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Federal Communications Commission
Office of the Secretary

May 4, 2010

Via Hand Delivery

Marlene H. Dortch
Federal Communications Commission
Office of the Secretary
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, MB Docket No. 10-56
REDACTED – FOR PUBLIC INSPECTION

Dear Ms. Dortch:

On behalf of Comcast Corporation, General Electric Company, and NBC Universal, Inc., and in accordance with the First and Second Protective Orders adopted in this proceeding,[1] enclosed please find two copies of the **redacted, public** version of two separate expert economic reports (the "Economists' Reports"). The first report, written by Dr. Gregory L. Rosston, is titled *An Economic Analysis of Competitive Benefits from the Comcast-NBCU Transaction*. The second report, titled *The Comcast/NBCU Transaction and Online Video Distribution*, was written by Dr. Mark Israel and Dr. Michael L. Katz.

The {{ }} symbols denote where Highly Confidential Information has been redacted, and the [[ ]] symbols denote where Confidential Information has been redacted. In addition, enclosed please find a cover letter summarizing the Economists' Reports. Highly Confidential and Confidential versions of the Economists' Reports (and discs containing Highly Confidential and Confidential attachments) are being filed simultaneously with the Office of the Secretary under separate cover. The Confidential and Highly Confidential versions of this filing will be made available pursuant to the terms of the Protective Orders.

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[1] *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, Protective Order, 25 FCC Rcd 2133 (MB 2010); *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, Second Protective Order, 25 FCC Rcd 2140 (MB 2010).

Respectfully submitted,

Michael H. Hammer
Counsel for Comcast Corporation

Enclosures

May 4, 2010

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Marlene H. Dortch
Federal Communications Commission
Office of the Secretary
445 Twelfth Street, S.W.
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Re: *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. For Consent to Assign Licenses or Transfer Control of Licensees*, MB Docket No. 10-56
REDACTED – FOR PUBLIC INSPECTION

Dear Ms. Dortch:

At the request of Commission staff,[1] Comcast Corporation ("Comcast"), General Electric Company, and NBC Universal, Inc. ("NBCU") (collectively, "Applicants") hereby submit two additional reports that confirm, from an economics perspective, information and analyses Applicants previously submitted for the record in their Public Interest Statement.[2] The first report, titled *An Economic Analysis of Competitive Benefits from the Comcast-NBCU Transaction*, by Dr. Gregory L. Rosston (the "Rosston Benefits Report"), describes numerous public interest benefits that will result from the proposed transaction. The second report, titled *The Comcast/NBCU Transaction and Online Video Distribution*, by Dr. Mark Israel and Dr. Michael L. Katz (the "Israel/Katz Online Video Report"), confirms that the proposed transaction will have no adverse impacts on online video distribution.

Dr. Rosston finds that "[t]he transaction is likely to result in synergies and changes in incentives that will stimulate increased investment by Comcast in programming and distribution, and this, in turn, will broaden and accelerate innovation in video distribution platforms, expand the range of video programming services, and increase the quantity, quality, and convenience of

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[1] *See In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, MB Docket No. 10-56, Order, DA 10-662, ¶ 2 (MB rel. Apr. 16, 2010).

[2] *See In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. For Consent to Assign Licenses or Transfer Control of Licensees*, MB Docket No. 10-56, Applications and Public Interest Statement, Lead Application File Nos. BTCCDT-20100128AAG (MB), SES-ASG-20100201-00148 (IB), and 0004101576 (WTB) (filed Jan. 28, 2010) ("Public Interest Statement").

video viewing by consumers."[3] Dr. Rosston's findings are consistent with and confirm Applicants' Public Interest Statement.[4]

Dr. Rosston observes that Comcast has the capacity to deliver innovative new services that consumers want, but Comcast often cannot do so, or cannot do so as quickly as it would like, because negotiations bog down over the potential impact of such new services.[5] He concludes that a "key public interest benefit" of the proposed transaction is the elimination or reduction of such negotiating friction and "the acceleration of the anytime/anywhere future of video viewing" across multiple new platforms.[6]

Drs. Israel and Katz's "central conclusion is that the proposed transaction does not threaten competition in the distribution of long-form, professional-quality video programming, notably the provision of such programming via the Internet."[7]

In support of this conclusion, Drs. Israel and Katz find that the online video business is nascent and complementary to, rather than a substitute for, traditional video services provided by Comcast and other multichannel video programming distributors ("MVPDs").[8] As long as online video distributors are complementary to traditional MVPDs, there is clearly no basis for concern about foreclosure of online video distributors by Comcast.

However, even if a viable online service were to emerge as a competitive substitute to traditional MVPDs, the transaction will not create or enhance any economic incentive for Comcast to attempt to deny NBCU's content to such a competitor.[9] Applying the Commission staff's vertical foreclosure model to the proposed transaction, Drs. Israel and Katz conclude that "even in a hypothetical future scenario in which one or more online MVPDs emerges as a substitute for traditional MVPDs, Comcast would be highly unlikely to be able profitably to induce NBCU to withhold its content from such distributors in order to increase Comcast's non-

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3 Rosston Benefits Report ¶ 7.

4 Dr. Rosston notes that Applicants also made several voluntary public interest commitments and that the tangible consumer benefits of these commitments are discussed in the Public Interest Statement. *See* Rosston Report ¶ 7; *see generally* Public Interest Statement *passim* & App. 8.

5 *See* Rosston Benefits Report ¶ 43.

6 *Id.* ¶ 15.

7 Israel/Katz Online Video Report ¶ 3.

8 *Id.* ¶ 4.

9 It is also worth noting, as Drs. Israel and Katz point out, that under the terms of the agreement establishing the joint venture, the venture's directors and officers owe fiduciary duties to the joint venture and its members, including GE. These duties would be violated if the directors and officers made business decisions that intentionally sacrificed joint venture profits in order to increase Comcast's MVPD profits. *See id.* ¶ 123.

NBCU profits."[10] Drs. Israel and Katz's conclusions apply not only to the hypothetical future case in which an online distributor has established itself in the marketplace, but also to the hypothetical case of a new online entrant. Specifically, they find that "in the new-entrant scenario, too, Comcast would be very unlikely to be able profitably to induce NBCU to withhold its content from online MVPDs in order to increase Comcast's non-NBCU profits."[11]

Both of the reports contain Confidential and Highly Confidential Information. Accordingly, Applicants are filing public (redacted) versions in the public record and are submitting Confidential and Highly Confidential versions under seal. Pursuant to the protective orders,[12] the Confidential and Highly Confidential versions of the reports will be made available upon request to parties whose authorized representatives have signed the appropriate protective orders.

Respectfully submitted,

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10 *Id.* ¶ 55. While Drs. Israel and Katz use the label "online MVPD," they do so as a convenient shorthand only, and they offer no opinion on whether any such entity would meet the statutory definition of an MVPD. *See id.* ¶ 50 n.71.

11 *Id.* ¶ 134.

12 *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, Protective Order, 25 FCC Rcd 2133 (MB 2010); *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, Second Protective Order, 25 FCC Rcd 2140 (MB 2010).

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THE COMCAST/NBCU TRANSACTION AND ONLINE VIDEO DISTRIBUTION

May 4, 2010

Mark Israel
and
Michael L. Katz

Contents

I. INTRODUCTION

1. Comcast Corporation ("Comcast") and General Electric Company ("GE") propose to create a joint venture that combines the broadcast, cable programming, movie studio, theme park, and online content businesses of NBC Universal ("NBCU") with the cable programming and certain online content businesses of Comcast.[1] At the request of counsel for Comcast and GE, we wrote an economic report in which we applied to this transaction the mathematical model developed by the staff of the Federal Communications Commission ("Commission") to analyze the issue of vertical foreclosure in the News Corporation/DirecTV transaction.[2]

2. Commission staff, after an initial review of our earlier economic report, requested that we submit an additional economic report "addressing the potential impacts of the transaction on online video distribution."[3] Specifically, staff asked us to provide an overview of the online video marketplace together with an economic analysis of whether the proposed transaction would give the joint venture the incentive and/or ability to disadvantage an online rival, should one emerge at some point in the future.

3. In the present declaration, we analyze the structure of, and nature of competition in, the evolving electronic video distribution marketplace, in general, and the nascent online video

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1 *See Applications for Consent to the Transfer of Control of Licenses, General Electric Company, Transferor, to Comcast Corporation, Transferee*, Applications and Public Interest Statement, Lead Application File Nos. BTCCDT-20100128AAG (MB), SES-ASG-20100201-00148 (IB), and 0004101576 (WTB) (filed Jan. 28, 2010) (hereinafter, *Public Interest Statement*).

2 Mark Israel and Michael L. Katz, Application of the Commission Staff Model of Vertical Foreclosure to the Proposed Comcast-NBCU Transaction, *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, MB Docket No. 10-56, 26 February 2010 (hereinafter, *Israel-Katz Initial Declaration*).

3 Chief, Media Bureau, Federal Communications Commission, Order, *In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses or Transfer Control of Licensees*, MB Docket No. 10-56, rel. April 16, 2010.

sector, in particular. We do not attempt to provide a broad overview of all aspects of the electronic video distribution marketplace. Rather, we discuss those characteristics most relevant to analyzing whether the proposed joint venture is likely to have the incentive and ability to disadvantage a hypothetical rival online distributor. Given the rapidly changing nature of technology and consumer tastes, as well as ongoing innovation in business models, it is impossible to predict with certainty which business models will be tried, let alone which will succeed. However, the fundamental economic forces at work in this marketplace will not change with the particulars of taste, technology, and business model. Consequently, it is possible to reach some broad conclusions about the future of the online video marketplace with confidence. Our central conclusion is that the proposed transaction does not threaten competition in the distribution of long-form, professional-quality video programming, notably the provision of such programming via the Internet.[4, 5]

4. Our central conclusion is supported by the following findings:

- *The majority of online video distribution today is complementary to the services offered by traditional television broadcasters and multichannel video programming distributors ("MVPDs").* Current online services, such as TV.com, CBS.com, and Hulu.com, supplement traditional MVPD services and promote the viewing of traditional television programming. This is evidenced by the fact that people have been watching increasing

[4] To be clear, we also believe that the proposed transaction poses no threat to competition in the provision of short-form or amateur-produced content. We do not address this point further because we take it to be self-evident.

[5] As will become evident below, we are not asserting that the electronic distribution of long-form, professional-quality video programming constitutes a relevant antitrust market for purposes of competitive effects analysis. Among other reasons why such a market definition could be inappropriate, we observe that the distribution of long-form, professional-quality video programming over the Internet is currently a complement to—rather than a substitute for—traditional delivery of such content over dedicated networks (*i.e.*, cable networks, direct broadcast satellite ("DBS"), and telco video networks).

amounts of television through traditional MVPDs even as online viewing has been increasing. The number of MVPD subscribers is also rising along with the number of consumers who view video content online. Because online video distribution services are currently complementary to Comcast's cable services and NBCU's programming services, both Comcast and NBCU benefit from online video distribution services and have incentives to promote them, not attempt to undermine them.

- *As new online video distribution models emerge, online providers are likely to differentiate themselves from traditional MVPDs and to incorporate in their business models unique capabilities of online platforms that complement the services offered by traditional MVPDs.* Although the business models used by online video providers remain very much in flux, there are strong reasons to expect that online video providers will seek to differentiate themselves from traditional MVPDs in order to obtain a competitive advantage and achieve profitability. Online video providers may accomplish this differentiation, in part, by incorporating some of the unique capabilities of online platforms that allow them to supplement and complement traditional MVPD offerings. Insofar as online video providers are differentiated from, and complementary to, traditional MVPDs, Comcast's cable operations and NBCU will have no incentive and little ability to hinder the growth of these providers.

- *Online video distribution is complementary to Comcast's broadband Internet access operations.* In order for a household to view video programming delivered over the Internet, the household must purchase Internet access. The development of improved online video offerings can thus be expected to stimulate the demand for Internet access

services, especially broadband services. Online video viewing that mirrored traditional television viewing levels and patterns would hugely increase Internet traffic levels to U.S. households and could overwhelm today's broadband Internet access networks. However, if broadband Internet access networks evolve to have sufficient capacity, then online video viewing that mirrors traditional television viewing would stimulate the demand for broadband Internet access and, thus, increase broadband Internet access providers' profits. These profits would represent an incentive for Comcast to promote online video providers, not attempt to stifle them.

- *Application of the Commission staff's foreclosure methodology indicates that online foreclosure would be unprofitable.* The Commission staff has developed an approach to estimating the expected costs and benefits of foreclosure and then using those estimates to predict whether a proposed merger or joint venture will create an entity with an economic incentive to engage in foreclosure. As noted above, online video services today largely complement—rather than compete with—Comcast's cable services.[6] Comcast would have no incentive to attempt to weaken online video providers—whether by trying to induce NBCU to withhold programming from them, or by any other means—as long as those providers offered complementary services. Hence, we interpret the Commission staff's request as requiring us to *assume* the emergence of one or more hypothetical online distributors that are direct competitors for traditional MVPD services. Even making this assumption, application of the Commission staff's methodology to the

[6] In addition, as discussed in the prior bullet point, whether or not online video services complement Comcast's cable services, third-party online video distributors' services increase the demand for Comcast's broadband Internet access services.

present transaction demonstrates that it would be very unlikely for foreclosure to be profitable.

This conclusion follows from several facts, including:

- *NBCU would lose significant advertising revenues and affiliate fees if it were to deny its programming to online competitors, should they develop.* To the extent that a significant online competitor develops, the amount that NBCU would lose from denying access to those subscribers could be expected to be substantial. Even for a smaller online competitor, NBCU would likely lose a large amount on a per-subscriber basis.

- *There is no basis for expecting that withholding current NBCU networks from online providers could significantly harm the ability of an online provider to attract or retain subscribers.* This is so for several reasons. First, NBCU controls the relevant online rights to programming accounting for only {{ }} of all television viewing minutes, and there are many substitutes for this NBCU programming. Second, as summarized above, online video providers can be expected to seek to differentiate themselves from traditional MVPDs. Hence, these online providers would likely be able to offer attractive value propositions to consumers without having to replicate the full programming line-ups of traditional MVPDs. Third, the Commission has previously expressed concern that the four major broadcast networks constitute "must-have" programming for traditional MVPDs,[7] which might be seen as

[7] *See* Memorandum Opinion and Order, *In the Matter of General Motors Corporation and Hughes Electronics Corporation, Transferors, and The News Corporation Limited, Transferee, For Authority to Transfer Control,* 19 FCC Rcd 473 (2004) (hereinafter *News Corp.-Hughes Order*), §§ V.B.3 and VI.C.4.c.(iii).

suggesting that withholding the rights to NBC broadcast network programming could be a particularly powerful way to disadvantage online rivals. However, two facts indicate that such a conclusion would be unwarranted. One is that NBCU cannot deny consumers access to NBC's signal via over-the-air reception. The other is that, to the extent that empirical evidence from the MVPD market is informative, past analyses have shown little effect on MVPD subscribership from the temporary loss of a single broadcast television network. For all of these reasons, it is unlikely that NBCU could successfully engage in foreclosure that would significantly harm an online distributor's ability to attract and retain subscribers.

- *Comcast Cable has a limited geographic footprint and, consequently, would gain only a small share of any benefits from foreclosure accruing to traditional MVPDs.* If direct online competitors to traditional MVPDs develop, they would almost certainly have national (or even international) geographic footprints. In contrast, Comcast Cable has a limited footprint. If NBCU were to deny its programming to these online competitors, then it would forgo profits from selling programming nationally but Comcast Cable would reap any benefits of foreclosure only in limited geographic areas. Stated another way, Comcast has only a 23.8 percent share of the national MVPD marketplace. Consequently, over three fourths of any benefits to traditional MVPDs from any weakening of online competitors would be captured by MVPDs other than Comcast.

- *If an online service emerges that is a direct competitor of Comcast's traditional MVPD business, then that competitor's service would be complementary to*

Comcast's broadband Internet access operations. If a household viewed video streamed over the Internet in patterns mirroring traditional television viewing, then it would download approximately one hundred times more data per month than the average current subscriber to Comcast's broadband Internet access service. If and when Comcast's Internet access networks develop the capacity to handle this additional traffic without suffering significant quality degradation from congestion, the additional demand for broadband access services created by online viewing would promote the profitability of Comcast's broadband Internet access services. Hence, Comcast's broadband Internet access operations would be harmed to the extent that foreclosure was successful at reducing the penetration of online video services.

