

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

Implementation of Section 304 of the Telecommunications Act of 1996)))	CS Docket No. 97-80
Commercial Availability of Navigation Devices))	PP Docket No. 00-67
Compatibility Between Cable Systems and Consumer Electronics Equipment)))	

**REPLY COMMENTS OF TIVO INC. ON
FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING**

June 28, 2010

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TiVo Inc. submits these reply comments to offer its support for the rule changes proposed in the joint comments of the Consumer Electronics Association (CEA) and the Consumer Electronics Retailers Coalition (CERC), including an IP backchannel solution for access to switched digital video channels. The comments of cable operators and their vendors demonstrate that reform of the CableCARD rules is needed and that it can succeed.

I. Introduction And Summary

The comments received on this Further Notice of Proposed Rulemaking show that the Commission's focus and objectives for reforming its existing navigation device regulations are readily achievable, and that the proposed timeframe is realistic. The comments affirm that there is no impediment, other than operator and vendor business reluctance, to adopting and implementing expeditiously the regulatory provisions as to which the Commission invited discussion, and for which CEA and CERC have proposed

language for modest and realistic rules. The “fixes” to the current CableCARD rules sought by TiVo and others are simple and straightforward:

- Implementation of an IP backchannel solution, based on existing standards and protocols, to the subscriber impediments and inconvenience posed by switched digital techniques.
- Universal operator support for self-installation of CableCARDs, the feasibility and acceptance of which have already been demonstrated in systems of major cable operators.
- Universal provision of “M-CARDS” – the same CableCARD used in leased boxes – unless the customer or retailer specifically requests an “S-CARD.”
- Non-discriminatory pricing policies that do not penalize subscribers for choosing competitive products; policies that also appear already to have been implemented by at least one major cable operator.

No technical problems need to be “solved” for the Commission to move forward with these reforms – just some choices, involving existing technologies, to be made. Nor is there any reason to wait. Achievement of the goals of Section 629 and cable system economics counsel expedition rather than delay.

II. Comments On The NPRM Confirm That An IP Backchannel Is The Most Competitive And Cost-Effective Solution To Switched Digital Disruption Of Subscriber Services.

As TiVo wrote in its Petition for Reconsideration or Clarification of the Order on Review that reversed an enforcement action concerning the deployment of switched digital video technologies, the Tuning Adapter is an imperfect solution for all parties.¹ It was a practical, interim measure to assure that *existing* retail navigation devices could continue to receive subscription channels that were being shifted to switched digital video

¹ *In the Matter of Oceanic Time Warner Cable, A subsidiary of Time Warner Cable, Inc., Oceanic Time Warner Cable, a division of Time Warner Cable, Inc.; Oceanic Kauai Cable System; Oceanic Time Warner Cable, a division of Time Warner Cable, Inc.; Oceanic Oahu Central Cable System; Cox Communications, Inc.; Fairfax County, Virginia Cable System*, File Nos. EB-07-SE-351, EB-SE-352, Petition for Reconsideration or Clarification of TiVo Inc. at 18 (July 27, 2009) (“TiVo Petition for Reconsideration”).

(SDV) delivery.² Cable operators were rolling out SDV and disenfranchising hundreds of thousands of subscribers using UDCPs. A solution was needed quickly to ensure that these subscribers could continue to use their TiVo DVRs without losing access to many channels. On that basis, TiVo agreed that an SDV dongle would solve the problem for existing devices.³

TiVo did not agree that the Tuning Adapter should be the solution for all *future* retail navigation devices. A retail device market cannot be created if consumers who buy their own devices still have to rely on an operator-supplied set-top box. Indeed, this is the first of NCTA's principles for video devices: "Consumers should have the option to purchase video devices at retail that can access their multichannel video provider's video services *without a set-top box supplied by that provider.*"⁴

A software-based implementation over an IP backchannel is a more economical and scalable solution. On April 29, NCTA President Kyle McSlarrow told Rep. Rick Boucher, Chairman of the Telecom & Internet Subcommittee of the House Energy and Commerce Committee that his industry was "open to exploring IP back channel so you could signal upstream to the headend that is an open standard, that would be available to any consumer electronics manufacturer who wants to avail it."⁵ The cable industry's

² TiVo Petition for Reconsideration at 17-18.

³ TiVo appreciates the cable industry's willingness to create the Tuning Adapter and to provide Tuning Adapters to subscribers at no additional cost. In light of the Tuning Adapter, TiVo has not sought to impede the deployment of SDV despite TiVo's belief that new video distribution techniques, such as SDV, need to be introduced in a manner that does not impair competitive navigation devices in violation of FCC rules and the important policy objectives of Section 629. The introduction of new distribution techniques need not disenfranchise competitive device users.

