repealed by Congress. As DSTAC reported, "Had the FCC adopted the 'AllVid' rules, the distributor and programming industries could not have developed today's amazing market that provides MVPD programming to smartphones, tablets and other devices embraced by consumers."").

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

[100] NCTA Comments at 106-108; DSTAC Final Report at 299 (DSTAC WG4 at 164).

VII. IMPLEMENTATION OF THE PROPOSED RULES WOULD NOT BE SWIFT

CVCC professes that the proposed rules could be implemented quickly, despite the many unresolved chronic failings of the proposal because they claim that their favored approach is akin to technologies fielded today.[101] But this is an empty claim.

CVCC claims that MVPDs "intend to rely on essentially the same data flows and security technologies that the FCC proposes," citing "for example VidiPath, RVU or the XFinity [sic] Partner Program."[102] This is false. DLNA, the author of VidiPath, has called the NPRM proposal "materially different than the DLNA VidiPath architecture."[103] AT&T has explained that the proposal is so far from its current architecture that "DIRECTV may have to essentially start from scratch – at a massive cost in time, money, and resources – to re-engineer its systems to provide the proposed information to third-party devices."[104] Unlike the NPRM's unbundling proposal, the Xfinity TV Partner Program relies on a cloud-based HTML5 app, does not involve a proxy server, and does not rely on multicast.[105] CVCC is correct that MVPDs are using commercial content protection systems today, like DRM – but those content protection systems

[101] CVCC

[102] CVCC Reply Comments at 24, 25, 26, 31.

[103] DLNA Comments at 2 ("DLNA notes that the architecture of the Competitive Navigation proposal is materially different than the DLNA VidiPath architecture.").

[104] Letter from Daniel V. Dorris, Counsel to AT&T Services, Inc., to Marlene H. Dortch, Secretary, FCC, MB Docket No. 16-42; CS Docket No. 97-80 (May 24, 2016) at 2 ("AT&T May 24, 2016 *Ex Parte*"); AT&T Comments, Technical Declaration of Stephen P. Dulac at ¶ 25 ("The Commission's proposed two-year deadline is impossibly short given the substantial work that must be done by the OSB [open standards body], and this does not even consider the normal product update cycle of 18-24 months that can only begin once the OSB work is nearing completion.").

[105] *See* NCTA Comments at 17; Comcast Comments at 28-30; Comcast Reply Comments at 16-17; AT&T Reply Comments at 4-5. CVCC repeatedly conflates MVPD apps running in trusted execution environments with disaggregated information flows running without apps and without a trusted application execution environment. *See, e.g.*, CVCC Reply Comments at 26, 30 (claiming equivalence between Comcast Xfinity Partner program and CVCC's disaggregated information flows); 31 (claiming that "present streams are 'complaint' streams" and could serve as unbundled information flows even without apps); 39 (claiming that the security for information flow is in "widespread use"); 41 (ignoring use of apps in Android, iOS, Roku, Smart TV platforms). The Technical White Paper includes 50+ pages of analysis explaining why the protections and operations of the apps model are not replicated in disaggregated information flows.

are licensed as a service, not on RAND terms, and operate as part of a trust infrastructure that includes the MVPDs apps.[106] When used with apps on iOS, Android and other retail devices, DRMs operate to secure an MVPD's app *within* and not outside of a trusted application execution environment, as CVCC mistakenly claims.[107] CVCC professes that resolution can be swift, because absence of the app will expedite the solution. Quite the opposite - it is the removal of the app that would *cause* these chronic failures of the CVCC proposal, and which leads to CVCC's repeated failures to identify a technically viable solution.