5. The remainder of this report is organized as follows. In Section II, we provide an overview of the U.S. video marketplace, place the nascent and rapidly evolving online video sector into the context of the broader industry, and discuss the stark differences between how viewers currently consume online video and how they consume traditional television. In Section III, we apply the Commission staff's methodology for the analysis of foreclosure to a hypothetical scenario in which one or more online services have emerged as competitors—rather than complementors—of traditional MVPDs.

II. THE ROLE OF ONLINE VIDEO VIEWING IN THE BROADER VIDEO MARKETPLACE

6. In this section, we provide an overview of the U.S. video marketplace that puts the nascent and rapidly evolving online video sector into context. We then discuss the marked differences between how viewers currently consume online video and traditional television, and how the evidence that these two types of viewing are currently complementary. Based on these

industry characteristics, we conclude that: (a) it is unlikely that an online replacement for traditional MVPDs will emerge in the near-term, and (b) if one does emerge over the longer-term, then it will have important complementarities with Comcast's services.

A. The Vertical Structure of the U.S. Video Marketplace

7. American consumers view video content delivered to a variety of screens through a variety of distribution systems. The screens used by consumers to view content include televisions, computers, mobile phones, and other mobile devices. Content is delivered to those screens through a combination of mechanisms, including: over-the-air broadcasting, traditional MVPD networks (*i.e.,* cable, telco video, and DBS), broadband distribution over the Internet (including streaming video as well as the rental or purchase of downloaded video), distribution via radio spectrum to mobile phones or similar devices, and DVDs rented or purchased at retail outlets or delivered by mail.[8]

8. Video content viewed by consumers is the end product of several different activities, undertaken by multiple economic actors. There are many ways to categorize these activities. Figure 1 illustrates one taxonomy, in which the activities are organized into a vertical value chain: content creation; the packaging and presentation of content; transport of content to consumers; and the provision of tools by which consumers can search for and discover content.[9] The remainder of this section discusses each of these activities in turn.

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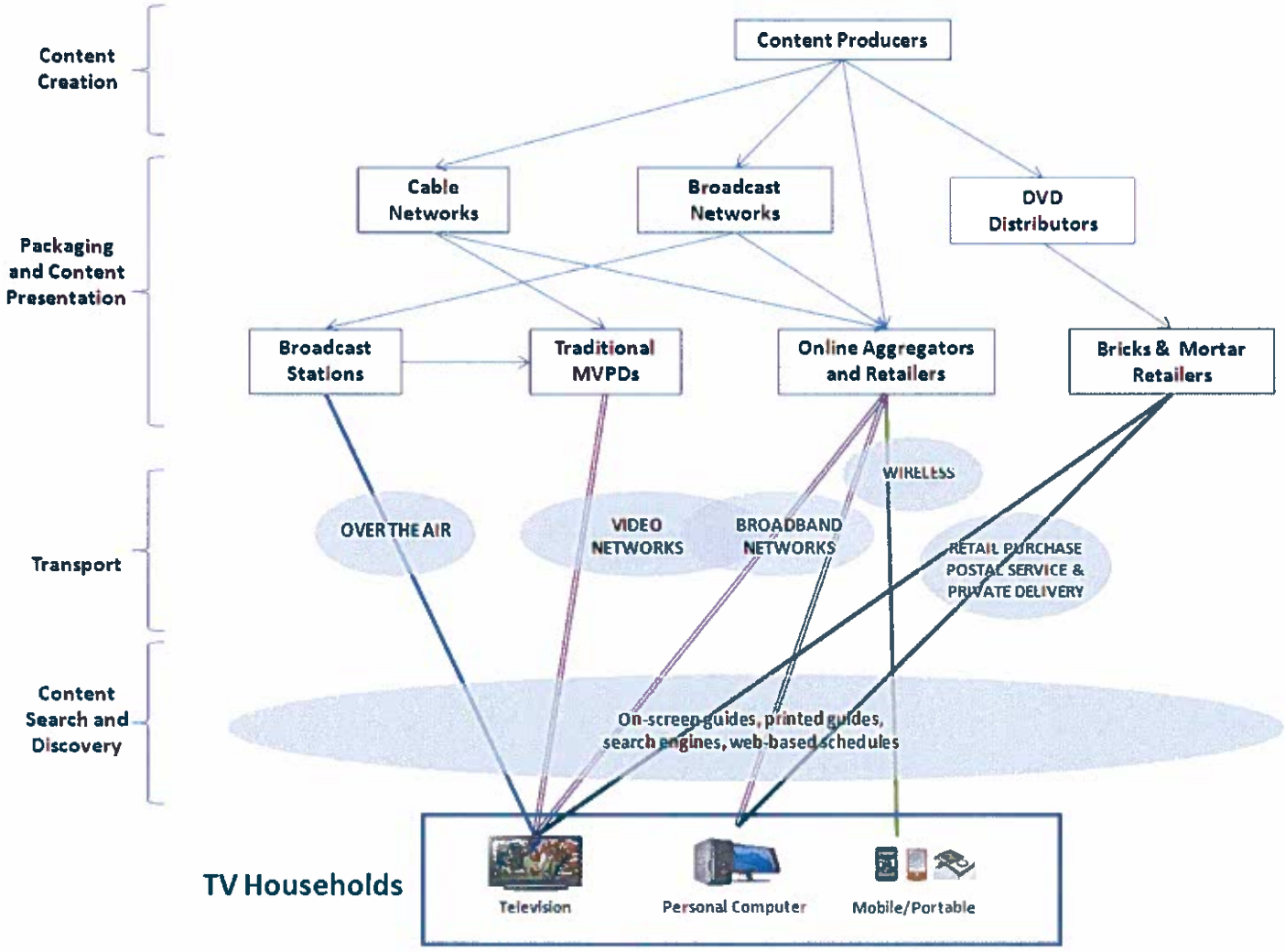
[8] We use DVDs as a shorthand to refer to all types of physical media, which might also include Blu-ray discs, for example.

[9] Figure 1 is a stylized and simplified representation of the video marketplace, and it does not illustrate all of the possible links. For example, some households stream video programming to their video game consoles. In addition, the signal of a broadcast station might be reformatted and then broadcast over a specialized wireless network that serves mobile devices.

Figure 1: Overview of the Structure of the Video Marketplace



1. Content creation.

9. Content-creation activities include writing and producing video programming. Much of the video content viewed by consumers is professionally created. However, millions of people create "user-generated videos" at very low cost and post them to the Internet, where generally they are available for downloading or viewing worldwide at any time. In addition to whether it

is professionally created or user-generated, content can be categorized based on whether it is short or long form. Although there is some debate about the precise definition of short-form versus long-form video content, NBCU indicates that, in its view, "long-form video is typically longer than five minutes and usually refers to full episodes of television or movies."[10] Under this categorization scheme, for example, movies or episodes of a broadcast television show are considered professional, long-form content, while a clip from a movie or television episode is considered professional, short-form content.[11]

10. Producing professional long-form content of the type that generally airs on broadcast and cable networks is expensive and risky. Prime-time entertainment dramas for broadcast or premium cable networks currently can cost up to $4 million *per hour* to produce.[12] Studios never recoup their production costs on most scripted series.[13] A relatively small number of series are "hits" and earn large profits.[14]

11. The profitability of creating non-sports, network-quality content depends, in part, on the ability of the content producer, or studio, to manage the type, timing, and release of rights to different distributors in different release windows.[15] On those shows that are considered a "hit,"

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10 Vivi Zigler, President, Digital Entertainment, NBCU, April 26, 2010, interview.

11 Although useful, these categorizations are not sharply defined. In addition to some disagreement over the maximal length of short-form content, industry sources discuss a category of content that sits on the border between professional and user-generated content called "prosumer." *See* IAB, "Long Form Video Overview," September 2009, at 6, *available at* http://www.iab.net/media/file/long-form-video-final.pdf, *site visited* April 28, 2010.

12 *See* Larry Gerbrandt, "Hour dramas face risky economics," Hollywood Reporter, March 19, 2010, *available at* http://www.hollywoodreporter.com/hr/content_display/television/news/e3i9622dc15ab8161178e353cf46fd7d6a4, *site visited* April 26, 2010.

13 Michael Bonner, SVP, Digital Products & Marketing, NBCU, April 28, 2010, interview.

14 *Id.*

15 As part of managing these rights, a studio aggregates the rights of the various parties (writers, actors, *etc.*) involved in creating the content.

generally the studio's most substantial source of profits is the re-licensing of the episodes to additional outlets (beyond the first-run premiering on a broadcast or cable network).[16] A broadcast or cable network has an economic interest in maximizing the ratings of its initial airings of a series. Consequently, networks generally insist on broad exclusivity (historically against all competing media domestically) for as many as the first four seasons of a series' life and exclusivity limited mainly to the current season after that.[17] However, the studio may obtain through negotiation limited rights to exploit the series during the network's exclusivity period in ways that are not perceived as disruptive to the network's ratings.[18] For example, the studio may obtain the right to release the prior-season episodes of the series on DVD.[19] Also, the studio traditionally would be permitted to license the prior-season episodes of the series into syndication on both local broadcast stations and basic cable networks, beginning typically after four seasons have aired in first-run on the network.[20]

12. The proliferation of digital technology has made the licensing and windowing structure more complex. Now, in addition to "linear networks," which air a particular show in a set time slot on a given date, there are also "video-on-demand" services, through which providers offer libraries of programming that consumers can access at times of their choosing. Until recently, the studio-network license agreement would usually limit the network's grant of rights to a

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16 Michael Bonner, SVP, Digital Products & Marketing, NBCU, April 28, 2010, interview.

The studio may also realize revenue on a series from international licensing, format licensing, merchandising, and ancillary sources.

17 *Id.*

18 *Id.*

19 *Id.*

20 Theatrical motion picture distribution also follows a pattern of exhibition windows. Typically, a film is initially released to movie theaters and then it cycles through DVD, electronic-sell-through, and pay-per-view/video-on-demand windows and thereafter to premium pay windows and later to broadcast networks and/or basic cable networks. (*Id.*)

defined number of runs on its linear network.[21] However, in an effort to expand their presence on additional on-demand and online platforms, networks now typically seek to acquire additional "digital" exhibition rights for current-season episodes as part of their agreements with studios. Specifically, through negotiation with studios, networks have recently been able to obtain, for some series, the ability to make the current-season episodes available (usually for a limited number of episodes and limited time window) on a network-branded, advertiser-supported "on-demand" basis via online, mobile, and MVPD platforms. [[

]] However, all these terms are evolving and remain the subject of active negotiation between networks and studios.

2. Packaging and content presentation.

13. There is a cluster of activities that must be undertaken in order to turn different pieces of content into a service offered to consumers. These activities include:

- *Filtering:* Filtering activities comprise decisions regarding which programming to offer to consumers as part of the service and which not to offer.
- *Timing Decisions:* In addition to determining what content to show, an enterprise offering a video service to consumers has to make a wide range of decisions regarding the timing of when individual programs are available to be viewed. A fundamental decision is whether to offer programming as a linear network, in which case the network sets the specific date and time at which consumers can access any

[21] Statements made in this sentence and the remainder of this paragraph are based on Michael Bonner, SVP, Digital Products & Marketing, NBCU, April 28, 2010, interview.

particular program, or as video-on-demand, in which case each consumer can access programming at a time of his or her choosing. In the case of linear networks, the order in which the programs are presented can be an important element of business strategy. In the case of video-on-demand, the timing between initial linear exhibition and initial on-demand exhibition is a relevant consideration.

- *Aggregation:* In order to be able to offer the selected set of content, a video service provider must aggregate the necessary rights to distribute the programming. Rights aggregation is undertaken by both networks and MVPDs. Broadcast and cable television networks aggregate certain rights for the individual programs that comprise their linear networks. And MVPDs aggregate certain rights associated with different linear networks. It is important to understand the complexities created by the need to aggregate rights.

  Due to the granting of only limited-use rights by content creators to networks, and by networks to distribution entities, the allocation of rights associated with particular programming can be very complicated. Specifically, it is rare today for a company to aggregate rights at one stage in the vertical chain and then to provide an enterprise operating in the next stage of the vertical chain with blanket rights to all of its content.[22] Rather, consistent with the windowing strategy used by content owners, rights aggregators generally employ a set of limited-use licenses for different types of distribution. The rights contained in these licenses can make distinctions based on the business model (including advertiser-supported linear distribution, advertiser-

22 Michael Bonner, SVP, Digital Products & Marketing, NBCU, April 28, 2010, interview.

supported, free on-demand, subscription distribution with or without advertising, and per-transaction on-demand) and by platform (including Internet-delivered, mobile, and MVPD).

An implication of these license limitations for the analysis of the online video marketplace is that, even in the common case in which a broadcast or cable network has obtained rights from the studio that include the rights for some on-demand airings of the programming, these rights may not extend to the particular business model that an online distributor has adopted. For example, the only on-demand rights a broadcast network acquires may be for free-on-demand ("FOD") service, for which no access or subscription fee is charged to the consumer and the episodes must include advertising.[23] If an online provider were looking to develop a subscription-video-on-demand ("SVOD") service (or more generally, a service that is not solely advertiser supported), then a network in this position could not extend its grant of on-demand rights to the online provider for this purpose.

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}}[24] {{

[23] *Id.*

[24] *Id.*

}}[25]

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}}[26]

This complicated thicket of rights, in which multiple rights holder may have partial rights (for particular distribution channels) to the same content creates a challenge for a new video programming distributor, particularly one using a new business model, such as online distribution, to overcome.

- *User interface.* A final activity in organizing content for video consumers is the development of a user interface. One example is an MVPD's organization of content into channels that can be navigated using on-screen electronic program guides. Another example is the appearance and functionality of a website (such as YouTube or TV.com) that contains video content.

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25 *Id.*

26 *Id.*

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3. Transport.

14. Transport consists of the delivery of video content to viewing devices. Today, distributors use several different mechanisms (as well as various combinations of these mechanisms) to deliver video:

- *Dedicated networks:* Many distributors use private, dedicated networks for the delivery of programming. Such distribution can take many different forms, including distribution over: wireline networks operated by cable companies and telcos; direct broadcast satellites; local broadcast television stations; and specialized terrestrial wireless networks (*e.g.*, FloTV).

- *Over the Internet:* Some firms distribute video programming over the Internet. Examples of internet distribution services include Amazon, CBS.com, Fancast, Hulu, iTunes, Netflix, TV.com, YouTube, and Vudu. These firms rely on underlying Internet backbone and local access networks to provide transport.[27] In some cases, these networks share significant facilities with dedicated video networks (*e.g.*, cable and telco local network facilities can provide both dedicated video services and Internet access services). Firms relying on Internet transport often make use of content distribution networks ("CDNs"), such as Akamai and Limelight. CDNs improve performance by maintaining a large number of geographically diverse servers that connect to the Internet near end users' locations, thereby reducing the distance between CDN customers' content and end users.

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[27] MobiTV has a similar business model in that its video service is delivered over the infrastructure of general-purpose mobile telephone and data networks and associated access devices. *See* http://www.mobitv.com/products/apps/tv/ , *site visited* April 29, 2010.

Similarly, large content distributors, such as Google, maintain server farms at geographically diverse locations.[28]

- *Via post and bricks and mortar outlets.* Companies such as Netflix, Redbox, and video rental stores distribute video programming via the physical transmission of DVDs to viewers.

4. Content search and discovery.

15. This cluster of activities is aimed at providing a consumer the information he or she needs to find out: (a) what programming is available; (b) when and where that programming is available; and (c) what programming is likely to satisfy the consumer's preferences. This information can be provided: by programming guides (on the television, online, or on wireless devices) offered by MVPDs; by the display device itself; by social networking sites, blogs, and other websites; or by other sources including newspapers and magazines. The associated activities involve collecting the relevant information and presenting it to consumers in a readily usable form.[29]

B. Business models built around Internet transport of video take many forms and are rapidly evolving.

16. As is evident to even the most casual observer, evolving technology and changing consumers' tastes are driving changes in the video marketplace, including rapid changes in the nature of online delivery of video content. As part of this evolution, potential service providers are experimenting with a wide variety of revenue models.

