

**Before the  
Federal Communications Commission  
Washington, DC 20554**

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

**REPLY COMMENTS OF CISCO SYSTEMS, INC.**

Cisco Systems, Inc. (“Cisco”) submits these reply comments regarding the Commission’s most recent *Further Notice of Proposed Rulemaking* (“*FNPRM*”) in these dockets, which seeks comment on various proposals to modify the existing CableCARD regime.<sup>1</sup> As explained in Cisco’s comments, several of the rule changes proposed in the *FNPRM* will benefit the public interest and should be adopted. For example, the wisdom of the Commission’s proposal to relax the IEEE 1394 interface requirement has been illustrated by the Media Bureau’s recent action granting requests for waiver of Section 76.640(b)(4)(ii) on an interim basis.<sup>2</sup> Cisco welcomes

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<sup>1</sup> Implementation of Section 304 of the Telecommunications Act of 1996, *Fourth Further Notice of Proposed Rulemaking*, 25 FCC Rcd 4303 (2010) (“*FNPRM*”).

<sup>2</sup> Intel Corporation, Motorola, Inc., TiVo, Inc. Requests for Waiver of Section 76.640(b)(4)(ii) of the Commission’s Rules, CSR-8229-Z *et al.*, *Memorandum Opinion and Order*, DA 10-1094 (rel. June 18, 2010) ¶ 1 (“IP connections will serve the same purpose that the IEEE 1394 interface requirement is intended to achieve – encouraging connectivity between cable operator-leased set-top boxes and retail consumer electronics devices and computers.”). The Bureau’s order allows cable operators to deploy any device that has an IP-based connector that outputs video in a format that third-party devices can receive in lieu of an IEEE 1394 interface, provided that the device complies with the rest of the Commission’s rules. *Id.* ¶ 11.

and applauds this action, and continues to encourage the Commission to adopt its proposal to permanently increase flexibility in the output interface cable operators may employ under the rules. The Commission also should waive the integration ban for low-cost, one-way boxes without recording capability in order to promote the cable digital transition.

These reply comments focus, however, on the proposal that Cisco has urged the Commission to reject: a mandate that cable operators make available an out-of-band communications link over the public Internet for Unidirectional Digital Cable Product (“UDCP”) devices operating on Switched Digital Video (“SDV”) cable systems. The Commission has previously noted the “significant consumer benefits of SDV deployment,”<sup>3</sup> and the record in response to the *FNPRM* emphatically underscores that SDV technology is a key tool utilized by cable operators to meet the Commission’s broadband goals. Specifically, the comments demonstrate that SDV enables cable operators to offer broadband speeds above 100 Mbps,<sup>4</sup> increase the amount of high-definition (“HD”) video content provided to consumers,<sup>5</sup> and roll out other advanced services.<sup>6</sup> No commenter disputes the value that SDV brings to consumers.<sup>7</sup>

The vast majority of comments also demonstrate that tuning adapters – widely deployed and compatible with any retail consumer electronics device for which the manufacturer has

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<sup>3</sup> *Oceanic Time Warner Cable, et al.*, 24 FCC Rcd 8716, ¶ 13 (June 26, 2009) (vacating Notice of Apparent Liability and Forfeiture and Forfeiture Orders relating to implementation of SDV by Time Warner Cable and Cox Communications, Inc.).

<sup>4</sup> National Cable & Telecommunications Association Comments at 39 (“NCTA Comments”).

<sup>5</sup> *See, e.g.*, Cox Communications, Inc. Comments at 5-6 (“Cox Comments”); NCTA Comments at 39.

<sup>6</sup> Motorola, Inc. Comments at 17-18 (“Motorola Comments”).

<sup>7</sup> Even TiVo Inc. (“TiVo”) acknowledges that “switched digital video has made more channels readily available to subscribers that rent equipment from the cable operator,” TiVo Inc. Comments at 11 (“TiVo Comments”), and these additional channels are just as readily available to TiVo users with a tuning adapter.

implemented the necessary firmware upgrade – provide an efficient, effective means for UDCP devices with CableCARDS to access SDV programming. A satisfactory solution to enable UDCP access to SDV programming thus already is in use, and additional regulations are unnecessary. Moreover, proponents of an out-of-band/IP “backchannel” solution significantly underestimate the cost and complexity of such an approach. Most notably, some commenters err in suggesting that the web-based “TV Everywhere” service introduced by some multichannel video programming distributors (“MVPDs”) during the past year indicates the ease of implementing a public Internet IP backchannel solution for upstream communication in SDV systems. There simply is no connection between the technology used for TV Everywhere and the functionality that would be required to facilitate delivery of SDV programming.