CVCC erroneously claims that the MVPDs' new HTML5 apps proposal "establishes that large MVPDs can commit to a two-year time frame for IP-based delivery of MVPD content to third-party devices."[108] But the HTML5 proposal does not prove that the NPRM's unbundling proposal can be implemented within two years, or ever. The new proposal could be implemented because it leverages existing market developments and technological development, rather than ignoring technological reality. The proponents pretend that existing modems or set-top boxes can support the unbundled information flows, but this has been refuted in DSTAC, in Comments and in *ex partes*.[109] There is no such gateway in existence today. It would be a new device and would likely require new silicon design or a costlier multi-chip implementation. The proponents also claim, without support, that existing cable modems could easily be extended to

[106] NCTA Comments at 98; ARRIS Comments at 13 ("[C]ontent security vendors generally do not license their security solutions on RAND terms today. Requiring MVPDs to support a security solution available to third parties on RAND terms would likely have the effect of limiting the security options for MVPDs, potentially excluding superior security solutions that are not licensed on such terms.").

[107] CVCC mistakenly claims that "[c]urrent marketplace technologies such as iOS and Android also demonstrate that proper content security and protection can be achieved without a 'trusted application execution environment.'" CVCC Reply Comments at 25. As the record explains in detail, iOS and Android provide a "trusted application execution environment" in which service provider apps may run code and render service securely. NCTA Comments at 68, 78; NCTA Reply Comments at 61; Technical White Paper at 9-10.

[108] Letter from Robert Schwartz, Counsel for CVCC, to Marlene H. Dortch, Secretary, FCC, MB Docket 16-42; CS Docket 97-80 (Jun. 22, 2016) at 1.

[109] *See, e.g.,* DSTAC Final Report at 287 (DSTAC WG4 at 152); NCTA Comments at 128, 130-132; Comcast Comments at 64-67; AT&T May 24, 2016 *Ex Parte* at 2.

provide a translation from multicast to unicast IP.[110] This is unfounded. It would require a new device implementation, sufficient memory, new processing power and new network protocols to provision and manage that device, and new operational support systems.[111]

The "default" spec that the NPRM would impose if, as is likely, standards bodies are unable to develop new consensus standards in the short time allotted,[112] remains as technically infeasible as it was when its first incarnation was presented in DSTAC. In its many iterations the proposal (1) weakens MVPD security and the associated trust infrastructure; (2) fails to technically deliver a "cloud-based" approach; and (3) reduces interactive cable services into broadcast-only (one-way) services, removing the necessary support for essential aspects of MVPD service such as Video-on-Demand (VoD), user identification, and device registration, and other interactive elements.[113] Neither CVCC nor any other proponent has fixed these failings.

The National Association of Telecommunications Officers and Advisors ("NATOA") and the National League of Cities ("NLC") have wisely counselled that the entire NPRM proposal is too complicated to rush through.[114] Experts with direct experience do not agree that this can be "fixed" in a standards body any time soon. DLNA – which developed VidiPath – says a more realistic expectation for standards bodies is 36 months +/- 12 months. AT&T – which developed RVU – says that RVU alone took four years even with aligned interests, and the information flow standards would take far more. A security company with experience in

[110] CVCC Reply Comments at 32, 33.

[111] NCTA Comments at 128; DSTAC Final Report at 287 (DSTAC WG4 at 152).

[112] NCTA Comments at 127-129; NPRM at ¶ 43.

[113] See NCTA Reply Comments at 81-82.

[114] NATOA and NLC Reply Comments at 2-7.

DVB, ITU, MPEG, ATSC and other standards bodies says standards bodies will "certainly not" be able to develop solutions within the limited two-year time frame proposed by the NPRM.[115]

VIII. APPS ARE A SUPERIOR ALTERNATIVE THAT MEETS AND EXCEEDS THE REQUIREMENTS OF SECTION 629

Proponents of the NPRM's unbundling proposal have plunged to extraordinary depths of distortion to oppose an apps-based approach despite the fact that apps are widely used on the very retail navigation devices that they profess to be promoting.