⁴ Statement of NCTA President & CEO Kyle McSlarrow Regarding New FCC Proceedings on Video Devices and CableCARDS (Apr. 21, 2010), <http://www.ncta.com/ReleaseType/Statement/McSlarrow-Statement-Regarding-New-FCC-Proceedings-on-Video-Devices-and-CableCARDS.aspx> (emphasis added)

⁵ *The National Broadband Plan: Competitive Availability of Navigation Devices: Hearing Before Subcommittee on Communications, Technology, and the Internet of the House Committee on Energy and Commerce*, 111th Cong. (Preliminary Transcript of Hearing) (April 29, 2010), http://energycommerce.house.gov/Press_111/20100429/transcript.04.29.2010.cti.pdf at 47,

FNPRM Comments confirm that such a solution is feasible but say not a word about being open to it.

The cable industry bottom line is also at odds with the facts they marshal to support the Tuning Adapter as preferable to an IP backchannel solution. Based on the information they provide and all facts of record, if the cable industry really is sincere about supporting competitive products, an IP solution will *save* the industry millions of dollars annually compared to providing Tuning Adapters. It will also save consumers in time, money, and inconvenience.

A. Cable Operators Confirm That SDV Will Be A Common Practice To Save Bandwidth And Sell More Services and Programming.

The comments of cable operators confirm that they intend to increase their reliance on SDV. By saving bandwidth, they will be able to better merchandise services such as Internet and digital phone service, and to add high definition versions of existing channels. From the comments, it appears reasonable to conclude that before too long, most “one way” subscription channels will be sent by SDV techniques. Time Warner Cable has rolled out SDV across much of its footprint already. Comcast, the largest cable operator, says it will significantly roll out SDV in 2011-2012. Over the next few years millions of additional subscribers to “one-way channel” packages will be affected – those with leased products, positively; those with retail products, negatively.

Such discrimination is as unnecessary as it is unfair. The operator’s comments confirm that there is no *technical* reason for them to curtail the value received by subscribers with retail devices; nor is there any valid economic reason. A retail market

<http://energycommerce.edgeboss.net/wmedia/energycommerce/2010.04.29.cti.wvx> at 1:13:20. (“Hearing Transcript”).

for navigation devices cannot be created if retail subscribers will receive a smaller and smaller subset of the linear cable programming to which they subscribe, or must accept a set-top box in lieu of the one they just replaced.

To fulfill the mandate of Section 629, the Commission can and should require that competitive retail devices be provided with direct access to channels being delivered via SDV. The industry's answer of a couple of years ago, tru2way, cannot be relied upon by the FCC as a solution to this problem.⁶

B. The IP Backchannel Solution Is Feasible, Less Expensive, And Deployable On A Reasonable Timeframe.

Cable industry comments demonstrate that the Tuning Adapter imposes a higher cost on them, their subscribers, and competition than does the IP backchannel solution. No cable operator suggests that an IP backchannel is impossible, nor could they. TiVo and cable operator RCN developed a method to enable TiVo Premiere DVRs leased to subscribers by RCN to order cable-provided VOD and interactive services over an IP backchannel. That TiVo and RCN were able to conclude this project successfully within a short time, offering more complex functionality than is needed for SDV, demonstrates that the IP backchannel can work for SDV as well.

The comments of operators and their vendors contrive a series of impediments ranging from timing to technology to "FUD" factors such as purported security and privacy issues as excuses to avoid applying a method that will be cheaper for them and

⁶ Tru2way may have benefits for MSOs. Comcast has been funding TiVo to port its software to the tru2way platform for operator-supplied boxes. However, TiVo has repeatedly explained why tru2way is not a solution for retail boxes. Operators, in their comments to this FNPRM, now acknowledge that there has been "little consumer interest in tru2way products." *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of Comcast Corp. at 9 (June 14, 2010) ("Comcast Comments"). Panasonic, the only manufacturer that has sold tru2way televisions at retail, apparently discontinued its only tru2way television models this year. <http://thunor.spaces.live.com/blog/cns!71C238B5E0E3724D!3409.entry>.

more appealing and convenient for consumers. TiVo addresses each of these arguments below, and demonstrates why the Commission should approve the IP backchannel method for selecting SDV channels so that it can be timely deployed for the coming mass roll-out of SDV.

1. Comments Show the IP Backchannel is Less Expensive than the Tuning Adapter.

Time Warner Cable's comments confirm that Tuning Adapters, at \$125 each, are expensive compared to their limited functionality and inability to scale.⁷ As of May 2010, Time Warner Cable has provided Tuning Adapters to 16,000 subscribers, at an apparent cost of two million dollars.⁸ Comcast reports that if many of its customers choose retail devices, Tuning Adapters are likely to cost it tens of millions of dollars.⁹ Cisco, one of the two vendors of these boxes, says it expects to sell 35,000 of them this year, at an apparent cost to cable operators of \$4.375 million. As Comcast begins moving channels to SDV, and other operators expand their use of SDV to other regions, the number of Adapters, and their cost, can be expected to increase substantially. A cable industry effort to deploy a few SDV proxy servers per system, at an estimated cost of \$10-15,000 each, will save cable operators substantial sums in capital that could be invested more constructively in innovative products and services.