The Commission should recognize the numerous technical and operational challenges of the TiVo proposal and reject it, particularly as part of a “quick fix” to sustain the CableCARD regime while the Commission prepares a replacement.

**I. COMMENTERS GENERALLY AGREE THAT THE TUNING ADAPTER PROVIDES AN EFFECTIVE, EFFICIENT MEANS FOR CABLECARD DEVICES TO ACCESS SDV**

The Consumer Electronics Association and Consumer Electronics Retailers Coalition (“CEA-CERC”) joint comments argue that cable providers must “give consumers [with UDCP devices on SDV systems] a workable and effective method of channel selection.”<sup>8</sup> As explained by a number of commenters, TiVo and the cable industry worked together to develop just such a solution: the tuning adapter.<sup>9</sup> This solution is deployed and working in thousands of households

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<sup>8</sup> Consumer Electronics Association & Consumer Electronics Retailers Coalition Comments at 15 (“CEA-CERC Comments”).

<sup>9</sup> TiVo Comments at 9; NCTA Comments at 39-40; Motorola Comments at 19; Cisco Systems, Inc. Comments at 4 (“Cisco Comments”).

today. Cisco alone has shipped more than 42,000 adapters to its cable operator customers and anticipates shipping approximately 35,000 adapters per year over the next several years.<sup>10</sup>

Notably, ARRIS Group (“ARRIS”), which manufactures the Moxi HD digital video recorder (“DVR”) for retail sale, agrees that the tuning adapter is an effective solution. ARRIS states that “once the Tuning Adapters are placed in service, they work in providing Moxi customers with access to SDV channels and give them the experience and functionality they expect from the UDCP.”<sup>11</sup> Thus, as discussed below, ARRIS does not see any need for a regulated alternative to the tuning adapter. It also bears repeating that TiVo endorsed the tuning adapter solution as recently as last summer, calling it a “reasonable, practical solution.”<sup>12</sup>

## **II. TIVO, CEA-CERC, AND PUBLIC KNOWLEDGE VASTLY UNDERESTIMATE THE COST AND COMPLEXITY OF TIVO’S IP-BACKCHANNEL “SOLUTION”**

In place of the existing, functional solution it helped develop, TiVo has proposed that a complex technical mandate be imposed on cable operators.<sup>13</sup> Contrary to some commenters’ suggestions, Cisco’s comments explain that implementing a signaling backchannel over the public Internet raises many technical, security, and privacy challenges that would take substantial time to address.<sup>14</sup> Likewise, some consumer electronics manufacturers, the cable industry, a

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<sup>10</sup> Cisco Comments at 3.

<sup>11</sup> ARRIS Group, Inc. Comments at 6 (“ARRIS Comments”).

<sup>12</sup> Cisco Comments at 4, citing *Petition for Reconsideration or Clarification of TiVo Inc.*, File Nos. EB-07-SE-351, EB-07-SE-352, at 17-18 (July 27, 2009).

<sup>13</sup> TiVo Comments at 8-16. TiVo’s primary reason for abandoning the existing tuning adapter solution for a new, unproven approach appears to be that the size of the adapter is larger than TiVo would prefer. TiVo Comments at 9-10.

<sup>14</sup> Cisco Comments at 5-14.

public interest group, and others raise concerns about TiVo's IP backchannel proposal. Moxi manufacturer ARRIS states:

“While eliminating the need for the Tuning Adapter would be desirable, mandating an entirely new approach creates a real risk of doing more harm than good... [G]iven the success ARRIS has had with consumer education regarding installations of the Tuning Adapter, ARRIS does not believe that the Tuning Adapter issue is serious enough to distract from the more important task of developing next-generation gateway solutions for the home.”<sup>15</sup>

Other consumer electronics manufacturers and the U.S. Chamber of Commerce share ARRIS's doubts regarding the value of mandating a new, unproven alternative to replace the established, working solution.<sup>16</sup> Other commenters express concern about possible performance issues,<sup>17</sup> difficulty in establishing standards applicable to such a wide range of technologies,<sup>18</sup> and risks to security and reliability of cable systems.<sup>19</sup> Critically, NCTA and Public Knowledge both highlight the fact that TiVo's proposal would require subscribers to buy Internet service of sufficient speed and reliability in order to be able to use the device.<sup>20</sup>

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<sup>15</sup> ARRIS Comments at 4-5.