Apps Promote Competition and Choice. MVPDs support, promote, and continue to expand the availability of their services on retail devices using the most modern and secure tools developed by the market and embraced by consumers for *enabling* choice and competition. Opposing an illegal and unworkable unbundling proposal, while promoting apps that enable retail devices to access cable service and cable programming, does not mean, as Public Knowledge claims, that MVPDs oppose competition or consumer choice.[116] It is mystifying that Public Knowledge falsely claims that MVPDs "prevent" service from running on Roku or Fire TV,[117] when apps enable these very devices to access cable service and cable programming.[118]

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[115] DLNA Comments at 2 ("DLNA has substantial experience in projects of this complexity, demonstrating that much longer than one year is required for a project of this magnitude. Using the timelines of several similar DLNA projects as illustrative examples, a more realistic expectation is 36 months +/- 12 months for end-to-end projects including project definition, guideline creation, test program creation, plugfests, certification program creation and validation.") *See also* AT&T Comments, Technical Declaration of Stephen P. Dulac at ¶25; Technicolor Reply Comments at 5 ("Our experience in standards bodies over many years (including DVB, ITU, MPEG, and ATSC) suggests that it is highly unlikely that standards bodies will be able to develop solutions that meet the requirements set forth in the NPRM, and they will certainly not be able to do so within the limited two-year time frame proposed by the NPRM.").

[116] Public Knowledge Reply Comments at 26 ("Innovation in low-power computing devices has moved at a breakneck pace in the past few years, particularly in the video space, with low-power devices like Google's Chromecast, Amazon's Fire TV, Apple's AppleTV, and Roku's offerings, offering consumers energy-efficient, innovative, low cost devices. The current MVPD regime prevents consumers from using these devices to access MVPD content, forcing them instead to rely on MVPD set-top devices which are substantially larger."). Public Knowledge and TiVo seek to portray criticism of their unworkable and unlawful approach as opposition to choice and competition. Public Knowledge Reply Comments at 1; TiVo Reply Comments at 1.

[117] Public Knowledge Reply Comments at 26.

Equally false is the claim that content providers' and distributors' insistence that devices "honor contract" requirements just means no competition.[119] In the real world today, actual apps on actual devices demonstrate how one can honor copyright and have competition too.[120]

Apps are not "status quo." Proponents of unbundling try to portray the extraordinary revolution enabled by apps as "status quo"[121] – an otherworldly claim that the market belies. MVPDs make their apps available on more than 460 million retail devices, which is more than twice the number of set-top boxes currently in use, and two-thirds of the retail devices support apps from all of the top 10 MVPDs.[122] Year-over-year viewing via MVPD apps more than doubled in 2015, with forty percent of MVPD subscribers using "apps" to view their subscription content. Consumers can also build their own packages of video services from consumer electronics device manufacturers like Roku, Apple and Sony, from Internet streaming offerings by Sling TV, Netflix, Amazon, and many others, and from standalone offerings such as HBO Now and Showtime Anytime. New HTML5 apps are being launched for even broader coverage on any retail device using a modern browser.[123]

The HTML5 proposal seeks to build on the success of apps to give MVPD customers the option of ditching the leased box in favor of downloadable apps that can run directly on smart TVs, other connected devices, or a new retail box of their choosing, with confidence it can port

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[118] NCTA Reply Comments at 55; *see also* Amazon.com, Listing of Fire TV Apps (All Models), https://www.amazon.com/s/ref=lp_10208590011_nr_n_14?fst=as%3Aoff&rh=n%3A2350149011%2Cn%3A%212445993011%2Cn%3A10208590011%2Cn%3A9408765011&bbn=10208590011&ie=UTF8&qid=1465313536&rnid=9209898011 (last visited June 8, 2016).

[119] Public Knowledge Reply Comments at 20.

[120] *See, e.g.*, Roku Comments at 10-11.

[121] CVCC Reply Comments at 18.

[122] *See* DSTAC Final Report at 208, 263 (DSTAC WG4 at Tables 8, 9); NCTA Comments at 11; NCTA Reply Comments at 53, 84.