⁷ See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of Time Warner Cable Inc. at 7-8 (June 14, 2010) ("Time Warner Cable Comments").

⁸ NCTA points out that while the number of TiVo subscribers has been declining (primarily due to churn from SD products), *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of the National Cable and Telecommunications Association at 41-42 (June 14, 2010) ("NCTA Comments"), but fails to mention the more salient point that the number of TiVo subscribers using CableCARDS is increasing. See, e.g., Time Warner Cable Comments at n.14. This is not surprising as there is no way for retail TiVo DVRs to receive digital cable programming signals without a CableCARD.

⁹ Comcast Comments at 19.

Operators are not now imposing monthly charges for Tuning Adapters. But subscribers pay for them one way or another. Subscribers shoulder the inconvenience of the Tuning Adapter solution by (a) discovering that they are losing or have lost channel access, (b) having to discover that a solution exists, (c) having to find a local cable office to pick up a Tuning Adapter (or to stay home to wait for a truck roll), (d) finding room for it,¹⁰ (e) figuring out how to install it, and (f) troubleshooting any problems in its operation and interoperability with their other equipment.

TiVo's Comments demonstrate that the IP backchannel approach provides a less expensive alternative for cable operators, and imposes virtually no obligation or inconvenience on consumers who own TiVo products and other UDCPs. The backchannel solution will be implemented via software rather than specially-designed hardware, and can be deployed on standard server platforms at a cost of approximately 100 Tuning Adapters.

2. Comments demonstrate that the IP backchannel approach is technologically feasible and scalable.

Development of the backchannel solution can build upon the experience of TiVo and RCN, as well as the work being done by the cable industry on other IP-based delivery services such as TV Everywhere. TiVo's Comments set out the essential

¹⁰ Again backtracking from its hearing testimony, NCTA suggests in its Comments that a Tuning Adapter is reasonably sized, and compares it to the dimensions of an add-on hard drive for extended storage of recorded content. NCTA's comparison ignores the difference between a device's dimensions and its footprint. The hard drive's footprint is only 2.2 inches across, and totals about 12 square inches. The Motorola Adapter has a footprint that is 3 times larger at almost 37 square inches, and the Cisco Adapter (at 11.75 x 8 inches) takes up *94 square inches* of shelf space. Neither comes close to the playing-card-sized set-back solution promised by CableLabs. Of course, the much smaller 1TB hard drive also gives consumers something substantially valuable and new: 120 more hours of HD recording time. A Tuning Adapter only lets consumers "break even" on the channels SDV takes away.

elements and framework for the necessary technology.¹¹ As Motorola concedes, there is no doubt that a functional IP backchannel solution can be developed.¹² The most specific criticisms of the IP backchannel solution come from Cisco, which maintains a vested interest in selling millions of dollars in Tuning Adapters annually.

The only real question is whether the cable industry will engage cooperatively with TiVo and others in the consumer electronics industry, as NCTA promised Chairman Boucher. The purported obstacles cited by cable operators and vendors amount to strawmen, put forward as technical issues but are actually matters of choice and convenience.

Broadband connections needed for an IP backchannel are already available and easily included. There is no reason to reject an IP backchannel solution based on the need for a broadband connection to communicate channel selection. Every TiVo has a broadband connection, as does virtually every personal computer sold today, and increasingly consumer electronics devices such as Blu-ray Disc players and video game consoles connect to the Internet for additional functionality. Requiring a broadband connection will also increase broadband penetration, an important Commission goal.

The standard protocol can be developed and implemented quickly. RCN and TiVo cooperated to develop IP backchannel switching protocols for video on demand, which is a far more challenging assignment than switching among standard package channels. That effort was defined, completed, and deployed across RCN's systems in less than one year. Fruits of this collaborative effort will be applicable and instructive as

¹¹*In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of TiVo Inc. at 14-15, Exh. F (June 14, 2010) ("TiVo Comments").

¹²*In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of Motorola, Inc. at 20 (June 14, 2010) ("Motorola Comments").

solutions for SDV. With similar cooperation from the cable industry, a system for SDV can be developed within three months and tested and ready for deployment within a year.

The standard only needs to address communications between the client UDCP and the SDV gateway server. One significant flaw in the opponents' arguments is their failure to distinguish between the technological requirements for communications from the subscriber's equipment to the channel selection headend, and communications from that headend to the cable plant.¹³ Backchannel communication from the consumer to the server can be done through an industry-wide standard that would include functions such as location discovery, authorization, publication of available services, and communication between the UDCP and the SDV gateway server. All these functional elements already have been developed, proved and deployed in TiVo's work with RCN. All that is needed is a standard approach to utilizing them.