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[28] John Markoff and Saul Hansell, "Hiding in Plain Sight, Google Seeks More Power," *The New York Times,* June 14, 2006, *available at* http://www.nytimes.com/2006/06/14/technology/14search.html, *site visited* April 27, 2010.

[29] In this last respect, there can be overlap with the user-interface activities described in the discussion of packaging and content presentation above.

17. The revenue models used in the marketplace today include:

- *Advertiser-supported Model:* In this model, advertisers pay the online distributor to show commercials to viewers; consumers view the video content free of charge. Examples include: YouTube, Hulu, AT&T Entertainment, various broadcast and cable network sites, Classic Cinema Online, Crackle, DCBeyond, SlashControl, SnagFilms, and Vimby.
- *Subscription Model:* In this model, consumers pay a periodic subscription fee for online access to video content. Examples include FloTV, MLB.com, MobiTV, NBA.com, Netflix, and NHL.com.
- *A la Carte Sales/Rentals:* In this model, consumers purchase or rent individual video programs online. Examples include Amazon, Apple's iTunes, Vudu, and Blockbuster.
- *Hybrid Models:* Combinations of these revenue models are also being tried, and distributors are increasingly exploiting multiple revenue sources, sometimes across multiple viewing platforms. Examples include Comcast's Fancast, which offers advertiser-supported video-on-demand online and other services, while some of the same content is available through Comcast's subscription MVPD service; Apple has an existing online rental/sale business through its iTunes store and is rumored to be considering a subscription service; YouTube is beginning to offer *à la carte* rentals in addition to its advertiser-supported site; Ireel has a subscription fee in addition to per-video rental or purchase fees.

18. Economic logic suggests that online business models that incorporate subscription fees and/or transaction-based pricing will almost certainly grow in importance. Just as broadcast television stations have increasingly been seeking cash retransmission consent payments from

MVPDs to supplement the broadcasters' advertising revenues,[30] online video providers can be expected to seek ways to generate revenue from subscriptions and transactions fees rather than rely solely on advertising revenues.

19. Video distribution business models that are based solely on advertising revenues may be limited in their ability to compete with distribution business models that have a subscription or transaction fee component instead of, or in addition to, advertising revenues. Content producers are rationally attracted to those business models that can generate the greatest economic returns for the programmers' investments. Although the advertising-only model may have a continuing role to play in the distribution of a selection of broadcast and cable network programming, there is little evidence that an advertising-only model will successfully support the distribution of broadcast and cable network programming at anything approaching the quality and variety available through traditional MVPDs.

20. Many industry analysts agree that advertising revenue alone will not support the development of online video. For example, one stated:[31]

> We do not believe online video can be supported solely through the traditional display advertising model. Online video will not become a new platform in its own right, with only 3% of US TV ad-spend by 2012, and the profitability of online ventures could be drastically curtailed by high distribution costs and limited scale. We expect the model will have to evolve by factoring direct spending from the consumer, either subscription or à la carte.

21. Hulu's CEO and its content partners appear to believe that total reliance on advertising support is not the future of online video viewing,[32] and Hulu's actions speak louder than its

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30 See *Israel and Katz Initial Declaration*, Section IV.C.

31 Matthieu Coppet, *et al.*, "Can Pay TV Benefit From Online Video?" *UBS Investment Research*, June 22, 2009, at 3-4 (3rd Party Attachment 23). *See also,* Michael Nathanson, *et al.*, "Web Video: Friend or Foe...And to Whom?" *Bernstein Research*, October 7, 2009, at 11 (3rd Party Attachment 24), stating that fully advertiser-supported online content is likely to remain limited to broadcast content and limited cable network content.

words: apparently, Hulu plans to add a subscription service, Hulu Plus, through which users can access additional content not available on the purely advertiser-supported portion of Hulu. It has been reported in the press that this service may have a subscription price of $9.95 per month and be introduced as soon as May 24, 2010.[33, 34]

C. The characteristics of online video viewing are starkly different from the characteristics of traditional television viewing.

22. As described above, consumers receive video programming through a variety of different delivery mechanisms and in many different forms, including both traditional television and online viewing.[35] Because Comcast Cable's main video service (as distinct from its high-speed data or phone services) is the provision of MVPD services to support traditional television viewing, Comcast's incentives regarding online video depend, among other things, on the extent to which traditional and online viewing serve the same consumer needs (and thus are substitutable for one another) or serve distinct needs (and thus are complementary services). Market research on current usage patterns for online video viewing versus traditional television

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32 *See* Brian Stelter, "Web-TV Divide is Back in Focus with NBC Sale," *The New York Times,* December 4, 2009 ("The site continues to be bullish on the current ad-supported model, but Mr. Kilar [Hulu's CEO] indicated that it was eyeing multiple business models for TV and movie viewing for the future."); "Sooner or Later, All of You Will Pay; From pay walls to authentication, media executives say the era of free is about to end," *Broadcasting & Cable,* October 26, 2009 (Hulu Board member Chase Carey (COO, News Corporation) said Hulu "needs to evolve to have a meaningful subscription model as part of its business."); "Disney CEO: Hulu could charge for content," *The Associated Press*, July 23, 2009 (Disney's CEO Robert Iger said "It's possible that Hulu will look at monetizing as well. It may be not just selling ads.").

33 Dawn C. Chmielewski and Meg James, "Online video site Hulu to test pay subscriptions," *Los Angeles Times*, April 23, 2010.

34 As explained in the subsequent sections, even if distributors such as Hulu move to subscription models, that change would not imply that they have become substitutes for traditional MVPDs. It means only that there is a movement away from the purely advertiser-supported business model. Whether subscription-based services will be complements to, or substitutes for, traditional MVPDs is a distinct question, and there is substantial reason to expect that the online subscription services may be complementary to those of traditional MVPDs.

35 We define traditional television viewing to include broadcast television received over-the-air and television received via a cable, DBS, or telco MVPD.

viewing demonstrates that online video viewing patterns are starkly different from traditional television viewing patterns, which indicates that traditional and online viewing serve distinct consumer needs.

1. Consumers watch much less online video than they watch traditional television.

23. A striking fact is how much more time the members of an average household spend watching traditional television than they spend watching video delivered online to either a personal computer or a mobile device. Studies of this topic have found:

- "Each week the typical American consumes almost 35 hrs of TV, 2 hrs of timeshifted TV, 4 hrs of internet, 22 minutes of online video and 4 minutes of mobile video."[36]
- "TV viewership has risen to over eight hours per household per day — the highest level ever."[37]

24. The limited amount of online viewing highlights an important point—this is a brand new medium, not a mature industry. Notwithstanding the growth rate of online viewing, as yet only a relatively small portion of total video viewing is online. In the fourth quarter of 2009, online video accounted for only one percent of total video viewing minutes.[38]

2. Traditional television viewing has clear peak times while online viewing does not.

25. As seen in Figure 2, traditional television viewing (whether watched straight from the linear network or watched off of a DVR) clearly peaks between 6p.m. and 11p.m. In contrast,

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36 The Nielsen Company, "Three Screen Report," Volume 7, 4th Quarter 2009, at 2 (3rd Party Attachment 25).

37 Michael Nathanson, *et al.*, "Web Video: Friend or Foe...And to Whom?" *Bernstein Research*, October 7, 2009, at 14 (3rd Party Attachment 24).

38 The Nielsen Company, "Three Screen Report," Volume 7, 4th Quarter 2009, at Table 1 (3rd Party Attachment 25). Video viewing minutes include viewing of live and time-shifted television and online video.

online streaming of videos is much steadier throughout the day from 8a.m. to 11p.m. Hence, in addition to the fact that there is substantially more traditional television viewing than online viewing, traditional television viewing is more concentrated in a narrow time window, meaning that networks used to transport traditional television need to be able to deal with high volumes of usage concentrated at peak times. Given that there may be multiple televisions in a single household simultaneously receiving different signals, the amount of data flowing to the household, particularly during peak usage hours, may be quite high.[39] As explained below, telcos' standard DSL networks may lack sufficient bandwidth to individual households to support more than one high-definition video stream at a time, substantially limiting their ability to support online video viewing that mirrors today's patterns of television viewing.

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39 The viewing data presented above indicate that the average American watches five hours of television per day, while the average household consumes eight hours per day, which is consistent with there being multiple television streams into a given household.

Figure 2: Audience by Day-Part[40]

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3. Online video sites offer video-on-demand but not linear networks.

26. Video programming can be delivered in different forms, including linear networks and on-demand. When programming is distributed in the form of linear networks, the real-time flows of video are controlled by the distributor (*e.g.,* a local broadcast television station), and a household must conform its viewing times to the schedule set by the distributor unless the household records the programming and engages in time-shifting. In an on-demand system, a household is able to access the programming from the distributor at any time the household wishes to do so.

40 Nielsen Video Census, Combined Home and Work, Npower Live + 7, March 1-31, 2009 (reproduced from Jon Gibs and Howard Shimmel, "Cutting the Cord? Unraveling the Relationship Between TV and Streaming Video," *The Nielsen Company*, April 25, 2009, at 18.) (3rd Party Attachment 26).

27. A fundamental difference between online and traditional viewing today is that, although traditional television viewing has been largely built around linear networks (with recent growth in video-on-demand services), the vast majority of online viewing is on-demand.[41]

4. Online viewing tends to be sporadic while television viewing tends to be continuous.

28. The large differences in viewing times for online viewing and traditional television viewing, as well as the lack of online linear networks, are consistent with the ways in which people use online and traditional television viewing. As described by Comcast personnel, online viewing can be characterized as "default off" (*i.e.,* consumers go online only to seek particular programming at distinct points in time), while television viewing can be characterized as "default on" (*i.e.,* consumers leave the television on and flip channels to find something to watch).[42]

5. Consumers use online viewing to supplement traditional television viewing.

29. Not surprisingly, given the sharp differences in usage patterns, households today do not generally use online video sources as a replacement for traditional television viewing, but rather use online video in ways that supplement their traditional television viewing. For example, they watch missed episodes of serially televised programs and thus more fully appreciate future episodes. Similarly, consumers can use online video to keep up with a serially televised program while traveling. Many networks offer short web exclusives and online "behind the scenes" clips for specific shows that are aimed at supplementing, not replacing, the consumer's primary viewing experience on television. Another use of online video delivery is to engage in personalized viewing (as opposed to collective, family viewing in the living room).

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41 Derek Harrar, SVP GM Video and Entertainment Services, Comcast Corporation, May 2, 2010, interview.

42 Matt Bond, Executive Vice President of Content Acquisition for Comcast Cable, March 24, 2010, interview.

30. Multiple sources describe the use of online television in ways that supplement, rather than replace, traditional television viewing. For example, "[a]ccording to a recent study conducted by Nielsen, Americans watch network TV programs online to catch up with programming or if the TV itself is unavailable. It is not typically as a replacement for TV viewing."[43] And a recent Nielsen survey regarding reasons for watching TV shows on the Internet found that: [44]

- 54% of respondents list "forgot to watch a specific episode when it aired on TV,"
- 47% of respondents list "catching up on the current season of programming because I missed a large number of episodes,"
- 33% of respondents list "catching up on a past season of a program before the next season airs,"
- 32% of respondents list "forgot to record a specific episode with my DVR or TiVo when it aired on TV,"
- 18% of respondents list "Another member of my household watches another program at the same time the show I want to watch is on,"
- 12% of respondents list "watch TV programming online when I am at work," and
- 12% of respondents list "watch TV programming online when I travel."

31. One industry analyst summarized the use of online viewing to supplement (rather than supplant) "the core TV" as follows:[45]

> People tend to multi-task online and therefore watch much shorter video clips on their computers (that is, a single TV show or less, on average). In contrast, the living room TV remains the dominant venue for viewing long-form content. Given the marked contrast in viewing habits, we believe that online video is currently augmenting total TV viewership at the "short clip" end of the spectrum, as opposed to outright cannibalization. Our interpretation is supported by the observation that 74% of online viewers do so on their computer monitors —

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43 The Nielsen Company, "Three Screen Report," Volume 7, 4th Quarter 2009, at 5 (3rd Party Attachment 25).

44 Jeff Herrmann, *et al.*, "TV Networks Online," *The Nielsen Company*, February 2, 2010, at 25 (3rd Party Attachment 27). Nielsen surveyed 483 online viewers, but the sampling methodology is not disclosed.

45 Michael Nathanson, *et al.*, "Web Video: Friend or Foe...And to Whom?" Bernstein Research, October 7, 2009, at 33 (3rd Party Attachment 24).

without connecting to the TV. This is consistent with the theory that Internet TV viewing is still more of a second-screen experience, and not supplanting the core TV.

6. A given viewer is likely to utilize multiple online video sites but only one MVPD.

32. Traditionally, viewers have relied on a single subscription to one MVPD to provide them with all of the content that they view on television. However, in the case of online video, this is not typically the case. Consumers can and do make use of the easy search and navigation properties of the Internet to patronize multiple web sites to obtain video, including websites that aggregate content and show it on an advertiser-supported basis (*e.g.,* Hulu, Fancast, and TV.com), websites that sell or rent content (*e.g.,* Amazon), and the websites of individual networks or shows (*e.g.,* ABC.com, NBC.com, ComedyCentral.com, and SouthParkStudios.com). The practice of patronizing multiple programming platforms or sites is known as *multi-homing*. An important implication of multi-homing is that, because consumers do not rely solely on one-stop shops, an online video distributor does not have to offer a full or even broad array of programming in order to attract consumers. Instead, a web site may be able to attract a large number of consumers while offering only a limited selection of programming because those consumers will also patronize other sites to obtain access to the additional video programming that they desire. This process can be—and is—facilitated by online search engines as well as other online resources that allow consumers easily to navigate among multiple sources.

33. An additional implication of multi-homing is that the success of online television is not dependent on the success of any single distributor, including Hulu. The fact that online television distribution is not dependent on Hulu is evidenced by Viacom's decision to remove all

Comedy Central content (including The Daily Show and The Colbert Report) from Hulu.[46] Press reports indicate that Viacom and Hulu could not agree on an acceptable split of advertising revenue.[47] Apparently, Viacom did not believe that it would lose enough viewers by removing its content from Hulu to make this move unprofitable.[48] It is also worth noting that Hulu added links on its website to TheDailyShow.com and ColbertNation.com.[49] If a hypothetical future website were to lack certain content for whatever reason, then it could potentially maintain the value of its aggregation services by mimicking this Hulu strategy and providing links to other sites where the content could be accessed.[50]

D. Broad implications of television viewing patterns

34. The viewing characteristics and trends that we have identified in the section above have important implications for the relationship between online video distribution services and Comcast's cable and broadband Internet access businesses.

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46 On March 2, 2010, the companies announced that they had been unable to reach an agreement and that Viacom would pull Comedy Central programming from Hulu on March 9, 2010. Viacom noted that it would continue to stream full episodes of certain programs on websites associated with the shows. *See* Brian Stelter, "Viacom and Hulu Part Ways," *The New York Times,* March 2, 2010.

47 Meg James, "Cable comics leaving Hulu; Comedy Central will pull Jon Stewart's and Stephen Colbert's shows off the website over ad revenue split," *Los Angeles Times*, March 3, 2010.

48 *See, e.g.,* Nat Worden, "Viacom CEO on Hulu: Not Enough In It For Us," *Dow Jones Business News*, March 9, 2010; Mike Farrell, "Dauman: Viacom Could Return to Hulu: But CEO Asks 'What's In it For Us?'" *Multichannel News*, March 9, 2010.

49 We understand that for content it does not host on the Hulu.com site, Hulu generally links to programmer websites. It has done so with CBS and TBS content, neither of which is hosted by Hulu.

50 One might ask whether NBCU would pull its programming off all online sites. {{

}} (Jean-Briac Perrette, President, Digital & Affiliate Distribution/Content Distribution Strategy, NBCU April 30, 2010, interview.) In addition, to the extent that an online presence is complementary to television viewing, pulling programming off all online sites (including NBCU's vertical sites like NBC.com) could be quite costly to NBCU.