[123] NCTA Reply Comments at 55, 56; Comcast Reply Comments at 16, n.28.

among the largest MVPDs and online video providers.[124] The MVPD proposal uses the most current W3C HTML5 standards. Under the new app-based approach, consumers who want to watch their MVPD service on different devices in the home could download a new MVPD app to the smart TV, tablet, retail set-top box, or other "connected" device and start viewing without a cable set-top box or cable set-top box rental fees. The apps would include the full suite of the linear and on-demand programming that each MVPD provider has the rights to include and that MVPD provider's interface and guide.

Apps support competitive user interfaces. The unbundling proponents claim that MVPD apps seek to prevent distinctive retail interfaces, but apps support competitive user interfaces – in ways that also respect other parties' rights; in contrast, unbundling proponents would ride roughshod over those rights. Retail devices that host apps may continue to differentiate themselves with features, functions, networks, drives, speed, look, feel and price, and may have their own top level user interface, app store, and menu structure. Android and iOS compete vigorously with their user interfaces; Nintendo, PlayStation, and Xbox have competitive user interfaces; LG, Panasonic, Samsung, Sony, and Vizio also compete with their user interfaces. But the MVPD apps on such competitive devices present MVPD service as offered and branded by the MVPD. Different video apps appear as selectable apps that, once clicked, present the retail experience of that video provider in the manner selected by that provider. Tablets, smartphones, gaming consoles, PCs, smart TVs, retail STBs, and other retail devices are clearly succeeding under this apps model.

The new HTML5 apps-based proposal shows that apps can also support solutions that enable integrated search, without violating the intellectual property rights of content providers.

[124] Letter from Paul Glist, Counsel for NCTA, to Marlene H. Dortch, Secretary, FCC, CS Docket 97-80, MB Docket 16-42 (June 16, 2016).

Under the new proposal, consumers could use the device's own search function to obtain combined search results from MVPD content and from online video providers offering licensed content on the same device. Once selected, the MVPD content would play through the MVPD provider's app, the way it works with Netflix, Amazon, and Hulu today.

Apps provide a workable method for protecting independent and diverse programming and strengthening the creative ecosystem. Unable to provide a defense to their proposed infringements of copyrights and intellectual property, unbundling proponents now resort to claims that understanding and protecting all copyright licenses is "unworkable."[125] But they are deriding a strawman. Retail devices have no need to review the myriad license agreements with which distributors build their offerings. The agreements do address complex and dynamic issues such as license obligations, breach resolution, warranty, indemnification, Intellectual Property Rights, audit trails, financial responsibility and data protection – protections without which MVPDs could not gain access to content. But the MVPD's app allows it to present its service consistent with those licenses in a trusted application execution environment *within* the app that runs on the smartphones, tablets, smart TVs, streaming set-top boxes like Roku, game consoles, and other retail connected device.[126] TiVo, the poster child for CableCARD, uses apps from Netflix, Amazon Instant Video, Hulu Plus, YouTube, Yahoo, and Vudu to provide those video services in exactly the same way.[127] There is no need for the device manufacturer to track the MVPD's underlying licenses.

[125] CVCC Reply Comments at 55, 68-69; Public Knowledge Reply Comments at 10, 21.

[126] Technical White Paper at 1.

[127] *See* Joshua Goldman, *TiVo Bolt Review*, CNET (Oct. 30, 2015), www.cnet.com/products/**tivo-bolt**/ (explaining that TiVo's apps include "Netflix, Amazon Instant Video with Prime, Hulu Plus (coming soon to Bolt), YouTube, Yahoo, AOL On, Vudu, Plex, Web Video Hotlist and HSN for video") ("CNET TiVo Bolt Review").