Parts of the standard already exist among cable systems; the rest are easily developed. Contrary to the impression given by cable operators and vendors, no technology need be invented for the proposed protocol. What remains is to agree to standardize existing approaches. For example, the authorization standard already has been defined in the Tuning Adapter specification, where the CableCARD security information authenticates the UDCP to the SDV gateway server. Publication of available services currently is done for SDV systems using a mini-carousel approach. Two such methods are used today. Choosing one for this application is not a complex decision. Similarly, the standard need only select one communication protocol from among several options. If the Commission requires these choices to be made according to a timetable,

¹³ What may differ among systems is the communication of that channel selection from the SDV gateway server back to the cable plant. That can be accomplished either by standard or proprietary methods, according to the preferences of the cable operator.

TiVo, based on its experience with RCN, has every confidence it can be accomplished within 90 days.

Many solutions will not be required. Cisco suggests that 12 different combinations of standards would have to be addressed in any IP backchannel solution so as to accommodate these different cable headend and SDV systems.¹⁴ While this is the *maximum possible* number of combinations, TiVo believes it unlikely that all of these combinations will require a solution, as many of these possible combinations may not actually exist in the field. Moreover, and importantly, each headend would only need to employ *one* server solution. Even if the maximum effort were required, standardization of 12 software versions is far less expensive in terms of time, labor and resources than building tens of thousands of Tuning Adapters each year, each destined for a short life on the shelf and an eon in a landfill.

The latency of broadband is lower than typical SDV upstream communications. For the most part, the channel selected by the subscriber already will be available on the plant and can be delivered with no delay. Even for switched digital channels, the IP solution is potentially many times faster than the Tuning Adapter. Existing cable systems that use the Aloha out-of-band protocol for Tuning Adapters provide inherently slower upstream communications than broadband IP. Whereas Aloha has an upstream data rate of less than 256kbps, and greater than 150 ms latency, the upstream data rate of a DOCSIS IP backchannel can be as high as 10Mbps with latency of around 5 ms.

Security and privacy concerns are no more complex than for any other entity. Many businesses today require secure customer communications over the public Internet,

¹⁴ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of Cisco Systems, Inc. 8 (June 14, 2010).

involving an exchange of identifying information that is far more consequential than “what’s on television tonight.” Commercial websites regularly deal with issues of security, privacy, and robustness against all manner of attacks. TiVo has confidence that if electronics retailers, ticket sellers, hospitals, banks, and the Internal Revenue Service can manage secure, private, and robust transactions on the public Internet, the cable industry and TiVo can use the protocols already developed with RCN to achieve comparable goals.¹⁵

Any claim of harm to the network or theft of service is a canard. Because all communications from the subscriber’s UDCP client terminate at the SDV gateway server, the client never accesses the cable network, thus the network is protected against any harm. The proposed standard includes location, authentication, and authorization protocols (just as the RCN-TiVo system uses today) which validate that only current customers receive the channels to which they have subscribed. Thus, there is no theft of service issue either. Moreover, many cable operators today allow users to connect game consoles, personal computers and other Internet-enabled products to the high speed data service, which uses the same coaxial cable connection as the video service, without any issue of harm to the network or theft of service. An SDV channel selection protocol poses even less risk.

The IP backchannel does not restrain innovation. Nothing in the proposed IP backchannel approach impedes the roll-out of SDV or other services to subscribers. It simply establishes a basic and robust communications method between the UDCP client in the home and an SDV gateway server. Any changes to channel availability can easily

¹⁵ TiVo also is open to making the service available only on the operator’s high speed data network, which would not require any communications over the public Internet.

be made using the proposed addressing protocol. To the extent that any cable operator wishes to improve its SDV methods, no change would be needed to that communications protocol. All that might be required would be a software version change in the protocol between the SDV server and the cable plant. This remains always within the control of the cable operator.

C. Continuing To Rely On Tuning Adapters Will Revive Operator Incentives To Avoid Or Frustrate Subscribers' Use Of Competitive Devices, Contrary To The Objective Of This Proceeding.

As NCTA appeared to admit before Congress, the IP backchannel solution is the preferable alternative. Both NCTA in its testimony and Motorola in its Comments agreed that a standard IP backchannel protocol solution is technologically feasible. As demonstrated above, the IP backchannel approach is less expensive for the cable industry and better for subscribers. In addition, TiVo submits that the IP backchannel approach also better promotes competition and the policies underlying Section 629.

1. Cable operators should not be surprised at TiVo's disappointment in the Tuning Adapter as a solution.

In discussions toward a solution for UDCPs for SDV delivery, TiVo wanted a software-based solution from the start, but its subscribers urgently needed a "fix." TiVo's agreement to the Tuning Adapter solution was based on an understanding that it would be a compact, set-back dongle. Indeed, the policy rationale underlying that requirement is self-evident. It is inherently preposterous that a subscriber who purchases and prefers a TiVo retail DVR instead of a cable operator-supplied box should nevertheless be forced to accept an operator-supplied box. But the commitment to

develop a compact and less inconvenient form factor never materialized.¹⁶ Consequently, the cable industry's offer of a Tuning Adapter gave TiVo the difficult choice of opposing the ungainly Tuning Adapter and thus allowing TiVo customers to be deprived of channels for which they pay, or making the best of a bad situation for existing subscribers while seeking a better approach.