1. Online video distribution services today generally are complements for the services offered by traditional MVPDs and broadcast and cable networks, and complementarities are likely to continue to exist.

35. Although the precise evolution of the online video sector is impossible to predict, economic logic applied to the available evidence indicates that online video currently has and will retain important complementarities with Comcast's MVPD business and Comcast's and NBCU's networks. These complementarities must be accounted for in any analysis of the joint venture's incentives with respect to online video providers.

36. As a result of the distinct uses of traditional television and online video—with online video serving to supplement traditional television viewing—online video distribution currently is primarily an economic complement to, rather than substitute for, traditional MVPD services (in addition to being a complement to the offerings of broadcast and cable networks). To the extent that online video is complementary to traditional MVPD video services, Comcast has an incentive to encourage NBCU to make *more* content available online, which will benefit Comcast Cable through expanded television viewing.

37. The complementary nature of online viewing is consistent with the lack of evidence that significant numbers of households have cancelled MVPD subscriptions and substituted online viewing (known in the industry as "cord cutting"). As depicted in Figure 3, despite growth in video content available online, the number of MVPD subscribers has continued to grow in recent years, both in absolute terms and as a percentage of television households. This is not to say that no one has cut the cord, but rather that, to the extent that there is cord cutting, it is swamped by the overall growth in MVPD subscriptions, which supports the view that online viewing is currently complementary to traditional television.

Figure 3: Growth in MVPD Subscribers, 2008-2009

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38. The following excerpts from a recent analyst report are quite clear that there is no evidence for cord cutting in "the numbers":[51]

> Pay TV industry subscriber growth appears to have accelerated. ... *there is simply no empirical evidence at all of video cord cutting.* ... For the full year 2009, the major Pay TV industry players (excluding only Cox among the majors), added 2.2M subscribers, versus 1.8M additions for the same sub-set of providers a year

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[51] Craig Moffett, *et al.*, "Quick Take – Pay TV Industry Continues to Grow...In Fact, It Accelerates. Still No Signs of Cord Cutting," *Bernstein Research,* March 1, 2010, at 1 and 2 (3rd Party Attachment 28). {Emphasis in original.]

For additional analysis, *see* Jon Gibs and Howard Shimmel, "Cutting the Cord? Unraveling the Relationship Between TV and Streaming Video," *The Nielsen Company,* April 25, 2009, at 6 (3rd Party Attachment 26), which concluded that "[o]nline video is changing the nature of Internet use—consistently drawing larger audiences and time. All evidence suggests that this growth is happening in tandem with TV growth, rather than at its expense" and "[w]hile some populations are shifting time from TV to the Internet, that population is less than a third of those who access streaming content and, of those who do shift time, that vast majority has shifted 5 percent or less of their time."

> ago. For reference, the group represented in our calculation accounts for about 90% of the U.S. market. … The fear of video cord-cutting has been an overhang for all Pay TV stocks for the better part of a decade. Multiples in the sector imply a zero growth future. And yet, by all empirical evidence, cord-cutting remains the province of urban legend. There is simply no sign of it in the numbers.

39. Internal analyses by both Comcast and NBCU have reached the same conclusion. For example, an NBCU Study concluded:[52]

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Similarly, an analysis performed for Comcast noted:[53]

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40. In addition to being complementary to Comcast's cable operations, existing online video services are also complementary to NBCU's and Comcast's broadcast and cable networks, providing an additional incentive for the joint venture to support online video. Multiple NBCU analyses support the conclusion that existing online video services are complementary to broadcast and cable networks. For example, [[

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52 NBC Universal, {{ }} (NBCU Attachment 7).

53 Frank N. Magid Associates, Inc., {{ }} (Comcast Attachment 7). [Emphasis in original.]

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An NBCU survey of NBC.com viewers indicates that making content available online increases viewers' overall participation with the shows. In particular, among respondents:[55]

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41. As we have discussed above, the online video marketplace is evolving and can be expected to continue to change. One might speculate that, contrary to current usage patterns and business models, online video distributors may become viable substitutes for traditional MVPDs for significant numbers of consumers at some undetermined future date. Even if this were to happen, there are strong grounds for expecting that online video offerings would also continue to have characteristics that make them complementary to traditional MVPD offerings. Specifically, it can be expected that online video providers will try to differentiate themselves from traditional MVPDs in order to obtain a competitive advantage and achieve profitability. Online video

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54 NBC Universal, {{
}} (NBCU Attachment 8). [Emphasis in original.]

55 NBC Universal, {{
}} (NBCU Attachment 8). {{
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providers may accomplish this differentiation, in part, by incorporating some of the unique capabilities of online platforms that allow them to supplement and complement traditional MVPD offerings. Online video providers may also make use of innovations involving various activities in the vertical chain, including new user-interfaces or advances in search and discovery methods. It is natural to expect that, as part of this differentiation strategy, future online offerings will continue to include elements that are complementary to the services offered by traditional MVPDs. For example, to the extent that Apple's iPad or similar products are a part of the future of online video, they could offer an experience quite different from that offered by traditional MVPDs—one that might provide a portable complement to traditional television viewing for many users.

2. Online video viewing that mirrored traditional television viewing levels and patterns would strain current Internet access networks but would complement future networks.

42. Another important implication of the differences between online and traditional viewing is that, if online video viewing were to change in character to the point that it mirrored traditional television viewing levels and patterns, then it would create large transport costs for online providers (based on current prices) and would place burdens on broadband Internet access networks that would lead to substantial congestion and associated degradation in service quality for most of today's broadband Internet local access networks. However, if broadband Internet access networks sufficiently evolve such that they can support online video viewing that mirrors traditional television at a low cost, then the increase in demand for broadband Internet access services due to video viewing would, as a matter of economics, be expected to enhance broadband Internet access providers' profits.

43. As discussed above, consumers spend many hours each day watching traditional television. Tony Werner, Chief Technology Officer of Comcast Cable, has estimated the demands that supporting this level of television viewing using Internet distribution would place on broadband access networks.[56] If a household were to watch eight hours of television content per day online, of which [[ ]] percent was high definition, then the household would download more than 288 gigabytes ("GB") of data per month to support that viewing.[57] In contrast, the average household with a Comcast high-speed data subscription currently downloads only approximately two to four GB per month, roughly one hundredth as much.[58]

44. At current prices, the content distributor's transport costs associated with 288 GB of data would be substantial. NBCU indicates that its current cost for CDN services is approximately {{ }} per GB.[59] At this rate, the cost of distributing 288 GB of data per month would be ${{ }} per month. {{

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56 Tony Werner, Chief Technology Officer, Comcast Cable, April 29, 2010, interview.

57 This is based on assumed bandwidth requirements of 6,000 kilobits per second ("Kbps") for high-definition video and 2,000 Kbps for standard-definition video. Mr. Werner stated that Comcast estimates that, at present, approximately [[ ]] percent of viewing minutes (both linear and video on demand) are high definition, and Comcast expects the proportion of content viewed in high definition to increase steadily due to increased penetration of high-definition set-top boxes and televisions, increased availability of high-definition content, and the ability of program guides to point users to high-definition content. (Tony Werner, Chief Technology Officer of Comcast Cable, April 29, 2010, interview.)

58 Comcast Corporation, "Frequently Asked Questions about Excessive Use," *available at* http://customer.comcast.com/Pages/FAQViewer.aspx?eqs=6B62420B00423BB1FC7B32A97CEDE45903379DB20342594D7F63B3776D141381F23A7699F4E5726EB662F761883823A3#excessive, *site visited* April 25, 2010.

59 Marc Siry, SVP, Digital Products & Services, NBCU, April 7, 2010, interview. {{ }} *See* Matthieu Coppet, *et al.*, "Can Pay TV Benefit From Online Video?" *UBS Investment Research*, June 22, 2009, Table 7 (3rd Party Attachment 23).

60 Glenn Reitmeier, SVP, Technology Standards & Strategy, NBCU, April 29, 2010, interview.

45. In addition to generating high overall data volumes, traditional television viewing tends to be concentrated during prime-time hours. Moreover, popular live events, such as the Super Bowl, can create very large traffic peaks.[61] Given current network capacity limitations, these viewing peaks could overwhelm broadband Internet local access networks. In particular, broadband Internet local access networks can experience congestion if even only a relatively small percentage of customers in a given geographic area simultaneously attempt to stream video. For example, in Comcast's local access networks (as currently configured), approximately 275 cable modems share access to each downstream port in a cable modem termination system ("CMTS").[62] Associated with each port is one or more "downstream

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[61] To date, the traffic volumes associated with online viewing of live events pales in comparison to what would occur under traditional television viewing patterns. For example, YouTube's largest live streaming event was a U2 concert in October 2009. Google recorded nearly 10 million streams from around the world over the 2.5-hour event. ("U2 concert is YouTube's largest streaming event," *Associated Press,* October 29, 2009, *available at* http://www.msnbc.msn.com/id/33539555/ns/technology_and_science-tech_and_gadgets/, *site visited* April 26, 2010.) This is less than the number of viewers in the United States alone for a typical airing of a top-20-rated television show. The 20th-most watched primetime broadcast of the week of April 12-18, 2010, was "NCIS: Los Angeles," with 10.43 million viewers. ("Top 20 Prime-Time TV Programs for April 12-18," *Associated Press,* April 20, 2010, *available at* http://abcnews.go.com/Entertainment/wireStory?id=10429818, *site visited* April 26, 2010.) The week prior to the U2 concert, the 20th-most watched primetime program was "The Mentalist," with 11.79 million viewers. ("Top 20 Prime-Time Programs in the Nielsen Ratings," *Associated Press,* October 27, 2009, *available at* http://abcnews.go.com/Entertainment/wireStory?id=8929591, *site visited* April 26, 2010.) Assuming that the viewers of a typical top-20 rated television program are geographically dispersed in a pattern similar to the American viewers of YouTube's stream of the U2 concert, a typical top-20 rated television show would create a greater burden for broadband Internet local access networks than even the largest YouTube streaming event. Because the top-20 rated television show would air at different times in different time zones, a single streaming event, which airs simultaneously nationwide, may place more burden on the Internet backbone. Popular live television events, such as the Super Bowl, would create particularly large burdens on both local access networks and the Internet backbone.

[62] Tony Werner, Chief Technology Officer of Comcast Cable, April 28, 2010, interview.

Comcast describes CMTS as

> [a] piece of hardware located in a cable operator's local network (generally in a "headend," Section 2.10) that acts as the gateway to the Internet for cable modems in a particular geographic area. A simple way to think of the CMTS is as a router with interfaces on one side leading to the Internet and interfaces on the other connecting to Optical Nodes and then customers, in a so-called "last mile" network.

(Chris Bastian, *et al.*, "Comcast's Protocol-Agnostic Congestion Management System," *Internet Engineering Task Force,* February 10, 2010, 4, *available at* http://tools.ietf.org/html/draft-livingood-woundy-congestion-mgmt, *site visited* April 23, 2010, Section 2.2.)

channels" through which cable modems in Comcast subscribers' homes can download data.[63] Today, capacity in one downstream channel is limited to 38.75 megabits per second ("Mbps").[64] Thus, seven high-definition video streams running simultaneously through one downstream channel would exceed its capacity.[65] Historically, Comcast's network has had one downstream channel per CMTS port, meaning that if there were 275 cable modems on that port, they would all be sharing the 38.75 Mbps downstream channel, in which case, if just 2.5 percent of the modems in a geographic area were simultaneously downloading high-definition video streams, then usage would exceed network capacity. Today, up to four downstream channels may be delivered out of one CMTS port, but even if this were to quadruple the capacity of CMTS ports, then (given 275 modems per port) if 10 percent of the modems in a geographic area were simultaneously downloading high-definition video streams, usage would exceed network capacity.[66]

46. The problem of congestion is not unique to Comcast. Other cable networks would face similar issues, and telcos' wireline Internet local access networks generally would face congestion at various points as well.[67, 68] Today, telcos' standard DSL networks often face an

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63 Tony Werner, Chief Technology Officer of Comcast Cable, April 28, 2010, interview.

64 *Id.*

65 This is based on the assumption that high-definition video consumes 6,000 Kbps. Actual bit rates can range between four and eight Mbps. (Tony Werner, Chief Technology Officer of Comcast Cable, April 23, 2010, interview.)

66 Comcast has the ability to add more CMTS ports to its networks over time. However, as configured today and for at least the next few years, Comcast's broadband Internet local access networks would very likely suffer from congestion from the simultaneous downloading of high-definition video signals by even a relatively small percentage of all consumers in a geographic area. (Tony Werner, Chief Technology Officer of Comcast Cable, April 28, 2010, interview.)

67 Glenn Reitmeier, SVP, Technology Standards &Strategy, NBCU, April 29, 2010, interview.

additional constraint: many such networks can support download speeds into a single home of only six to seven Mbps, which implies that they could not support two televisions' receiving different high-definition signals in a single household, a limitation that would substantially hinder (or destroy) an online video provider's ability to replicate traditional television in many DSL households.[69] Today's mobile data networks also would struggle to serve the needs of a large number of television viewers. Current 3G mobile networks have bit rates that can handle standard-definition video, but not high-definition. Moreover, as demonstrated by the congestion that AT&T Wireless has suffered in part because of the demands of iPhone users, overall network capacity today would be insufficient to accommodate large numbers of users watching television in traditional amounts on devices attached to mobile data networks.

47. When bandwidth demands exceed capacity, users experience slower or degraded delivery of content. For example, online video could suffer from "freezing" while the next image is being downloaded. Such conditions are unlikely to be acceptable to consumers who are thinking of

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68 Even if some local access networks did have the capacity to carry video programming in patterns and levels that mirrored traditional television viewing, a potential online distributor would still face high CDN costs and might find it difficult and expensive to market a service that could be enjoyed only by the customers of certain Internet access networks or even by only those customers living in certain areas served by those particular networks.

69 America's largest DSL provider, AT&T, can support download speeds of only six Mbps, and America's second largest DSL provider, Verizon, can support download speeds of only seven Mbps. *See* AT&T, High Speed Internet Access, *available at* http://www.att.com/gen/general?pid=6431 *site visited* May 1, 2010; Verizon, High Speed Internet: Plans, *available at* http://www22.verizon.com/Residential/HighSpeedInternet/Plans/Plans.htm , *site visited* May 1, 2010; Leichtman Research Group, "4.1 Million Added Broadband from Top Cable and Telephone Companies in 2009," March 12, 2010, *available at* http://www.leichtmanresearch.com/press/031210release.html, *site visited* May 1, 2010 .

These figures do not apply to AT&T's U-Verse Service and Verizon's FiOS, which collectively pass less than one-third of U.S. households. AT&T U-Verse passed 22.8 million homes at the end of 2009. (AT&T Inc., Form 10-K for the fiscal year ended December 31, 2009, at 2.) Verizon FiOS passed 15.6 million homes in the first quarter of 2010. (Verizon Communications, Inc., Form 10-Q for the quarterly period ended March 31, 2010, at 16.) There were approximately 115.9 million television households in the United States in 2009. (SNL Kagan, "SNL Kagan's 10-Year Multichannel Projections, 2008-2019" (3rd Party Attachment 16).)

replacing their traditional MVPD service with an Internet-delivered alternative. As one analyst concluded, today and for at least the near future, "[b]roadband constraints make it impossible to offer true HD [high-definition] online for most consumers today, and the bandwidth required to stream and download HD video content will make online HD video inaccessible for many consumers..."[70]

48. In the future, Internet access networks may develop the capacity to handle the approximately hundred-fold increase in data traffic associated with a household's viewing online video in a way that mirrors traditional television viewing without those networks' suffering a loss in quality. To the extent that the broadband Internet access networks develop this capacity, the additional demand for broadband access services that would be created by such viewing would very likely enhance the profits earned by Comcast and other broadband Internet access providers. A proper analysis of Comcast's incentives to support or hinder the development of online video services cannot ignore this complementarity between online video distribution services and Comcast's broadband Internet access services.