The new HTML5 apps-based proposal relies upon this modern app-based technology as the key technical means to protect content and enforce program licensing terms and the full array of measures that secure and protect the copyrights, agreements and advertising that fund the creation and distribution of programming – which redounds to the benefit of consumers. As described below, many commenters have already described the many benefits of apps for consumers, and the new proposal enables any third party wishing to deploy a retail navigation device a roadmap they can use to be able to secure MVPD HTML5 apps for their devices.

Apps Safeguard Consumer Privacy and Consumer Protection Regulations. MVPD apps by design comply with all Congressional and FCC requirements for the protection of privacy and children's programming.[128]

Apps Enable Consumers to Eliminate Set-Top Box Rentals. MVPDs' continued expansion of apps belies proponents' efforts to portray MVPDs as seeking to preserve device revenues. They ignore that MPAA, 21st Century Fox, A&E, CBS, Scripps Networks, Time Warner, Viacom, The Walt Disney Company, and numerous minority and independent programmers with no stake in set-top box revenues oppose the proposal. They ignore the massive support that MVPDs have put into apps that allow retail devices to receive their services *without* set-top boxes. They ignore the financial incentives for cable operators – shared with Wall Street – for relieving the substantial costs of customer premises equipment through apps. "Where we're headed," explained one cable CEO, "is the ability of customers to access the complete video product without having to rent a set-top box from us, whether they use a Roku or they use ultimately another IP-enabled device."[129]

[128] NCTA Comments at 78.

[129] NCTA Comments at 16-17, 138-141.

Proponents' sloganeering characterizing opposition to the NPRM as motivated by protection of set-top box revenues are also a rehash of supposed "studies" that have been thoroughly discredited for ignoring promotions and discounts and for being "statistically unfounded."[130] CVCC claims that all box revenue goes to the "bottom line"[131] as profit – ignoring all of the substantial costs involved in purchasing, maintaining, and installing these boxes, and the fact that since 1993 the FCC's established rate regulation rules for cable set-top box rents provide that "subscriber charges for such equipment shall not exceed charges based on actual costs."[132] The NPRM proponents ignore that the very municipal systems that the FCC has been striving to promote and expand as champions of competition and public service are on average charging the same rental rates the FCC attributes to MVPDs.[133] They ignore that even if the FCC's erroneous estimate of a $7.43 per month average rental cost for set-top boxes were not exaggerated, that amount is still less than half of TiVo's $14.99 monthly service fee – not even counting the $299-$599 up-front cost to purchase and own a TiVo DVR.[134]

The NPRM's unbundling proposal would in fact move subscribers backward into renting more in-home equipment from their MVPD when the Commission now has before it a constructive, lawful, and achievable path for moving forward with apps and meeting the goals of Section 629.

The new HTML5 apps-based proposal just introduced by MVPDs and programmers meets all of the requirements of Section 629 and more:

[130] NCTA Comments at 139; Steven S. Wildman, The Scary Economics of the NPRM's Navigation Device Rules at 17, attached to NCTA Comments as Appendix C.

[131] CVCC Reply Comments at 15.

[132] NCTA Comments at 138.

[133] NCTA Comments at 141.

[134] As reviewers have put it, "the rub for many will be pricing. ... The deal breaker for most people is the service fee. Though the purchase price includes a year of service, after that you'll be paying $15 a month, $150 a year…." CNET TiVo Bolt Review.

- It enables consumers the choice to access their MVPD service on a smart TV, tablet or other choice of retail navigation device without a cable set-top box.

- It delivers the multichannel services and other services "offered" and "provided" by MVPDs, as required by Section 629(a), including the cable operator's user interface "required for the selection or use of such video programming or other programming service," which Congress defined to be part of cable service.

- It goes over and above Section 629 requirements by supporting integrated search and further enhancing retail manufacturers' distinctive device user interfaces.

- It uses the most modern apps-based approach and new international open standards for media developed by the World Wide Web Consortium (W3C), meeting Congress's direction that the Commission "take cognizance of the current state of the marketplace and consider the results of private standards setting activities."[135]

- It does not "jeopardize security" of MVPD services or "impede the rights of providers of [MVPD] services to prevent theft of [their] service," as required by Section 629(b).