2. The greater the demand for Tuning Adapters, the greater the cable incentive to avoid supporting competitive devices.

Cable operators – unless they are concerned about the competitive potential of consumer choice in devices and services – *ought* to have every incentive to avoid the expense of purchasing Tuning Adapters. The “tipping point” where IP becomes more economical than giving every CableCARD customer an Adapter occurs – by the cable operators' own numbers – early on. At \$125 per Adapter, the cost of a few hundred Adapters exceeds the cost of the IP backchannel approach. Thus, *if* cable operators continue to provide Tuning Adapters free of charge, they create *yet another incentive for cable operators to discourage subscribers from purchasing devices at retail.*¹⁷ If they do not, the customer pays – yet again.

By contrast, the IP backchannel solution becomes more affordable as scale *increases*. As competitive navigation devices become more popular, a comparatively small incremental investment is needed for cable operators to facilitate SDV channel selection for those subscribers.

¹⁶ In addition, the cable industry unilaterally decided to limit the Tuning Adapter to tuning two simultaneous streams, even though the multistream CableCARD supports up to six. Future multi-tuner UDCPs will again be placed at a disadvantage compared to leased devices if Tuning Adapters become the norm.

¹⁷ Indeed, operators use the introduction of SDV as a marketing opportunity to offer an operator-provided set-top box to retail device users. Comcast Comments at 18-19.

III. TiVo Appreciates Operators' Commitment To CableCARD Self-Installation And Welcomes Retailers' Interest In Provisioning CableCARDS.

CableCARD installation horror stories remain abundant. NCTA's characterization of them as "lingering CableCARD implementation issues" demonstrates a misapprehension of the magnitude and seriousness of the problem.¹⁸ That Time Warner remains in outright denial is astonishing.¹⁹ This operator accounts for more than its share of horror stories.²⁰

Comments received in response to this FNPRM support the Commission's observation that customer self-installation can allow the CableCARD to fulfill its original purpose.²¹ They show that there is – and has been – no reason to require subscribers to stay home and wait for installation of a device that was designed for self-installation.

There is no valid reason for an operator not to support self-installation of CableCARDS. The nation's largest cable operator and the industry's largest trade association have shown in their comments that self-installation works, and that customers prefer it. Electronics retailers have proposed to help by distributing CableCARDS along with the devices that use them. TiVo does its part by providing self-installation instructions, support, and software upgrades, just as cable operators have proposed, and TiVo will continue to do so.

¹⁸ NCTA Comments at 3; *see* Hearing Transcript, *supra* note 5.

¹⁹ Exhibit A to this Reply contains comments from CableCARD users who have had to deal with Time Warner Cable in 2010. There are hundreds more pages of comments from the same forum about a single cable operator. <http://www.tivocommunity.com/tivo-vb/showthread.php?t=316313>.

²⁰ *See* Exhibit A.

²¹ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Fourth Further Notice of Proposed Rulemaking ¶¶ 9, 16 (rel. Apr. 21, 2010) ("FNPRM").

A. Comcast Already Supports Self-Installation And NCTA And Most MSOs Are Prepared To Support It.

The CableCARD was designed for self-installation, requiring just two steps: inserting the card into the device and communicating several numbers displayed on-screen to the cable operator – generally by phone.²² Most consumers are quite capable of this, and would prefer to do it themselves rather than wait for a technician to perform the same two steps. Given this simplicity, operators’ existing support for self-installation is not surprising. Comcast, the nation’s largest operator, already supports self-installation on some of its systems. According to Comcast, self-installation “can be a relatively straightforward, hassle-free process and ha[s] been well-received by our CableCARD customers.”²³ Comcast points out that avoiding truck rolls saves costs for operators and consumers, and Comcast is “willing to explore with the Commission and CE manufacturers ways to expand this option to additional markets.”²⁴ The NCTA observes that self-installation is well supported by current UDCP manufacturers, and points out Comcast’s “favorable experiences with customers self-installing CableCARDS in TiVos.”²⁵

Even operators that have argued against a self-installation rule acknowledge that customers choose self-installation when offered. Cox observes that “some consumers have expressed disappointment” at being forced to wait for an unnecessary visit from a

²² Cox notes that as compared to a Tuning Adapter installation, CableCARD installation requires one additional step – a phone call to the operator. *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of Cox Communications, Inc. 8 n.11 (June 14, 2010) (“Cox Comments”).

²³ Comcast Comments at 22.

²⁴ *Id.* at 21-22.

²⁵ NCTA Comments at 20.

technician after bringing home a new UDCP device.²⁶ Nonetheless, Cox “might be willing to work with manufacturers to provide a self-install option,”²⁷ and Time Warner Cable “will introduce self-installation options if trials show that they successfully meet subscribers’ needs.”²⁸ As the current deployments by Comcast and others have been successful, there is no cause for delay.