III. APPLICATION OF THE COMMISSION STAFF FORECLOSURE METHODOLOGY TO FORECLOSURE OF ONLINE DISTRIBUTION RIGHTS

49. Commission staff requested that we conduct an economic analysis of whether the proposed transaction would result in Comcast's having the ability profitably to withhold programming from online video distributors in order to weaken their ability to compete with Comcast's cable services. As discussed in Section II.D.1 above, online video services today largely complement—rather than compete with—Comcast's cable services. In addition, whether

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70 Elizabeth Curtis, *et al.*, "U.S. Internet Video 2008-2012 Forecast and Analysis: Revenue Boom or Bust? Or Something in Between?" *IDC,* November 2008, at 9 (3rd Party Attachment 29).

or not online video services complement Comcast's cable services, third-party online video distributors' services increase the demand for Comcast's high-speed data services. For both of these reasons, any concern that Comcast would have an incentive to disadvantage online video services must be based on predictions that marketplace conditions will fundamentally change. Comcast would have no incentive to attempt to weaken online video distributors by trying to induce NBCU to withhold programming from them as long as those distributors offered services that largely complemented Comcast's cable and broadband Internet access services.

50. Given that, overall, online video services are currently complementary to traditional MVPD services—and there are reasons to expect such complementarity to continue—we interpret the Commission staff's request for an economic analysis of whether the proposed transaction would give the joint venture the incentive and/or ability to disadvantage an online rival as asking us to *assume* the emergence of one or more hypothetical online distributors that offer potential replacements for traditional MVPD services. We label such a competitor an "online MVPD."[71] Because no such company exists today, assumptions about the contours of an online MVPD's services and the nature of its business model necessarily are speculative.[72] In order to provide focus to what could otherwise be an entirely amorphous exercise, we assume that an online MVPD has the following characteristics:

- the online MVPD delivers video content broadly comparable to that of a traditional MVPD (*e.g.*, a mix of on-demand and linear content, including some major live events), and

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71 We do so as a convenient shorthand. We offer no opinion on whether any such entity would meet the statutory definition of an MVPD.

72 Any concerns that the proposed joint venture would harm such a company are also speculative.

- consumers view the online MVPD service (coupled with a broadband Internet access service) as a substitute for traditional MVPD service, meaning that consumers are willing to replace their traditional MVPD with the combination of an online MVPD and a broadband Internet access service, using the online MVPD for their *television* viewing, not just viewing on a personal computer or mobile access device.[73]

51. For the reasons discussed above, it is not evident that an online offering that is directly competitive with traditional MVPD services will emerge, at least for the next several years. For instance, the rights thicket discussed in Section II.A.2 above could make it difficult to put

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[73] As analyzed below, a hypothetical online MVPD might cause some existing traditional-MVPD subscribers to engage in cord cutting. A more narrowly focused online video distributor with a limited set of program offerings might stimulate "cord shaving," whereby consumers subscribe to a traditional MVPD for their baseline service but buy fewer supplementary services (*e.g.*, premium, pay networks) than they would have done in the absence of online video options. For example, Netflix's online movie service may reduce the demand for HBO's and Starz's subscription services offered through traditional MVPDs.

The analysis presented in the remainder of this declaration does not focus on cord shaving. This is so because cord shaving does not appear to be relevant to an analysis of the competitive effects of the proposed transaction. Even if it wanted to do so, Comcast would have little ability to use NBCU programming to limit cord shaving. To see why, first suppose that online providers assembled packages of content that generally appears only on the higher-value tiers offered by traditional MVPDs and, hence, might reduce subscriptions to those higher-value tiers. NBCU's most popular cable networks (*i.e.*, Bravo, CNBC, MSNBC, SyFy, and USA) are each carried on analog tiers over [[ ]] percent of the time. (Based on analysis of data from Warren Communications News. Details of the calculations are reported in Backup Attachment 11.) Published studies have used the distinction between analog and digital tiers as a metric for tier-carriage decisions. (*See, e.g.*, Dong Chen and David Waterman (2007), "Vertical Ownership, Program Network Carriage, and Tier Positioning in Cable Television: An Empirical Study," *Review of Industrial Organization,* 30, 227-251.) Given the positioning of these networks, online video providers pursuing this business model would very likely have little or no demand for NBCU's networks and, thus, would not be affected by any loss of access to those networks.

Alternatively, one might hypothesize that online providers will assemble packages of movies, thereby potentially limiting traditional MVPDs' revenues from video-on-demand or from premium channels such as HBO. Although the proposed joint venture includes Universal Studios, it is important to recognize that, over the last five years, Universal Studios has ranked sixth among studios in domestic box office receipts, with a share of only 10.1 percent. (Box Office Mojo, "Studio Market Share," 2005-2009, *available at* http://www.boxofficemojo.com/studio/?view2=yearly&view=company&p=.htm, *site visited* April 30, 2010. Details of the calculations are in Backup Attachment 11.) Over that period, Universal has produced only two movies that ranked in the top ten in terms of domestic box office for any year: King Kong in 2005 and Bourne Ultimatum in 2007. (Box Office Mojo, "Yearly Box Office," 2005-2009, *available at* http://www.boxofficemojo.com/yearly/, *site visited* April 30, 2010. Details of the calculations are in Backup Attachment 11.) Hence, there is not a sound basis on which to conclude that withholding Universal Studios content from an online provider would significantly limit its ability to attract customers.

together a compelling package of programming. Moreover, as discussed in Section II.D.2, the likely congestion in broadband Internet local access networks and the high costs associated with the use of CDNs would make it difficult and/or costly to offer such a service today.

52. Despite the difficulties associated with forming a viable online MVPD, we respond to the Commission staff's request by assuming a hypothetical scenario in which one or more online MVPDs has come into being and profitably offers consumers an attractive value proposition.[74] In the context of this hypothetical scenario, we consider whether Comcast would have the ability and incentive to induce the joint venture to withhold NBCU programming from an online MVPD in order to weaken its ability to compete.

53. It is important to observe that there could be several reasons why—even absent the transaction—NBCU would fail to reach a deal with an online MVPD (*e.g.*, the online MVPD might refuse to make an offer that NBCU finds compelling even holding aside any consideration of effects on Comcast). Such failures to reach a deal manifestly are not foreclosure. In what follows, we consider a situation in which the online MVPD is willing to pay compensation to NBCU for its content that is in line with what is paid by other MVPDs.

54. For the purposes of our analysis, we evaluate a scenario in which the post-transaction

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74 If the online MVPD were unprofitable or only marginally profitable (on a forward-looking, expected-net-present-value basis) absent foreclosure, then that firm would pose little competitive threat to Comcast and offer little expected benefits to consumers because the firm would be unlikely to survive and/or develop into a significant rival. Hence, Comcast would not have a financial incentive to engage in costly actions to weaken such an online MVPD.

NBCU withholds all of NBCU's current content from the online MVPD(s).[75] In our previous declaration, we focused on retransmission consent for the NBC broadcast network because this was the only NBCU content of a type that the Commission has identified as "must-have" in previous transactions.[76] However given that the business model of an online MVPD—should one come into existence—is uncertain at this point, we see little basis on which to conclude which particular combination of NBCU assets will be most important to the online MVPD. Hence, we focus on the full set of NBCU content.[77] We also assume that, whatever decision it makes with regard to online MVPDs, NBCU will not withhold programming from traditional MVPDs, which is consistent with our previous finding that foreclosure of traditional MVPDs would not be profitable given the current structure of the industry.[78]

55. The remainder of this section describes our analysis and its conclusions. The central finding of this analysis is that, even in a hypothetical future scenario in which one or more online

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75 We focus on current NBCU networks for three reasons. First, Comcast could withhold access to its cable networks absent the merger. Second, several of Comcast's networks (including Versus and its regional sports networks) specialize in live sporting events, which are ill-suited for online distribution because they can result in large numbers of viewers in a concentrated area simultaneously watching the programming and, thus, place large burdens on local access networks. Third, with respect to marquee, live sports programming, Comcast either: (a) does not control the online rights, or (b) is materially restricted or conditioned (either pursuant to sports league rules and regulations or its rights or affiliation agreements) in its ability to exploit or offer such content online. (Jeff Shell, President, Comcast Programming Group, May 3, 2010, interview.)

76 *See News Corp.-Hughes Order*, §§ V.B.3, VI.C.4.a.(ii), and VI.C.4.c.(iii).

77 Among the Commission's stated reasons to focus on broadcast networks has been the importance of sports and local programming to traditional MVPDs. (*See News Corp.-Hughes Order*, § VI.C.4.a.) It is less clear that such programming would be important to an online MVPD, which would likely have a broad geographic footprint and possibly face constraints on the streaming of live events, among other differences. {{ }} (Henry Ahn, Executive Vice President TV Networks Distribution (NBC Universal Networks Distribution), April 29, 2010, interview.)

78 See *Israel-Katz Initial Declaration,* particularly Sections II and VII. Note that, in a hypothetical world in which online MVPDs exist in addition to traditional MVPDs such as cable, DBS, and telco video providers, it can be expected that cable margins would be no higher than those used in our earlier analysis. When coupled with that earlier analysis, this fact implies that a strategy of foreclosing traditional MVPD rivals would be unprofitable under this new industry structure.

MVPDs emerges as a substitute for traditional MVPDs, Comcast would be highly unlikely to be able profitably to induce NBCU to withhold its content from such distributors in order to increase Comcast's non-NBCU profits. After presenting the details of our analysis of the costs and benefits associated with the foreclosure of an established online MVPD, we discuss how the analysis extends to a company that is seeking to enter the online video marketplace, but has not yet begun to offer service to consumers. In this scenario, too, Comcast would be highly unlikely to be able profitably to induce NBCU to withhold its content from such distributors in order to increase Comcast's non-NBCU profits.

A. A Framework for Estimating the Costs and Benefits of Foreclosure

56. In the News Corporation/DirecTV matter, Commission staff developed an economic model intended to provide a means of determining whether a firm vertically integrated into both video programming and multi-channel video distribution would find it profitable to withhold distribution rights from traditional MVPDs as a foreclosure strategy.[79] That model predicts the likelihood of foreclosure by determining whether the expected benefits of foreclosure are greater than the expected costs of foreclosure. This approach can also be applied to examine foreclosure in online video distribution. Specifically, the Commission staff's model provides a framework in which to calculate the costs and benefits of withholding content from a hypothetical online MVPD.

57. Withholding NBCU programming from online MVPDs would have both direct and indirect effects on NBCU and on Comcast Corporation's non-NBCU operations. We begin by summarizing the sources of those effects. First, there would be a direct negative effect on

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[79] *News Corp.-Hughes Order*, Appendix D: Technical Appendix.

NBCU's profits:

- NBCU would lose the profits derived from affiliate fees and advertising on the foreclosed online MVPDs.

In addition to this direct effect, there would be several indirect effects on NBCU's profits that would arise as some subscribers to online MVPDs adjusted their behavior to the absence of NBCU programming.[80] These indirect effects on NBCU's profits can be partitioned into three blocks:[81]

- Over-the-air viewing of NBCU's broadcast programming might increase, which would increase the profitability of NBCU's broadcast operations.
- The demand for NBCU's programming available on supplementary websites (such as Hulu.com, NBC.com, or TV.com) might increase, which would increase the profitability of NBCU programming operations and—in those cases in which NBCU owned the site—the profitability of NBCU's online operations.
- The demand for traditional MVPDs' services might increase, which would increase the derived demand for NBCU's programming on those systems and could increase NBCU's profitability.

We denote the change in NBCU's profits due to foreclosure, which is the sum of the four effects identified above, as $\Delta\Pi_{NBCU}$.

58. There could also be effects on Comcast's profits derived from non-NBCU operations:

- The demand for Comcast's cable services might increase, which would increase Comcast's profitability.
- The demand for Comcast's high-speed data services might decrease as consumers no longer needed high-speed access to support their use of an online MVPD. This effect

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80 For expositional convenience, we refer to the online MVPD's customers as subscribers. However, it is possible that hypothetical online MVPDs would rely on a variety of revenue models, including per-program charges or charges for various tiers defined in terms of available programming or the total number of hours viewed.

81 Note that one way NBCU viewers might react would be to stay with the online MVPD but to replace the lost NBCU programming with programming from other networks. However, this behavior would not serve to offset the direct negative effect on NBCU's profits, so it is not included in this list.

would reduce the profitability of Comcast's high-speed data operations.

- The demand for supplemental websites owned by Comcast Interactive Media (a division of Comcast Corporation) could be affected, although the effects are likely to be small.

We denote the change in the profits of Comcast's non-NBCU operations due to foreclosure, which is the sum of the three effects identified above, as $\Delta\Pi_{Comcast}$.

59. If $\Delta\Pi_{NBCU}$ and $\Delta\Pi_{Comcast}$ have the same sign, then GE's, Comcast's, and NBCU's managements will all have the same view on whether foreclosure is profitable. However, if $\Delta\Pi_{NBCU}$ and $\Delta\Pi_{Comcast}$ have opposite signs from one another, then NBCU's management's fiduciary responsibility to maximize NBCU's profits would mean that their view of the value of foreclosure would be the opposite of the effects on Comcast's non-NBCU operations.[82] When $\Delta\Pi_{NBCU}$ and $\Delta\Pi_{Comcast}$ have the opposite signs, there is a need to specify how these conflicting incentives are resolved.

60. Under the Commission staff's approach to evaluating the likelihood of foreclosure, the joint venture is modeled as basing its foreclosure decision on a weighted average of the effects on NBCU's profits and the effects on Comcast's non-NBCU profits:

$$\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast} ,$$

where s is a weighting parameter that should reflect the nature of fiduciary responsibility, corporate governance, and the decision structure of the joint venture.[83] We discuss the appropriate value for s below. Under the Commission staff's approach, the joint venture would

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82 *See* Amended and Restated Limited Liability Company Agreement of Navy, LLC at § 6.01(a) (hereinafter *Newco LLC Agreement*).

83 *See Newco LLC Agreement* at § 6.01(a).

have incentives to engage in foreclosure if and only if $\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast}$ were positive. The remaining parts of this section construct projections of $\Delta\Pi_{NBCU}$ and $\Delta\Pi_{Comcast}$ and identify the appropriate value of s.

61. The two aggregate changes in profits, $\Delta\Pi_{NBCU}$ and $\Delta\Pi_{Comcast}$, each comprise several components, which are identified in the bullet points above. Each of the component changes has the following structure. Absent foreclosure, there is some level of the underlying activity (*e.g.*, online-MVPD subscription or over-the-air-broadcast viewing) and an associated profit margin. Profits in the absence of foreclosure are equal to the quantity times the margin. In the presence of foreclosure, there is a possibly different level of the underlying activity and a possibly different associated profit margin. Profits in the presence of foreclosure are equal to the product of this quantity and margin pair. The change in profits due to foreclosure is equal to the difference between the product of the quantity and profit margin in the presence of foreclosure and the product of the quantity and profit margin in the absence of foreclosure.

62. In theory, foreclosure could affect both the quantity of each component activity and the associated profit margin. Given the nature of the overall exercise—projecting the details of a hypothetical marketplace several years in the future—it is difficult to project changes in future margins with any confidence. Hence, we follow the approach taken by the Commission staff to analyze the issue of vertical foreclosure in the News Corporation/DirecTV transaction: we assume that margins are unaffected by foreclosure.[84] Therefore, the projected changes in profits

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84 *News Corp.-Hughes Order*, Appendix D: Technical Appendix.

are equal to the profit margin times the change in the level of the underlying activity.[85]

63. The next two parts of this section proceed as follows. For each of the component profit effects identified in the bullet points above, we discuss the appropriate value of the associated profit margin and we develop projections of plausible changes in the associated activity level. Part III.B examines the effects of foreclosure on NBCU's profits. Part III.C examines the effects of foreclosure on the profits of Comcast Corporation's non-NBCU operations. In some instances, it is impossible to identify a value for the change in quantity with a high degree of confidence. In these cases, we provide a range of values that bound the range of reasonable parameter values.

B. Effects on NBCU

64. Foreclosure could affect NBCU's profits through the four component effects described above. Before discussing each in detail, we note that we are not formally modeling one adverse effect on NBCU profits that could be very significant in practice. If online video viewing becomes an important alternative to traditional television, then maintaining the brand strength of NBCU's programming assets, cross-promoting various NBCU programs, and providing a full package of advertising opportunities to potential ad buyers would very likely require an extensive online presence. Restricting NBCU's online presence through the foreclosure of online MVPDs would risk substantial long-term harm to NBCU's programming assets.