- It respects and protects all other requirements of law – including copyright law, Title VI privacy and consumer protections, and Title VI and intellectual property protections for the provision, composition and content of cable services.[136]

- This modern application-based technology allows rapid updates by device manufacturers and by MVPDs without the need for either to seek permission from the other, assuring that consumers receive the benefits of continuous innovation and variety in retail devices and in

[135] Joint Explanatory Statement of the Committee of Conference, S. Conf. Rep. 104-230, 104th Cong., 2d Sess. at 181 (1996).

[136] Section 624(f) directs the Commission and other federal and state authorities not to "impose requirements regarding the provision or content of cable services, except as expressly provided in [Title VI]," and Section 621(c) not to impose any type of common carrier regulation on a cable operator's provision of cable services. Legal White Paper at 26-29, 31-36.

MVPD networks and service, and meeting Congress's directive that the Commission "avoid actions which could have the effect of freezing or chilling the development of new technologies and services."[137]

- *The new apps-based alternative also meets the consumer principles long recommended by the cable industry.* As described in NCTA's Comments, the apps-based world is already delivering on the seven consumer principles that the cable industry recommended in 2010 for guiding Commission and inter-industry efforts to expand video device options for consumers.[138] The new HTML5 app-based alternative leverages the open HTML5 open standard that has been widely adopted across the industry to further serve those principles.

Consumer Principles in NCTA-McSlarrow 2010 Letter	**HTML5 Apps-Based Proposal**
Consumers should have the option to purchase video devices at retail that can access their multichannel provider's video services without a set-top box supplied by that provider.	Consumers would be able to receive their MVPD service on competitive retail devices via an open standards-based HTML5 downloadable app, without the need for cable set-top box. MVPDs representing more than 90% of customers would be obligated to develop and deploy such an app.
Consumers should also have the option to purchase video devices at retail that can access any multichannel provider's video services through an interface solution offered by that provider.	Consumers would be able to purchase retail devices that can access service from any of the largest MVPDs. Consumers would use the retail device's distinctive user interface to choose among MVPD service, online video services, and other device features. If a consumer selects MVPD content, the consumer would watch the content through the user interface offered by that MVPD.
Consumers should have the option to access video content from the Internet through their multichannel provider's video devices and retail video devices.	The retail device could include apps from online video providers, MVPDs, and other sources, so consumers could access online content by clicking on apps from online providers. While this proposal focuses on MVPD apps for retail devices, MVPDs are

[137] H.R. REP. NO. 104-458, at 181 (1996) (Conf. Rep.), *reprinted in* 1996 U.S.C.C.A.N. 124, 194.

[138] See NCTA Comments at 154-155; Letter from Kyle McSlarrow, President and CEO, NCTA, to Hon. Julius Genachowski, Chairman, FCC, NBP Public Notice #27; GN Docket Nos. 09-47, 09-51, 09-137; CS Docket No. 97-80 (Mar. 12, 2010).

	also introducing online content on their own devices.[139]
Consumers should have the option to purchase video devices at retail that can search for video content across multiple content sources, including content from their multichannel provider, the Internet, or other sources.	The MVPD's app would enable the retail device to use its own distinctive user interface to obtain combined search results from MVPD content and from online video providers offering licensed content on the same device.
Consumers should have the option to easily and securely move video content between and among devices in their homes.	As MVPDs transition to cloud-based services, consumers can download the MVPD's app to different devices and use these cloud-based technologies to access MVPD content and move content between and among MVPD apps on devices in the home.
Consumers should be assured the benefits of continuous innovation and variety in video products, devices and services provided by multichannel providers and at retail.	The apps-based proposal allows for rapid innovation in the products and services provided by multichannel providers, and in retail devices.
To maximize consumer benefits and to ensure competitive neutrality in a highly dynamic marketplace, these principles should be embraced by all video providers, implemented flexibly to accommodate different network architectures and diverse equipment options, and, to the maximum extent possible, serve as the basis for private sector solutions, not government technology mandates.	The apps-based approach builds on solutions already being adopted across the video ecosystem and that are driven by market forces and consumer demand. The open standards on which the HTML5 app is based are designed to work on different MVPD networks and can be supported on different device platforms.