<sup>16</sup> See Panasonic Corporation of North America Comments at 5 (“[W]e are reluctant to rely on an approach that has received no cable operator support and has not been robustly tested or proven in the field in actual products.”); Motorola Comments at 20 (“The Tuning Adapter already provides a ‘no cost’ solution for TiVo customers to access SDV channels, and Motorola does not see the value in investing more resources in developing an entirely new approach, particularly given the very limited number of UDCP customers in the marketplace today (... less than 1% of all cable subscribers nationwide.)”); U.S. Chamber of Commerce Comments at 4 (“The Chamber urges the Commission to take no further action on this issue because there is already a solution in the marketplace. Additional regulation would only serve to add an unnecessary cost element...”).

<sup>17</sup> Cox Comments at 10; NCTA Comments at 44.

<sup>18</sup> NCTA Comments at 45.

<sup>19</sup> *Id.* at 44 (“[A]ny workable solution would need to ... address the security and authentication holes in the proposal.”); Cox Comments at 10-11.

<sup>20</sup> NCTA Comments at 44; Public Knowledge Comments at 19-20.

The Commission should take particular note of the inapt comparison of MVPDs' web-based "TV Everywhere" service and an IP backchannel for SDV commands. TiVo and CEA-CERC point to the provision of "TV Everywhere" service as evidence that implementing the TiVo proposal is straightforward.<sup>21</sup> However, the TV Everywhere service is orthogonal to the SDV service. TV Everywhere is a web-based delivery of on-demand content that has been authorized through a cable operator. SDV is a QAM-based service that requires real time network re-allocation at the local level. SDV therefore requires distributed switching that is highly location based. The two services are not comparable. As one example of the difference, of the five primary functions for which Cisco believes protocols would need to be established to implement the TiVo proposal (location discovery, authorization, publishing of available services, communication between the UDCP client and the cable system gateway, and communication between the gateway and the SDV server), only communication between the UDCP client and the cable system gateway would take place over the public Internet in TiVo's proposal. Four other sets of complex protocols would need to be established and implemented. These four protocols would be implemented within the highly managed, proprietary cable networks, and would have to account for networks which vary greatly, as highlighted in Cisco's comments and noted by the Commission in the *FNPRM*. There is simply very little in common between TV Everywhere and TiVo's proposal.<sup>22</sup>

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<sup>21</sup> TiVo Comments at 13; CEA-CERC Comments at 17.

<sup>22</sup> In another underestimation of the challenges of its proposal, TiVo points to the successful implementation of limited IP-based communications by set-top boxes in RCN Corporation's networks as proof that the TiVo proposal is simple to deploy. As noted above, cable networks vary widely in architecture and implementation; what works easily on one network may be difficult or impossible on another. Standardization across multiple platforms would be extremely time-consuming. *See* Cisco Comments at 7-11.

The high level of concern expressed by commenters regarding the efficacy of TiVo's proposal, as well as the inaccuracy of the claims regarding its ease and simplicity, reinforce Cisco's conclusion that the proposal is generally unnecessary and particularly ill-suited as an interim fix.<sup>23</sup>

### **III. CONCLUSION**

For the reasons set forth above, Cisco again urges the Commission to reject calls for a mandated alternative to the tuning adapter.

Respectfully submitted,

**CISCO SYSTEMS, INC.**

By:           /s/ Jeffrey A. Campbell            
Jeffrey A. Campbell  
Senior Director, Technology and  
Trade Policy  
1300 Pennsylvania Avenue, N.W.  
Suite 250  
Washington, D.C. 20004  
202.354.2920

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<sup>23</sup> See Cisco Comments at 9-14.