1. NBCU would lose the profits derived from affiliate fees and advertising on the foreclosed online MVPDs.

65. We begin by considering the effects of foreclosure on the profits that NBCU would

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[85] Observe that one would generally expect changes in the underlying activities that are driven by demand shifts to be associated with margin changes with the same sign. Hence, allowing for margin changes would tend to reinforce the component effects that we project.

otherwise derive from having its programming distributed by online MVPDs. As discussed above, the change in profits would be equal to the relevant margin times the change in the level of the associated activity.

66. To project the profit margin per subscriber that would be lost if NBCU programming were withheld from the online MVPD, we denote the amount of advertising revenue and license fees per subscriber that NBCU would lose by foreclosing the online MVPD as *OnlineProgProfit*.[86] In addition, to the extent that the business models adopted by online MVPDs retain some of the complementary elements that online models exhibit today, withholding its programming could also lead NBCU to suffer a decline in overall viewing, above and beyond the lost viewership at the online MVPD. Let *PromProfit* denote the profits derived from the promotion of other forms of viewing by online viewing (expressed as a dollar value per online-MVPD subscriber). Then NBCU's cost of foreclosure per online-MVPD subscriber would be:

$$OnlineProgProfit + PromProfit$$

67. In our calculations, we conservatively assume that *PromProfit* is zero, but it is important to keep in mind that, to the extent that complementary elements remain relevant, this would be an additional source of lost NBCU profits.

68. It is, of course, impossible to predict with certainty what affiliate fees or advertising revenues will be in a hypothetical future equilibrium in which an online MVPD has emerged. However, it is possible to identify economic forces that will create pressures for certain equilibrium relationships among relative prices to hold. If an online MVPD were to emerge as a

[86] There are assumed to be no marginal costs associated with advertising (after netting out commissions), so the net monthly advertising revenue is also the monthly incremental profit per subscriber.

substitute for traditional MVPDs, then it is reasonable to assume that content owners would seek revenue streams equal to or greater than those they would receive from incumbent, traditional MVPDs.[87] Indeed, they could be expected to seek higher revenue streams, because fundamental economic logic suggests that an additional buyer tends to raise the equilibrium price. It is our understanding that new MVPDs have traditionally paid more per subscriber for rights than incumbents were paying at the time of entry.[88] Nevertheless, we conservatively assume that *OnlineProgProfit* per viewer is equal to the average amount that NBCU would have earned via distribution by a traditional MVPD.

69. Based on our analysis of the affiliate fees and advertising revenue per subscriber for NBCU broadcast and cable networks, we calculate that the value of *OnlineProgProfit* ranges from ${{ }} per subscriber, per month in 2009 to a projected ${{ }} per subscriber, per month in 2010.[89] {{ }} percent of this amount is revenue derived from NBCU's cable

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87 These revenue streams could comprise various mixes of advertising revenues and affiliate fees. What is relevant is not the fraction of revenue that comes from each source, but rather the fact that content owners would seek per-subscriber revenue streams from online MVPDs that, combining all sources, are at least as large as the per-subscriber revenue streams they receive from traditional MVPDs.

88 *SNL Kagan,* "Telco TV Outlook: Competitive Analysis of U.S. Telco Video Deployments," 2007, at 47 (3rd Party Attachment 30).

89 For the purposes of this analysis, we consider affiliate fees and advertising revenues for the following networks: NBC, Telemundo, CNBC, CNBC World, MSNBC, Bravo, Oxygen, SyFy, mun2, Chiller, Sleuth, and Universal HD. For the cable networks, we obtain data on affiliate fees, advertising revenues and subscribers from SNL Kagan. (SNL Kagan, "TV Network Summary," 2009-2010 (3rd Party Attachments 14-15); SNL Kagan, "SNL Kagan's 10-Year Multichannel Projections, 2008-2019" (3rd Party Attachment 16).) To calculate the effective rates, we calculate affiliate fee and advertising revenue per subscriber by dividing total revenues by the number of MVPD households. This calculation implicitly accounts for both the revenue per subscriber to each network and the probability that a household subscribes to a network. For NBC and Telemundo, we obtain data on net advertising revenues on the national broadcast networks as well as revenues earned by the O&O stations from NBCU. To calculate per subscriber values, we divide these net advertising revenues by the total number of TV households as reported in SNL Kagan. (SNL Kagan, "SNL Kagan's 10-Year Multichannel Projections, 2008-2019" (3rd Party Attachment 16).)

We do not build an explicit retransmission consent fee into our calculation of the revenues for the NBC broadcast network. While, as detailed in the *Israel-Katz Initial Declaration,* NBC may earn retransmission consent fees in future negotiations, we do not know how those fees will affect the total price for all NBCU networks, so we conservatively exclude such retransmission consent fees from the present calculations.

networks.[90]

70. Now, consider the change in quantity. In the hypothetical future scenario we are modeling, an online MVPD exists and has a significant number of subscribers. We assume that, absent foreclosure, NBCU's programming would have been distributed to all of the online MVPD's subscribers.[91] If NBCU withholds its programming from the online MVPD, then the level of this activity would fall to zero, and NBCU would not earn affiliate fees or advertising revenues on any programming distributed over the online MVPD. It follows that the number of subscribers to the online MVPD is the quantity on which affiliate fees and advertising revenues would be lost if NBCU withheld its programming from the online MVPD. Thus, the change in NBCU's profits is equal to:

$$OnlineProgProfit \times Number\ of\ Online\text{-}MVPD\ Subscribers.$$

71. In what follows, it will be convenient to express all of the quantities as rates of change, rather than absolute quantities. We do this by dividing the various quantities by the number of online-MVPD subscribers. In the present instance, that means dividing the number of online-MVPD subscribers by itself, which is—of course—equal to one:

$$\frac{OnlineProgProfit \times Number\ of\ Online\text{-}MVPD\ subscribers}{Number\ of\ Online\text{-}MVPD\ Subscribers} = OnlineProgProfit\ .$$

The resulting profit figure is the change in NBCU's profits per online-MVPD subscriber derived from affiliate fees and advertising on the foreclosed online MVPD, which, as noted above, is

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90 As explained in *Israel-Katz Initial Declaration* (Section IV.C.3), basing this calculation on existing advertising revenue per subscriber is conservative because it does not account for the fact that, when viewership falls, the advertising price received per viewer generally also falls.

91 If the online MVPD did not wish to distribute NBCU programming to some or all of its subscribers, then those subscribers could be excluded from the analysis: Comcast could not weaken a rival distributor by denying it access to programming that it did not want.

projected to be between ${{ }} and ${{ }} per subscriber, per month.

2. Over-the-air viewing of NBCU's broadcast programming might increase, which would increase the profitability of NBCU's broadcast operations.

72. We next calculate the effects on NBCU's profits that arise when some consumers react to the absence of NBCU on the online MVPD by obtaining the NBC and Telemundo broadcast networks over the air. To do so, we need to specify NBCU's profit margin on over-the-air viewing (*BroadcastAdProfit)* and the change in the number of over-the-air viewers *(OTAChange).*[92] Expressed in these terms, the change in NBCU's profit from additional over-the-air viewing is given by:

$$BroadcastAdProfit \times OTAChange.$$

73. As in our initial declaration, *BroadcastAdProfit* is calculated as NBC's and Telemundo's monthly advertising revenue per available viewer, including both advertising revenue earned by the NBC and Telemundo broadcast networks and advertising revenue earned by the owned and operated ("O&O") stations. It is calculated as the sum of the NBC and Telemundo broadcast networks' net monthly advertising revenues and the O&O stations' net monthly advertising revenues, divided by the number of national television households.[93] *BroadcastAdProfit* was ${{ }} per subscriber per month in 2009. Note that 2009 was a particularly poor year for NBC's advertising revenue for reasons that include the lower political advertising revenue that is typical in odd-numbered years and the economic recession. Consequently, although we use 2009

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92 As with *OnlineProgProfit*, we measure *OTAChange* as the fraction of online-MVPD subscribers who switch to viewing NBC broadcast network over the air.

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]] (Frank Comerford, President, Platform Development & Commercial Operations, NBC Universal, February 22, 2010, interview.)

advertising revenue per viewer as a lower-end estimate of *BroadcastAdProfit*, we also use projected 2010 advertising revenue per viewer as an alternative, which results in a figure of ${{ }} per subscriber per month.[94]

74. Next, consider the value of *OTAChange.* In the *News Corp.-Hughes Order,* the Commission estimated that 33 percent of subscribers who lost access to a broadcast signal on their traditional MVPD would continue to obtain access to the signal over-the-air.[95] The Commission justified a value of 0.33 as "twice the fraction of television households that currently receive video programming only via broadcast reception."[96] Applying the same methodology today yields a value of *OTAChange* equal to 0.22. In other words, we assume that 22 percent of those online MVPD's subscribers who would have watched NBC or Telemundo via the online MVPD would react to the loss of NBC and Telemundo by obtaining the broadcast signals over the air.

3. The demand for NBCU's programming on supplementary sites might rise, which would increase the profitability of NBCU's programming operations and any supplementary sites in which NBCU had an ownership interest.

75. If the joint venture were to pursue a foreclosure strategy following consummation of the proposed transaction, some consumers could be expected to switch to watching (at least some of) the foreclosed programming on "supplementary" online sites (*e.g.*, Hulu or NBC.com) that offer some NBCU programming but do not offer all programming or a full set of MVPD services.[97] These customers are closely analogous to those who get the programming over the air in that

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94 The 2010 national network revenues include projected revenues from broadcasting the Vancouver Olympics.

95 *News Corp.-Hughes Order,* Appendix D, ¶ 6.

96 *Id.*

97 This could be true even though the supplemental sites were, on average, complementary to traditional and online MVPDs.

they do not leave the online MVPD, but instead find alternative ways to access the withheld NBCU content, in this case using supplementary websites.

76. To determine the profits that NBCU would earn from those customers who remained with the online MVPD but viewed NBCU's programming on supplementary websites, we need to specify the profit that NBCU would earn on such consumers (*OnlineSuppProfit)* and how many such customers there would be (*OnlineSuppChange).* With these values, the change in NBCU's profits due to these consumers would be equal to:

$$OnlineSuppProfit \times OnlineSuppChange \ .$$

We consider the appropriate values of each, in turn.

a) *OnlineSuppProfit*

77. The profit received by NBCU from online access at supplementary sites depends on several factors, including whether: (a) the site is owned by NBCU or another party,[98] and (b) the content is a broadcast program or a cable program. Lacking precise data on the profits earned at these various sites, we rely on a range of supplementary website profitability figures provided by NBCU, with the range accounting for (among other things) the differences in NBCU profits derived from wholly owned sites (*e.g.,* NBC.com) and other sites (*e.g.,* Hulu.com). Based on the NBCU estimates, {{

[98] {{

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}}[99] {{

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78. If those viewers relying on supplementary sites for access to NBCU's programming were likely to replace all of the viewing they would have done at their online MVPD with viewing at the supplementary sites, then the value of *OnlineSuppProfit* would be estimated to be {{ }} of the total advertising revenue per subscriber across NBCU's networks. However, such consumers would be unlikely to replace all of their previous viewing of NBCU's programming at the online MVPD with viewing at supplementary sites. Full replacement is particularly unlikely given that supplementary sites generally do not have live programming and generally carry a limited set of programs rather than the full linear network content. To account for these limitations, we assume that viewers only replace half of the viewing they would have done via the online MVPD with viewing on supplementary sites. Consequently, *OnlineSuppProfit* is assumed to range {{ }} of the total national advertising revenue per subscriber across NBCU's networks.

b) *OnlineSuppChange*

79. There obviously are no data on the extent to which the withholding of NBCU content from an online MVPD would cause people to substitute to supplementary websites. The fact that supplementary sites would not be able to replace the full linear programming of NBCU's networks might limit the number of consumers using this alternative, thus pushing *OnlineSuppChange* down toward zero. However, the fact that online-MVPD subscribers are likely to be web savvy suggests that this alternative might be at least as popular as the use of

[99] See *Israel-Katz Initial Declaration*, Section IV.C.1. As in that declaration we assume there is no marginal cost associated with an additional viewer, so that incremental revenue equals incremental profit.

over-the-air broadcast alternatives, in which case *OnlineSuppChange* would equal 0.22. For simplicity, we assume that these two factors offset one another, and that *OnlineSuppChange* equals 0.11, which is half way between 0 and 0.22.[100]

80. In closing our discussion of supplemental web sites, it is important to observe that there also may be another online alternative for viewers: pirated copies. For consumers who view pirated copies of NBCU programming, the company would lose all advertising revenues associated with those consumers.[101] The audience size for pirated copies is not easily measured and verified. Consequently, advertisers would not give NBCU credit for those viewers. Moreover, even if the number of pirated copies viewed could be measured, advertisements are often stripped out of pirated copies and legitimate advertisers generally do not want to be associated with pirated content. The potential to deter piracy has long been recognized as a reason for NBCU to support legitimate online distribution.[102] Because we do not include the losses that NBCU would suffer if (at least some) consumers turned to pirated content to replace NBCU content that was withheld from the online MVPD, our estimates of the profitability of foreclosure are (conservatively) too high.

4. The demand for traditional MVPDs' services might rise, which would increase the derived demand for NBCU programming on those systems and could increase NBCU's profitability.

81. If NBCU were to withhold its content from online MVPDs, some of the subscribers to those online MVPDs might be expected to switch to traditional MVPDs (including cable

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100 The value of 0.11 is also the assumption on switching to supplementary websites that was implicit in our initial declaration. (*Israel-Katz Initial Declaration*, Section IV.A.3.)

101 Statements in this paragraph rely on Ronald Lamprecht, SVP, Business Development & Sales (Digital & Affiliate Distribution), NBC Universal, February 19, 2010, interview.

102 NBC Universal, {{ }} (NBCU Attachment 7).

MVPDs, DBS, and telcos) that carry NBCU programming, thus restoring some of the viewership of NBCU content that would have been lost had all the online subscribers stayed with the online MVPD. The resulting change in NBCU profits is equal to:

$$MVPDProgProfit \times Change\ in\ Traditional\text{-}MVPD\ Subscriptions,$$

where *MVPDProgProfit* is the per-subscriber amount of advertising revenue and license fees that NBCU earns from traditional MVPDs and *Change in Traditional-MVPD Subscriptions* is the fraction of those consumers who would have subscribed to the online MVPD absent foreclosure who instead obtain a traditional MVPD subscription.

82. *Change in Traditional-MVPD Subscriptions* can be decomposed into two parts, the total number of subscribers who choose to leave their online MVPD (*Change in Online-MVPD Subscriptions*) times the percentage of those who opt for a traditional MVPD instead (*Fraction Switching to Traditional MVPD*). That is,

$$\begin{array}{c} Change\ in \\ Traditional\text{-}MVPD \\ Subscriptions \end{array} = \begin{array}{c} Change\ in\ Online\text{-} \\ MVPD\ Subscriptions \end{array} \times \begin{array}{c} Fraction \\ Switching\ to \\ Traditional \\ MVPD. \end{array}$$

In what follows, we discuss each of the parameters determining the change in NBCU profits in turn.

a) *MVPDProgProfit*

83. For reasons discussed above, we assume that the amount of advertising revenue and license fees that NBCU earns per subscriber from traditional MVPDs (*MVPDProgProfit*) is the same as it would earn from online MVPDs (*OnlineProgProfit*).

b) Change in Online-MVPD Subscriptions

84. Next, consider *Change in Online-MVPD Subscriptions,* which equals the fraction of online-MVPD subscribers who would obtain subscriptions from traditional MVPDs if online MVPDs lost access to NBCU video programming. We observe at the outset that determining the magnitude of such switching in a hypothetical future world in which an online MVPD exists is difficult because, to date, online services have been largely complementary to traditional television viewing and MVPD services, in which case disadvantaging online video providers would actually *reduce* the demand for traditional MVPD services. Commission staff, however, explicitly asked us to consider hypothetical foreclosure of an online rival to MVPD services, which entails the assumption that there is some positive (or at least non-negative) amount of switching to traditional MVPDs following foreclosure of NBCU content.