For all of these reasons, the apps-based solutions that already exist in the market are clearly superior to the NPRM proposal for consumers, content owners, and service providers, and the HTML5 app proposal widens the gap even further. Because the NPRM's proposals would infringe MVPDs' First Amendment rights to exercise control over the selection and presentation of their service, courts would require the FCC to show, at the very least, that its rules "advance[] important governmental interests unrelated to the suppression of free speech and do[] not burden substantially more speech than necessary to further those interests."[140]

[139] NCTA Comments at 14.

[140] Legal White Paper at 70-71, citing *Time Warner Entm't Co., L.P.*, 240 F.3d at 1130 (quoting *Turner Broad. Sys., Inc. v. FCC*, 520 U.S. 180, 189 (1997).

Because apps could accomplish Congress' objective with far less burden on the MVPDs' constitutional rights, courts would not even afford the FCC with Chevron deference and would strike down the proposed rules.[141]

IX. THE PROPOSED RATE AND MODEM REGULATIONS ARE ILLEGAL AND UNFOUNDED

Some parties contend that the Commission should adopt new systems of rate regulation that are illegal and unwise.

A few local franchising authorities ask the Commission to impose rate regulation on various service fees.[142] However, all MVPDs have been found presumptively subject to effective competition nationwide, so Title VI precludes such rate regulation.[143] The franchising authorities' request includes Montgomery County's demonstration that it is served by three terrestrial MVPDs (in addition to satellite competitors), which only reinforces the Commission's determination of effective competition and the preclusion of rate regulation.

Public Knowledge takes its proposal for rate regulation to an even greater extreme. It suggests that MVPDs should be compelled to develop, install and maintain a second in-home box solely to deliver unbundled streams, and be precluded from charging consumers for the in-

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[141] Legal White Paper at n. 22, citing *Bell Atl. Tel. Co. v. FCC*, 24 F.3d 1441, 1445 (D.C. Cir. 1994) (explaining that although "[o]rdinarily Chevron . . . would supply the standard for assessment of the claimed authority, . . . statutes will be construed to defeat administrative orders that raise substantial constitutional questions").

[142] Local Coalition (Mt. Hood Cable Regulatory Commission, Montgomery and Anne Arundel Counties) Reply Comments at 13-14.

[143] NCTA Comments at 93. In fact, even aside from the presumption, the Commission expressly has determined that there is effective competition in most of the franchise areas represented by the local coalition. Local Coalition. *See, In re Jones Intercable, Inc. Complaints Regarding Cable Programming Service Price*, Memorandum Opinion and Order, 11 FCC Rcd 3583 (Cable Servs. Bureau Mar. 22, 1996); *In re Comcast of Potomac, LLC Petition for Determination of Effective Competition in 13 Franchise Areas in Montgomery County, Maryland*, Memorandum Opinion and Order, CSR 8188-E, 24 FCC Rcd 12505 (Media Bureau Oct. 8, 2009); *In re Comcast of Potomac, LLC Petition for Determination of Effective Competition in 4 Maryland Communities*, Memorandum Opinion and Order, CSR 8733-E; MB Docket No. 12-308, 31 FCC Rcd 3947 (Media Bureau Apr. 29, 2016); *In re Comcast Cable Communications, LLC Petition for Determination of Effective Competition in Six Oregon Franchise Areas*, Memorandum Opinion and Order, CSR 8672-E; MB Docket No. 12-184, 28 FCC Rcd 4670 (Media Bureau Apr. 12, 2013).

home device. [144] The Commission should reject this call, which in itself would be rate regulation and beyond the Commission's authority for the reasons stated above, as well as amount to an illegal confiscation.