B. TiVo Is Prepared To Meet Operators’ Proposed Requirements For Self-Installation.

TiVo, and other UDCP manufacturers, have the strongest incentives to support quick and hassle-free CableCARD installation, as the ease of setting up a UDCP is a necessity for competitive parity with leased devices. As cable operators have acknowledged in their comments, TiVo supports CableCARD self-installation with clear instructions, phone support, and coordination with the operator where necessary. TiVo also provides for automatic software upgrades through the customer’s Internet connection. Thus, TiVo already meets, and is prepared to continue meeting, the manufacturer preconditions that cable operators have proposed in their comments.²⁹

C. Self-Installation Will Align Operators’ Incentives Toward Full Support of Competitive Devices.

As in the case of the IP backchannel vs. continued deployment of Tuning Adapters, an investment, now, in well-supported self-installation scales better for operators than would continued future truck rolls. To the extent operators are sincere in saying they do support competitive devices now, and intend to in the future, a modest up-

²⁶ Cox Comments at 15.

²⁷ *Id.* at 16. The installation step that Cox describes ominously as “the rather manual process of communicating information about the one-way host device and the CableCARD ID to a customer service representative (‘CSR’) for authentication” is, in simpler terms, a call to the operator to read two numbers from the TV screen – not a prohibitive step for most UDCP owners. Cox Comments at 8 n.11.

²⁸ Time Warner Cable Comments at 13.

²⁹ NCTA Comments at 20; Comcast Comments at 23; Cox Comments at 16.

front investment in doing things correctly will save on installation expenses, service calls, and subscriber frustration in the future.

D. TiVo Supports The CEA-CERC Proposal For Retailer Provisioning Of CableCARDS And Will Work With Operators And Vendors To Help Achieve It.

TiVo supports the proposal of the Consumer Electronics Association and the Consumer Electronics Retailers Coalition that the retailers who sell navigation devices should be qualified to provision their customers with CableCARDS.³⁰ The premise of “plug and play” was that a subscriber should be able to buy a device from a retailer, plug it into her cable connection, and have it work without the cable operator’s intervention. Once customers can obtain a CableCARD at the same time as the reliant product, this promise finally can be kept. TiVo welcomes retailers’ participation and is prepared to work collaboratively with operators and retailers to make a retail distribution channel work smoothly for all concerned.

E. There Can Be No Excuse For Failing To Provide M-CARDS As Needed.

One benefit of Common Reliance is that, finally, cable operator leased products deploy with the same CableCARDS as are required for current TiVo products – M-CARDS, which can descramble up to six channels simultaneously. As Comcast notes, “Comcast and other cable operators started deploying M-Cards in 2007, and we only purchase M-Cards today. Consequently, Comcast can meet customer requests for an M-Card. In contrast, Comcast understands that S-Cards are no longer manufactured, and Comcast keeps them in inventory primarily for

³⁰ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of the Consumer Electronics Association and the Consumer Electronics Retailers Coalition at 6-7 (June 14, 2010) (“CEA/CERC Comments”)

older-model UDCPs that only work with S-Cards.”³¹ Given that all retail navigation devices on the market today use only M-CARDS and S-CARDS are no longer manufactured, there is no reason why M-CARDS should not be the default CableCARD provided to retail customers and S-CARDS provided only upon request by the customer or retailer. This should be the policy of operators today, but unfortunately, while there are millions of M-CARDS being deployed in leased boxes, field technicians continue to show up at customers’ homes without M-CARDS, or denying that they are needed, or not knowing what one is. As a result, this failure needs to be addressed by regulation.

IV. TiVo Agrees That Internet Capability And An End To Discrimination In Support, Price, And Marketing Will Produce A Vibrant And Competitive Device Market.

Remarkably, several operators claim that a market for retail navigation devices has not materialized because consumers have an overwhelmingly strong preference for leasing operator-supplied set-top boxes.³² The fact is that consumers have never really had an opportunity to make a choice between retail and leased boxes because retail navigation devices have never been placed on an equal footing with operator-supplied boxes in terms of installation, pricing, and services. Even subscribers who only want to receive a modest package of cable channels must “give up” something in price, convenience, and frustration, including installation and service odysseys.

TiVo DVRs are a prime example of the competitive potential of, and consumer satisfaction with, UDCP devices with Internet connections. While “unidirectional” with respect to the cable system, TiVo DVRs and other such devices can enable a rich user

³¹ Comcast Comments at 24.

³² Time Warner Cable Comments at 4.

experience by combining subscription channels with Internet interactivity and choice. Thus, Internet-enabled UDCPs can provide a true competitive alternative to operator-supplied two-way hardware and software platforms and a bridge to a future AllVid framework. TiVo agrees with CEA, CERC, and public interest groups that the way to fix the CableCARD regime in the near term, *and* jumpstart the AllVid initiative for the long term, is to amend the current CableCARD rules to prohibit discrimination against UDCPs in support, price, and marketing.