85. Even so, this question remains difficult to answer because the precise form that an online MVPD will take, including the set of content it will offer, its share of MVPD subscribers, and other details of its business model are all unknowns today. However, regardless of the specific size or form the online MVPD takes, our main conclusion holds—available evidence indicates that withholding NBCU content is unlikely to have a large effect on an online MVPD's ability to attract or retain subscribers.

86. Several facts support the conclusion that foreclosure of online MVPDs by current NBCU networks would not have large, positive effects on traditional MVPDs' subscribership (that is, that *Change in Online-MVPD Subscriptions* would be small). The two most fundamental facts are: (a) there are many substitutes for the programming to which NBCU controls the online rights, and (b) online MVPDs entering the video distribution marketplace would likely use strategies to differentiate themselves from existing MVPDs. Hence, even without NBCU

content, a new online MVPD could seek to attract subscribers using its differentiated services along with non-NBCU content, making it unlikely that the loss of NBCU content would significantly harm the online MVPD's ability to attract and retain subscribers. We consider each of these two facts in turn.

87. First, consider the fact that there are many substitutes for the programming to which NBCU controls the online rights. As one illustration of this, note that, as shown in Table 1, streams of long-form NBCU content (meaning programming from NBCU networks) currently make up a small share of all streams of long-form professional video content online, as well as a small share of overall video viewership across online sites and television. Overall, NBCU accounted for less than [[ ]] percent of television viewing in 2009.[103] Similarly, NBCU accounted for between [[ ]] and [[ ]] percent of all streams of long-form professional video in 2009.[104]

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103 This calculation is based on Nielsen Total Day Live + 7 data for May – December 2009. The NBCU share includes all broadcast and cable networks in which NBCU has an ownership interest and for which Nielsen reports data, including O&O broadcast stations. Nielsen does not report data for CNBC World, Chiller, Sleuth, and Universal HD. We use this date range because that is the time period for which online streaming data are available. NBCU's share is not substantially different if we use data for all of 2009. Precise details of the calculation are contained in the backup (Backup Attachment 3 and 11).

104 This calculation is based on streaming video views as reported by comScore (excluding paid subscription or electronic sell-through sites). (comScore, Video Metrix, Ads vs. Content Preview, May – December 2009.) {{ }} Professional video sites were identified by Comcast. To identify the percentage of long-form content, short-form videos are assumed to average 1.5 minutes and long-form to average 20 minutes, based on interviews with Comcast. Eighteen percent of YouTube content is considered professional for calculations including YouTube. Precise details of calculations are contained in the backup (Backup Attachments 3 and 11).

Table 1: NBCU Share of Television and Professional Online Video

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88. The small NBCU share in Table 1 overstates the extent to which NBCU could withhold content from an online MVPD. As discussed in Section II.A.2 above, for the vast majority of the original programming that NBCU licenses from other content owners for inclusion in its linear broadcast and cable television networks, {{

}}[105] Given the prevalence of programming provided by non-NBCU studios, this fact implies that {{

}}[106] {{

}}[107]

89. A second fact supporting the conclusion that *Change in Online-MVPD Subscriptions* would be small is that, in order to create competitive advantages for themselves and maximize their expected profits, online MVPDs would be likely to use differentiated strategies to enter the video distribution marketplace. The offerings of an online MVPD would be unlikely to look exactly like those of traditional MVPDs. For example, an online MVPD might take advantage of the technological flexibility of the Internet to offer programming packages that are smaller than those offered by traditional MVPDs and are aimed at specific demographic groups. An online MVPD might also offer various forms of proprietary content. Such content could range from traditional long-form video programming to innovative, interactive programming. An online MVPD might even include other forms of video entertainment, such as video games, in its offering. The differentiation resulting from these various strategies makes it even less likely that

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105 Michael Bonner, SVP, Digital Products & Marketing, NBCU, April 28, 2010, interview.

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107 *Id.*

the inability to obtain NBCU programming would have large effects on an online MVPD's subscriber base.

90. There are additional reasons to conclude that *Change in Online-MVPD Subscriptions* would be small. The Commission has previously expressed concern that the four major broadcast networks constitute "must-have" programming for traditional MVPDs,[108] which might be seen as suggesting that withholding the rights to NBC programming could be a particularly powerful way to disadvantage online rivals. However, two facts indicate that such a suggestion would be unwarranted. One is that NBCU cannot deny consumers access to NBC's signal via over-the-air reception. The other is that, to the extent that empirical evidence from the MVPD market is informative, past analyses have shown little effect on MVPD subscribership from the loss of a single broadcast television network. It is useful to consider each in a bit more detail.

91. Given the public policy environment in which broadcast television operates, NBCU has a limited ability to deny consumers access to NBC's over-the-air signal. As a result, consumers seeking the NBC content (the only NBCU content that is of a type that the Commission has previously defined as "must-have") could potentially get this content over-the-air without leaving the online MVPD. Indeed, an over-the-top provider might choose to put an antenna in consumer premises equipment. This is similar to the strategy currently employed by Sezmi:[109]

> [Sezmi utilizes a] set-top box that provides access to three types of TV sources: broadcast stations, cable channels, and Internet content. (It snags the first two kinds over the air, via a powerful antenna in a box that looks like a loudspeaker: Sezmi simply grabs local broadcast channels as is, and the company is leasing spectrum from local broadcasters to transmit cable channels – including both standard-def and HD.)

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108 *See News Corp.-Hughes Order*, §§ V.B.3 and VI.C.4.c.(iii).

109 Harry McCracken, "Hello, Sezmi -- Goodbye, Cable," *PC World,* November 16, 2009, *available at* http://www.pcworld.com/article/182300/hello_sezmi_goodbye_cable.html, *site visited* May 2, 2010.

NBCU has a distribution deal with Sezmi but it does not cover the NBC broadcast network.[110] Sezmi's business model has been to provide its customers with over-the-air access to the NBC television network.[111]

92. We also note that, even if particular online distributors emerge as substitutes, there are likely to be websites (including, for example, NBCU's own vertical sites) that remain complementary to traditional MVPDs and networks, providing, among other things, important promotional services for programming. Hence, it seems unlikely that NBCU would remove its content from the Internet entirely.[112] Given the ability to multi-home, discussed above, the presence of NBCU programs on such websites would reduce the incentives for subscribers to online MVPDs to switch to traditional MVPDs. Instead of switching MVPDs, subscribers would have the option of retaining their online MVPD and viewing NBCU programming on such supplementary sites.[113]

93. Lastly, to the extent it is applicable, empirical evidence from the MVPD marketplace suggests that *Change in Online-MVPD Subscriptions* should be small. Specifically, existing empirical evidence from the MVPD marketplace shows little effect on a traditional MVPD's

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110 Ronald Lamprecht, SVP, Business Development & Sales (Digital & Affiliate Distribution), NBC Universal, May 2, 2010, interview.

111 Sezmi Corp., Press Release, "First-Ever All-in-One Service Integrates Live TV, On-Demand Movies and Programs, and Web Video; Breakthrough Pricing Starting at Less Than $5 A Month," February 18, 2010, *available at* http://www.sezmi.com/about-sezmi/2010/press_02.18.10.php, *site visited* May 1, 2010 ("Sezmi Select customers receive local broadcast channels through the Sezmi advanced reception system, including the major broadcast networks such as ABC, CBS, FOX, NBC, MyNetwork, PBS, Azteca, Telefutura, Telemundo and Univision.").

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113 If NBCU were to attempt to extend its hypothetical foreclosure strategy to its own web sites, it would suffer from the loss of promotional value as well any revenues generated directly by the sites.

subscriptions from the temporary loss of carriage of a single broadcast television network's signal by a rival MVPD.

94. In our earlier declaration, we found that there was no evidence that Comcast gained subscribers when rival MVPDs lost access to a broadcast network's signal. In particular, we studied a series of events in which DISH Network temporarily lost access to one or more of the top four broadcast networks and found that there was no detectable change in Comcast's share (or the growth rate of its share) during or immediately following the event.[114]

95. We also examined evidence from the introduction of local-into-local services by direct broadcast satellite companies. In that case, we studied a series of events in which a DBS provider's rollout of local-into-local service temporarily lacked at least one broadcast network (due to inability to come to contractual terms with one or more broadcast stations) but subsequently added the missing network(s). Again, we were not able to detect any measurable change in Comcast's share (or the growth rate of its share) following the addition of the missing network(s).[115]

96. Observe that one reason the loss of programming might not result in an MVPD's losing significant numbers of subscribers is that the MVPD may adopt counterstrategies, such as lower prices or higher levels of service quality, that allow it to retain its subscribers.

97. For all the reasons discussed in this part, we expect *Change in Online-MVPD Subscriptions* to be small. However, in computing the (lack of) profitability from a foreclosure strategy, we use values of *Change in Online-MVPD Subscriptions* equal to 0 and 33 percent to

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114 See *Israel-Katz Initial Declaration*, Section VI B.

115 *Israel- Katz Initial Declaration*, Section VI.C.

show that, even at a level as high as 33 percent (which is far above what we consider to be a reasonable prediction for *Change in Online-MVPD Subscriptions*), it would not be profitable to withhold NBCU's content from an online MVPD.

98. We close this discussion of the likely value of *Change in Online-MVPD Subscriptions* by noting the following relationship between this variable and *OnlineProgProfit.* If one concluded that withholding NBCU programming would have large effects on the ability of online MVPDs to offer attractive services to consumers (a conclusion we do not believe is supported by the facts), then logically one should also conclude that NBCU would have a stronger bargaining position with respect to online MVPDs. Consequently, one should then expect that NBCU would be able to attain a higher value of *OnlineProgProfit.* This increase in *OnlineProgProfit* would make foreclosure less profitable for NBCU.

c) Fraction Switching to Traditional MVPD

99. As noted above, some households that would drop their online-MVPD subscriptions if NBCU content were withheld from those providers might not choose to replace their online MVPD with a traditional MVPD. The existence of such consumers makes foreclosure strategies less profitable, as NBCU would lose profits on these subscribers with no offsetting gains in advertising and affiliate fees at traditional MVPDs.

100. To be conservative in our analysis, we assume that all consumers who leave their online MVPDs choose to switch to a traditional MVPD. In other words, we assume that *Fraction Switching to Traditional MVPD* is equal to one, although the actual number would almost certainly be lower.

C. Effects on Comcast

101. We turn now to the effects on Comcast, which include effects on Comcast's cable services, Comcast's high-speed data ("HSD") services, and the web properties of Comcast Interactive Media.

1. The demand for Comcast Cable might rise, which would increase Comcast Cable profitability.

102. As noted above, if the joint venture were to pursue a foreclosure strategy, some consumers might be expected to switch to traditional MVPDs (including cable MVPDs, DBS, and telcos) that carry NBCU programming. The effect of this switching on the profits of Comcast's cable services will be equal to the margin earned on those services (*MVPDProfit)* times the number of subscribers who switch to Comcast (*Change in Comcast Cable Subscriptions*) due to the withholding of NBCU content from the online provider:

$$MVPDProfit \times \begin{array}{c} Change\ in\ Comcast \\ Cable\ Subscriptions \end{array}.$$

The rate, *Change in Comcast Cable Subscriptions* can, in turn, be decomposed into two components:

$$\begin{array}{c} Change\ in\ Comcast \\ Cable\ Subscriptions \end{array} = \begin{array}{c} Change\ in \\ Traditional\text{-}MVPD \\ Subscriptions \end{array} \times \begin{array}{c} Diversion\ to \\ Comcast\ Cable \end{array},$$

where *Change in Traditional-MVPD Subscriptions* was defined above and *Diversion to Comcast Cable* is equal to the fraction of those switching to a traditional MVPD who specifically choose Comcast Cable.

103. We have already discussed reasons why the value of *Change in Traditional-MVPD Subscriptions* is likely to be low. We now discuss what values are reasonable for *MVPDProfit* and *Diversion to Comcast Cable.*

a) *MVPDProfit*

104. *MVPDProfit* is computed as monthly revenue per Comcast video subscriber minus average variable cost per video subscriber, as determined from Comcast's internal 2009 P&L statements.[116] This yields a value for *MVPDProfit* of ${{ }}[117]

105. Our calculation of *MVPDProfit* here differs in an important way from the corresponding calculation in our earlier declaration (analyzing whether foreclosure of traditional MVPDs would be profitable). In our earlier analysis, we assumed that some new Comcast subscribers would choose double- or triple-play packages including HSD and/or digital voice services. This assumption was driven by the fact that the foreclosure strategy in our earlier analysis was directed toward other providers of double- and triple-play packages.[118] However, the online MVPDs under consideration in the present analysis very likely would distribute content over pipes that they did not own, and we analyze them as video-only providers. Hence, a reasonable simplification of the analysis is to assume that foreclosing on online MVPD would, at most, cause subscribers to seek a new video service without causing them to seek a new provider of

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116 For more discussion, see *Israel-Katz Initial Declaration*, Section IV.A.2.

Details of our classification of costs as fixed or variable are provided in Backup Attachment 11. Unlike before, where we accounted for the costs Comcast incurs to connect a new subscriber, we ignore those costs in this calculation. This assumption makes foreclosure appear more profitable than it actually would be. Another difference from the model in our previous declaration is that we do not need to account for {{ }}. Hence, we compute the average profit per subscriber per month rather than computing separate profits for the first year of a customer's tenure with Comcast.

117 Note that this figure is the difference between Comcast's average revenue per subscriber and average *variable* cost per subscriber, which is the relevant margin for the calculations in this section. Because our measure of *MVPDProfit* excludes operational expenses that do not vary directly with the number of subscribers and also excludes capital expenditures, this measure does not represent the average profitability per Comcast subscriber.

118 In the case of DBS, DirecTV and DISH partner with telcos rather than offering HSD and voice services directly. *See, e.g.,* Tim Mullaney, "Dish Drops as AT&T Taps DirecTV for Satellite Service," *Bloomberg,* Sep. 29, 2008, *available at* http://www.bloomberg.com/apps/news?pid=20601103&sid=aAYH4vD50x6E, *site visited* April 24, 2010.

HSD and voice services.[119] Consequently, we focus only on Comcast's video margins in our analysis.

b) Diversion to Comcast Cable

106. If, as we are assuming, NBCU withholds its programming from online MVPDs but not traditional MVPDs, it is likely that a large share of any subscribers who switch to traditional MVPDs as a consequence would subscribe to an MVPD other than Comcast. In other words, the diversion ratio will almost certainly be substantially below one. The most reasonable starting point is to assume that each traditional MVPD would gain a share proportional to the MVPD's national market share.

107. Comcast's share of all MVPD subscriptions is 23.8 percent.[120] Hence, we model Comcast as gaining 23.8 percent of those subscribers, if any, who are induced to switch to a traditional MVPD when online MVPDs are denied access to NBCU's programming. That is, we set *Diversion to Comcast Cable* equal to 0.238.

2. The demand for Comcast high-speed data might fall, which could decrease Comcast's broadband profits.

108. As discussed in Section II.D.2 above, if households viewed television streamed over the Internet in patterns mirroring traditional television viewing, they would require very substantial amounts of capacity; subscribers to online MVPDs would be likely to use roughly 100 times

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119 Subscribers to a hypothetical online MVPD would have already demonstrated a willingness to purchase video and broadband Internet access (as well as voice) services from separate providers. Therefore, there is little reason to expect that such subscribers would have a particular preference for triple-play packages. In addition, any triple-play profit would very likely be offset by losses that Comcast would suffer from HSD downgrading. The scenario analyzed below in which the losses suffered from HSD downgrading are assumed to be zero can be viewed as one in which the change in triple-play profit has been assumed fully to offset the actual change in HSD profits.

120 MediaBusiness Corporation, "Media Census, All Video by DMA," 4th Quarter 2009.

more data than Comcast's average HSD user today. Such users would exceed usage caps currently put in place by Comcast and other broadband Internet access service providers including Cox, Charter, and Cable ONE.[121] Fundamental economic logic indicates that users demanding such markedly higher service levels would have to pay at least somewhat more for broadband access service, perhaps through the need to subscribe to a "high-volume" tier or service.

109. In the event that the withholding of NBCU content from an online MVPD induced some households to cease subscribing to an online MVPD, those households would no longer require the same level of broadband Internet access service. Some of those users would likely "downgrade" to a lower-volume broadband Internet access tier. Other users might terminate their broadband Internet access service entirely. And still other households dropping their online-MVPD subscriptions might choose to stay in the high-volume tier, although one might reasonably expect there to be few such households because their usage volumes would be dramatically lower once they ceased streaming programming from the online MVPD to their homes.