Zoom seeks to regulate the price of retail modems and raise their costs to consumers, even suggesting a precise formula for the Commission to use in prescribing a rate.[145] The Commission has never applied Section 629 rules to non-video services, and the proposal, while benefitting Zoom, would harm consumers. Nor does the recent consent decree between the Media Bureau and Charter, which Zoom cites for the proposition that such an approach might now be warranted, provide the Commission such authority. A Bureau-level resolution of an investigation and settlement by consent decree is not legal authority, and the underlying investigation resolved by that consent decree had nothing to do with Charter's policy of providing free cable modems to its customers.[146]

What little Zoom has offered in facts is largely erroneous. Zoom asserts, without any support, that sales for all retail providers have declined to zero in Charter areas.[147] But this is not correct. Indeed, the very consent decree that Zoom relies on contradicts this statement: the

[144] Public Knowledge Reply Comments at 22.

[145] *See* Zoom Reply Comments at 5; *see also* Letter from Andrew Jay Schwartzman, Counsel, Zoom Telephonics, Inc. to Marlene Dortch, Secretary, FCC, MB Dockets 15-149, 15-257, 16-42 and CS Docket 97-80 (Jun. 10, 2016) ("Zoom argued that one way to do this would be to use readily available information to determine the average retail prices paid for perhaps four of the most popular cable modems in popular cable modem classes, and to add the retail price of any additional things supplied by the cable operator, such as splitters and cables. That number should then be divided by a denominator which takes into account, expected life of equipment, obsolescence, customer support, freight, and possibly other similar factors. This should produce an appropriate monthly cost to be assigned as a non-subsidized price.").

[146] Rather, the consent decree resolved allegations relating to Charter's practices relating to the testing of third party modems connected to its network. *See generally In re Charter Communications, Inc.*, Order, DA 16-512 (Media Bur. May 10, 2016). While Zoom mistakenly cites the provision in Section 629 that the FCC "shall not prohibit any multichannel video programming distributor from also offering...equipment...to consumers …" as a command that MVPD's "shall" not provide broadband modems at no extra charge, Zoom Reply Comments at 2, that is not what the statute says.

[147] Zoom Reply Comments at 4.

Media Bureau expressly found that, in the period after Charter began offering its modems at no charge in 2012, Charter customers added thousands of retail modems to Charter's network.[148] Based on Charter records, those customer-owned modems included over a dozen different models from several manufacturers. Internet service providers should remain free to provide broadband service with simple pricing and few or no add-on charges.

Nor is there any basis for Zoom's request that all broadband modem testing be limited to the timetable agreed upon in the Charter consent decree. That testing schedule applies to a limited set of tests under which Charter may prohibit the attachment of modems that have already passed CableLabs' tests – not to tests that modem manufacturers may voluntarily undertake to be *recommended* by an internet service provider as most compatible with a broadband provider's broadband service. There is no basis for applying one testing schedule adopted by consent decree for limited mandatory tests to any and all optional tests that might be undertaken before a modem is added to a provider's list of recommended equipment. Such proposed rules are far beyond the focus of this proceeding, lack a record basis and should not be adopted.

CONCLUSION

The record in this proceeding is clear and the record evidence is overwhelmingly against the FCC's preferred proposal in the NPRM. Adoption of the NPRM's proposed rules in the face of this record would be arbitrary and capricious, and unlawful. The only lawful and rational way to serve the fundamental goal of Section 629 is to stop pursuing the NPRM's unbundling approach and support the alternative apps-based approach.

[148] *See id.* at 4; *In re Charter Communications, Inc.*, Consent Decree, DA 16-512 (Media Bureau May 10, 2016) at ¶5.

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