A. TiVo Appreciates Cable Operators' Commitments To Improve Customer Service.

TiVo has worked closely with cable operators to address UDCP service and support problems, and TiVo appreciates the commitments made by cable operators in this regard. The amount of information operators provide on their websites concerning CableCARDS and the operation of TiVos and other UDCPs has increased, and many operators have worked with TiVo to discover and fix any compatibility problems before a product rollout. For example,

Comcast regularly coordinates with TiVo, Moxi, and other manufacturers to identify potential issues before CableCARD products come to market. For example, Comcast recently worked with TiVo prior to the launch of its new Premiere DVR, contributing to a relatively smooth rollout of this product in our markets.

Comcast also has worked hard to improve the installation experience for its customers with retail navigation devices. Consistent with the Commission's rules, Comcast purchases a sufficient supply of CableCARDS to meet demand from our retail customers. In addition, we invest significant resources into training our technicians for CableCARD installations.³³

Nonetheless, as demonstrated in Exhibit A to TiVo's comments, TiVo subscribers today still experience far more installation problems than they should. The Commission

³³ Comcast Comments at 6-7 (footnote omitted).

cannot ignore the harm done to earlier generation UDCPs, and to competition in video navigation devices generally, by cable operators' practices, such as distributing non-functional CableCARDS, failing to train installation or headend and accounting staff, and imposing a discriminatory price structure on subscribers who use UDCPs. Not all operators address UDCP service and support problems with equal attention and resources. The non-discrimination regulations proposed by CEA and CERC will create a degree of certainty that new entrants can compete fairly.

B. TiVo Endorses The Regulations Proposed By CEA and CERC That Would End Price Discrimination Against Competitive Devices.

TiVo agrees with NCTA and its members that separate disclosure of the CableCARD rental fee on operator bills for leased boxes is not the most useful proposal to provide consumers with pricing transparency and may cause confusion. Consumers need to know *before* they decide to purchase a retail device what the cost differential will be between leasing a box and purchasing a retail box.³⁴ Subscribers who purchase a retail box must not be charged, as part of a programming package, for a leased box that they don't receive. Nor should subscribers who choose retail devices be charged any fees (other than for the CableCARD) that subscribers using operator-provided boxes are not being charged. Subscribers using retail devices should be eligible for the same discounts as those using operator-supplied boxes. In short, subscribers using retail devices should

³⁴ TiVo agrees with operators that consumers should be able to readily determine how much CableCARDS cost on operator web sites. Unfortunately, TiVo was unable to determine what Time Warner Cable charges for CableCARDS on its web site. The link in footnote 42 of Time Warner Cable's Comments, <http://www.timewarnercable.com/northeast/site.faq/DigitalCab/#CableCARD>, purporting to answer "How much will I be charged to use a CableCARD," merely states that "CableCARDS can be activated, serviced and leased for a small monthly fee each from Time Warner Cable. Please go to our Pricing & Packaging page for current pricing." The Pricing & Packaging page, elsewhere on the site, presents several packages available to customers. These packages all include a digital cable box. The site says that "CableCard [is] not currently available for purchase online" and subscribers must call the operator.

not be subject to any price discrimination simply because they choose to use a retail device. Accordingly, TiVo endorses the CEA/CERC proposed non-discrimination rules.³⁵ Operators should be required to state equipment charges separately from service in their billing and advertising, and most importantly, to offer the same discounts or subsidies to UDCP users as they offer to users of leased devices, including package and “triple play” discounts, less the rental fee for an unused set-top box.

Most of the MSOs that commented in this proceeding do not deny that they discriminate against UDCP users in pricing. One MSO, however – Cox – is already implementing the very policies of transparency and non-discrimination proposed in the CEA/CERC Comments. Cox reduces UDCP subscribers’ package rates to remove the set-top box rental cost, states the CableCARD rental cost separately, itemizes “individual services and products,” and does not charge additional fees to UDCP users.³⁶ That Cox says it has already achieved these standards shows that other operators have no valid grounds to refuse them. As with self-installation, the Commission now has evidence that a rule of price transparency and non-discrimination is feasible, *and* that its implementation need not be delayed.

C. TiVo Agrees With CEA and CERC That Internet Capability Adds A New Dimension To And Market For CableCARD-reliant Products.

Today’s competitive video devices are not “unidirectional” from the consumer’s perspective, even if they comply with the UDCP specifications and are thus blocked from using any interactive features of the cable network itself. Using an Internet connection, today’s competitive devices, including TiVo’s, provide a wealth of interactivity and

³⁵ CEA/CERC Comments at 10-12, App. A.

³⁶ Cox Comments at 16-17.

customization. They allow users to compare cable subscription programming with Internet-delivered movies, television and music, and to combine user-generated content such as photos, all in the same user interface. The Internet connection also allows for software upgrades and allows a user to control home devices remotely. The Commission should not overlook the potential of Internet-enabled, CableCARD-reliant products to deliver the services that subscribers want, drive *programming*, as well as device competition, and spur demand for broadband to the home. TiVo agrees with CEA and CERC that such products can help to achieve many of the Commission's objectives for competition.

D. The NOI Should Be Viewed As An Extension Of The Progress In This FNPRM Toward A Level Playing Field For A Variety Of Competitive Devices Rather Than As A Future Constraint On Consumer Choice.

The CEA/CERC proposed regulations for ending discrimination against competitive devices provide a bridge to an AllVid solution as envisioned in the Commission's Notice of Inquiry, and need not be viewed as a detour from that future, more comprehensive plan. Indeed, rules of non-discrimination in advertising, billing, and support will be an indispensable part of any future "gateway" or "adapter" protocol for competitive devices. This rulemaking, then, can be seen as an opportunity to implement and gain experience with those parts of the AllVid solution now.³⁷

Just as cable operators offer a range of products and services, from elaborate HD-DVRs to basic adapters, an AllVid need not be inconsistent with subscribers continuing to have the choice of CableCARD-reliant retail products. The Commission has not set

³⁷ Likewise, an IP backchannel solution for SDV could form the basis for some of the consumer device-facing interface of an AllVid gateway or adapter.

any timeframe for an AllVid rulemaking, nor has any cable operator or any other MVPD yet committed to support such a rulemaking. Cable operators should not be permitted to avoid their present obligations to support competitive devices – for which today’s standard interface is the CableCARD – by invoking a successor that they have yet to support.

V. Before Considering Further Waivers, The Commission Should Conduct A Study Of The Economics Of Integrated And Separable Security.

The Commission, through the Media Bureau, has granted numerous waivers of the common reliance rule – and now proposes to carve out a broad exception – in order to encourage the deployment of allegedly lower-cost, limited functionality set-top boxes as part of cable operators’ conversion to digital. While digital transition, and the bandwidth savings it allows, are important goals and a part of the National Broadband Plan, they do not require abandoning or compromising the goal of device competition, which was also required by Congress.

Motorola claims that DTAs with integrated security are substantially cheaper than CableCARD-enabled devices.³⁸ Motorola cites to a waiver request indicating that CableCARDS add \$56 in cost to a set-top box.³⁹ Before considering any further waivers or adjustments to the integration ban, however, the Commission needs to understand the economics of CableCARDS. The manufacturers of CableCARDS, Motorola and Cisco, should provide the Commission with information as to how much integrated security costs, how much putting that same security onto a card costs, the reasons for the price disparity, how much the two manufacturers charge operators for set-top boxes with

³⁸ Motorola Comments at 14.

³⁹ *Id.* at 5 n.6.

integrated security and separable security, what volume discounts are offered to operators, and what these costs and prices were in 2007, 2008, 2009, and 2010, so that the Commission can understand whether a CableCARD really adds significant cost, if so why, and the impact of volume on CableCARD pricing. Without such factual information, the Commission is in no position to take action on anecdotal or hearsay statements about costs, particularly assertions that on their face are factually dubious.⁴⁰ The facts are in the possession of voluntary participants to this proceeding and should be provided to the Commission. The Commission can provide confidentiality treatment for any sensitive business information as warranted.

With approximately 20 million leased, CableCARD-compliant set-top boxes now deployed, the cost of making CableCARDS and of building the CableCARD interface into products should have declined precipitously due to economies of scale. The Commission, in considering waiver applications, has not demanded sufficient answers as to whether this is the case, and if not, why not. For example, IPCO, a commenter in this proceeding, says it is prepared to offer a CableCARD-reliant DTA for less than the cost of an integrated box.⁴¹

Conclusion

The rule changes proposed by CEA and CERC, and an IP backchannel solution for SDV as proposed by TiVo, will allow the cable industry's CableCARD solution

⁴⁰ For example, the American Cable Association suggests that the least expensive CableCARD-reliant HD set-top box costs \$300-\$400 per unit compared to the cost of an HD-only integrated set-top box at about \$50 per box. *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of the American Cable Association 4 (June 14, 2010); *see also* NCTA Comments at 12 (citing the same figures).

⁴¹ *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Dkt. No. 97-80, PP Dkt. No. 00-67, Comments of IPCO, LLC at 3 (June 14, 2010).

finally to fulfill its promise and Congress's mandate. Cable operators, in their comments, do not deny that such rule changes are feasible, nor do they demonstrate that implementation would take longer than the timeframe set forth in this FNPRM. Cable operators should not be permitted to use either the predictable results of their own past failures to support CableCARD-reliant products, or the pendency of a future AllVid solution, to avoid effective rules for the competitive products that customers want now. TiVo supports the expeditious adoption of rule changes as proposed by CEA and CERC, including an IP backchannel for SDV compatibility as described in TiVo's comments.

Respectfully submitted,

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