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121 For example, Comcast currently places a usage cap of 250 GB per month on consumer HSD plans. *See* Comcast Corporation, "Announcement Regarding an Amendment to Our Acceptable Use Policy," *available at* http://www.comcast.net/terms/network/amendment/, *site visited* April 25, 2010. This is below the estimated 288 GB per month required to replicate traditional television viewing online, as calculated in Section II.D.2 above. For bandwidth usage caps by other providers, *see* Cox Communications, "Features and Limits of Service," September 29, 2009, *available at* http://ww2.cox.com/aboutus/policies/limitations.cox, *site visited* April 26, 2010; Charter Communications, "Acceptable Use Policy – Residential Customers," February 2009, *available at* http://www.charter.com/Visitors/Policies.aspx?Policy=6, *site visited* April 26, 2010; Cable ONE: Cable ONE, "CableONE.Net High Speed Internet Access Service Acceptable Use Policy," May, 2009, *available at* http://www.cableone.net/Pages/InternetAUP.aspx, *site visited* April 26, 2010.

Other broadband Internet access providers, such as AT&T and Verizon, do not currently have usage caps. However, current average broadband usage is far below that which would be required to replicate current television viewing using an online MVPD. So, across all providers, introduction of an online MVPD would cause a large increase in broadband usage, which could be expected to lead to positive price effects.

110. We take two approaches to modeling consumer behavior with respect to broadband Internet access services. First, as a limiting case, we assume that foreclosure has no effect at all on households' purchase decisions regarding broadband Internet access services. Under this approach, foreclosure is assumed to have no effects on Comcast's broadband profits. By ignoring the adverse effects that households' downgrading and terminating HSD services would have on Comcast, this assumption makes foreclosure appear to be more profitable than it actually would be.[122]

111. Our second approach allows for the possibility that consumers will change their purchasing behavior. For simplicity, under this approach we assume that all households that cancel their online-MVPD subscriptions reduce their purchases of broadband Internet access service by downgrading to a lower tier of service. Implicitly, we are assuming that the profit differential due to households that would drop their broadband Internet access service entirely instead of merely downgrading are offset by the profit differential due to households that would remain on a high-volume tier instead of downgrading.

112. As usual, we specify the effect on Comcast's profits as the relevant margin times the change in the quantity of the associated activity. Because we model those households that leave their online video providers as downgrading from the high-volume tier to the low-volume tier, the relevant margin is the incremental margin earned on high-volume subscribers relative to low-volume subscribers. We use *Incremental HSD Profit* to denote this amount. With this notation, the effect on Comcast's profit from the sale of high-speed data services is:

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122 In terms of the mechanics of the accompanying spreadsheet (Backup Attachment 2), we implement this approach by assuming that *Incremental HSD Profit* is equal to zero.

$$\textit{Incremental HSD Profit} \times \textit{Number of Comcast HSD Downgraders}.$$

Because we assume that all households that leave the online MVPD downgrade their broadband Internet access service from the high-volume tier to the low-volume tier, then the *Number of Comcast HSD Downgraders* is equal to the change in online MVPD subscriptions induced by foreclosure times the share of those leaving the online MVPD who obtain their HSD service from Comcast. That is:

$$\textit{Number of Comcast HSD Downgraders} = \textit{Change in Online-MVPD Subscriptions} \times \textit{Comcast's HSD Share of Households Leaving Online MVPD}.$$

Combining the previous equations implies that the change in HSD profits is given by:

$$\textit{Incremental HSD Profit} \times \textit{Change in Online-MVPD Subscriptions} \times \textit{Comcast's HSD Share of Households Leaving Online MVPD}.$$

113. We have already discussed the reasons why the value of *Change in Online-MVPD Subscriptions* is likely to be low. We now discuss what values are reasonable for *Incremental HSD Profit* and *Comcast's HSD Share of Households Leaving Online MVPD.*

a) Incremental HSD Profit

114. The incremental profit from high-volume users can be defined as the incremental revenue generated by high-volume users minus the incremental costs generated by such users. Determining the incremental revenue is challenging because Comcast and other broadband Internet access providers generally do not charge residential customers based on usage volumes nor have we seen any plans indicating what they might charge if they did so. However, given that online-MVPD subscribers could be expected to consume as much as 100 times more data than do average users today, economic logic indicates that such households would have to pay at

least a somewhat higher price than other households. This point is further supported by the fact that all of Comcast's current HSD plans targeted at household consumers include a 250 GB/month cap on usage, a cap that a subscriber to an online MVPD would be likely to exceed.

115. Lacking specific information on the additional amount Comcast would charge for high-volume service, we consider two alternatives. First, and most conservatively, we consider a case in which the incremental revenue for HSD service just covers the incremental cost associated with providing such service, as calculated below. Second, we consider a case in which Comcast charges 1.5 times as much for the high-volume HSD tier, meaning that the incremental revenue is 50 percent of current HSD prices.[123]

116. It is worth noting that these methods of projecting incremental HSD revenues imply that, at most, the high-volume usage plan will cost 1.5 times current prices, despite the fact that high-volume users are projected to download roughly 100 times as much data as the average HSD subscriber today. In other words, the projected value of incremental revenue assumes that the price per gigabyte of data for the high-volume tier will be substantially lower than current Comcast prices per gigabyte.

117. A fall in the number of HSD customers as the result of a fall in the number of online-MVPD subscribers could reduce Comcast's costs, which would partially offset the loss in incremental revenues. We worked with Tony Werner, Chief Technology Officer of Comcast Cable, to estimate the magnitude of these incremental cost savings.[124] In particular, we asked Mr. Werner to model a situation in which: (a) 10 percent of all MVPD households would

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123 Specifically, we use the current average price of ${{ }} as the low-volume price and 150 percent of ${{ }} (*i.e.*, ${{ }}) as the high-volume price.

124 The model itself is included with our backup materials, as Comcast Attachment 1.

subscribe to an online MVPD absent foreclosure, and (b) 10 percent of the online-MVPD subscribers would depart the online MVPD if NBCU content were withheld.[125]

118. To complete the modeling, Mr. Werner assumed that, by the time this hypothetical scenario would take place: HSD usage by "low-volume" users will have grown to 20GB per month; the percentage of all television viewing in high-definition will have grown to 75 percent; overall broadband penetration will be 80 percent; and Comcast will serve 50 percent of the broadband households in its footprint.[126] Using these assumptions, Mr. Werner computed that online-MVPD subscribers would consume 471 GB of data per month.[127] Mr. Werner estimated that the hypothetical loss of 10 percent of the online-MVPD subscribers (who, by assumption, make up 10 percent of all MVPD households) would reduce network data demands by between seven and eight percent.[128] Based on current growth rates, Mr. Werner estimated that this would allow Comcast to save {{ }} of capital expenditures on its network.[129]

119. According to Comcast, its annual capital expenditures attributable to the HSD network

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125 Each 10 percent figure was used only to pin down a change in data usage with which to undertake the calculation. In practice, we assume that the incremental cost is linear in the number of subscribers lost over the range evaluated in the foreclosure-profitability calculations in Table 2.

126 Note that this 50-percent figure is within Comcast's footprint and, consequently, is not directly comparable to Comcast's nationwide HSD share, presented below.

127 This figure combines subscribers' video needs with other Internet usage.

128 Note that, for this calculation, Mr. Werner assumed that a household would be consuming seven hours of television per day. Changing this to eight hours per day increases the consumption to 535 GB per month but leads to only a small change in the implied reduction in data demands: 7.9 percent rather than 7.7 percent.

129 Mr.Werner's model found that the hypothetical loss of 10 percent of an online MVPD's subscribers would lead to a 7.7 percent reduction in capacity requirement for Comcast's HSD networks. {{ }} However, after accounting for the fact that some households that leave the online MVPD would subscribe to Comcast's video services (and use the associated video on demand services, in particular), Mr. Werner determined that elimination {{ }} of capital expenditures was the most reasonable estimate for the net effect of the changes. (Tony Werner, Chief Technology Officer of Comcast Cable, April 23, 2010, interview.)

average ${{ }} (or ${{ }}).[130] To convert this number into an amount per subscriber leaving the online MVPD due to foreclosure (the relevant number to compare to the incremental revenue from those switching from the high- to low-volume tier), we note that the projected cost savings was based on the loss of one percent of MVPD households. The model assumes that Comcast will lose households in proportion to its share, so, because Comcast currently has just less than 23.6 million video subscribers, the reduction in Comcast subscribers is equivalent to just under 236,000 households nationwide.[131] Hence, the estimated savings in capital expenditure is equal to ${{ }} per household leaving the online MVPD. Amortizing this capital savings to determine the monthly equivalent (using a 10-percent annual discount rate)[132] yields a monthly incremental cost per subscriber switching between the low-volume and high-volume tier equal to ${{ }}

120. In our most conservative case, we set incremental HSD revenues equal to incremental HSD costs. In our second case, we combine the incremental HSD revenue of ${{ }} with this incremental cost estimate of ${{ }}. These two cases yield values of *Incremental HSD Profit* of ${{ }} and ${{ }} per month, respectively.

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130 Comcast Corporation, {{ }} (Comcast Attachment 2).

131 Comcast Cable, {{ }} (Comcast Attachment 4). Because we use current capital expenditures, we also use current Comcast MVPD subscribers in computing the cost per household leaving the online MVPD.

132 Comcast Corporation, {{ }} (Comcast Attachment 3). See *Israel-Katz Initial Declaration*, Section IV.A.4 for a discussion of the appropriate discount rate.

b) Comcast's HSD Share of Households Leaving Online MVPD.

121. We assume that the fraction of those households terminating their online MVPD subscriptions who rely on Comcast's HSD services is equal to Comcast's current nationwide HSD share, which is 21.1 percent.[133]

3. The demand for supplemental sites owned by Comcast could be affected, although the effect is likely to be small.

122. Just as some subscribers to online MVPDs might shift to sites owned by NBCU to access programming that is unavailable on the online MVPD, such subscribers might also switch to sites owned by Comcast Interactive Media, including Fancast (which shows NBCU content syndicated from Hulu and is therefore a destination to which users could potentially turn for some NBCU content that was no longer available on an online MVPD). Thus, a foreclosure strategy that leads to increased streaming of NBCU content on Fancast could increase the profits that Comcast earns from Fancast. In particular, {{

}}[134] However, recall that the wide range of values we use for *OnlineSuppProfit* covers the range between the profits that NBCU earns for ads viewed on Hulu

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133 Comcast reported 15.9 million HSD subscribers at the end of 2009. (Comcast Cable, {{ }} (Comcast Attachment 5).) SNL Kagan reported 75.6 million HSD subs in 2009. (SNL Kagan, "U.S. High-Speed Data Projections, 2009-2020" (3rd Party Attachment 16).) The Kagan number includes cable and telco (DSL plus fiber) HSD subs but excludes wireless and satellite HSD subs.

Commission staff have expressed the view that cable providers may have competitive advantages in offering high-speed Internet access services, which could result in their winning a higher share of high-speed data subscribers in the future. (Federal Communications Commission, *Connecting America: The National Broadband Plan,* March 2010, *available at* http://www.broadband.gov/download-plan/, *site visited* March 24, 2010 (hereinafter, *National Broadband Plan*), at 42.) If this view were correct, then our use of Comcast's current market share would overstate the profitability of foreclosure because Comcast's loss of profits from high-volume customers would be higher than we have projected.

134 Amy Banse, President, Comcast Interactive Media, April 29, 2010, interview.

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{{ }} and the profits that NBCU earns for ads viewed on NBC.com{{ }} In the case of Fancast, {{

}}, so the combined revenue to Comcast and NBCU should be covered by the range used for *OnlineSuppProfit*. Hence, we do not include a separate term for Fancast's profits in the model.[135]

D. Relative Weights on NBCU and Comcast Profits

123. As discussed above, under the Commission staff's approach to modeling foreclosure, NBCU would act as if it maximized $\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast}$. To understand what value of s might be reasonable, it is important to understand the ownership and governance structure of the joint venture. Given GE's initial 49 percent interest in the joint venture, the effects of foreclosure on GE's profits are given by $.49 \times \Delta\Pi_{NBCU}$. Therefore, if $\Delta\Pi_{NBCU} < 0$, then foreclosure is against GE's interest no matter what the value of $\Delta\Pi_{Comcast}$. Stated another way, as long as it has a significant stake in NBCU, GE has strong incentives to protect its ownership interest by seeing that the joint venture does not engage in costly foreclosure strategies, regardless of any benefits to Comcast's cable operations. It is our understanding that, under terms of the agreement establishing the joint venture, the venture's directors and officers owe fiduciary duties to the joint venture and its members, including GE.[136] These duties would be violated if directors and officers made business decisions that intentionally sacrificed joint venture profits in order to increase Comcast's MVPD profits—as any foreclosure strategy

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135 The range we use for *OnlineSuppProfit* covers {{ }}

136 *See Newco LLC Agreement* at § 6.01(a).

necessarily would do. Moreover, GE would presumably have every incentive to enforce these fiduciary duty provisions. In summary, in the short term, while GE retains an equity interest, Comcast will be obligated to run the joint venture to maximize the profits of the joint venture. In other words, as long as GE retains an equity interest, s is equal to 0.[137]

124. In the long run, Comcast will bear 100% of the costs of a foreclosure strategy if it becomes the sole owner of the joint venture, at which point s will be 1.

125. To allow for the fact that the appropriate value of s is between 0 and 1 (depending on whether GE still has an ownership interest in NBCU at the hypothetical future date we are considering), we use values of 0, 0.5, and 1 in our calculations of $\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast}$ below.

E. Application of the Commission Staff Model Indicates that Foreclosure is Unlikely

126. Application of the Commission Staff's foreclosure model indicates that withholding of NBCU content from an online MVPD would not be profitable for any reasonable set of parameter values. To illustrate this fact, Table 2 presents a range of values for $\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast}$ expressed as the profit or loss from foreclosure per (pre-foreclosure) subscriber to the online MVPD. The numbers reported in the table are based on the full ranges of parameter values discussed above. Recall that foreclosure can be a profitable strategy only to the extent that $\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast}$ is positive. Negative values of $\Delta\Pi_{NBCU} + s \times \Delta\Pi_{Comcast}$ indicate that the joint venture would not have an incentive to harm online MVPDs.

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137 One might worry that, in theory, Comcast could somehow pay GE to allow NBCU to be used to engage in foreclosure. But the two parties would have gains from trade only if the costs of NBCU were less than the benefits to Comcast's non-NBCU operations. This would be equivalent to taking $s = 1$ because the complete set of profit changes realized by both owners would be taken into account.

127. To provide a better understanding of the estimated profit effects of foreclosure, Table 2 reports the profit effects for NBCU operations and for Comcast's non-NBCU operations:

- The first row of Table 2 shows the change in NBCU's profits resulting from a foreclosure strategy, $\Delta\Pi_{NBCU}$.
- The second row shows the change in Comcast's profits, $\Delta\Pi_{Comcast}$.
- The third through fifth rows show the weighted average of the profit effects using different weighting assumptions (different values for *s*) as described above.

128. The different columns of the table report the values for the changes in profits (per original subscriber to the online MVPD) corresponding to different assumptions about the underlying parameter values:

- Column (1) uses the conservative values for *OnlineProgProfit*, *OnlineSuppProfit*, and *Incremental HSD Profit* and assumes that *Change in Online-MVPD Subscriptions* is equal to 0 percent.
- Column (2) is identical to Column (1) except that *Change in Online-MVPD Subscriptions* is assumed to be equal to 33 percent.
- Columns (3) and (4) are analogous to Columns (1) and (2), except that they make use of higher estimates of *OnlineProgProfit* and *OnlineSuppProfit*.
- Columns (5) through (8) are analogous to Columns (1) through (4) except that higher values of *Incremental HSD Profit* are assumed.

Table 2: Estimated Per-Subscriber Profits/Losses from Foreclosure

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129. Table 2 provides a clear depiction of our main result: over the entire range of reasonable parameter values, foreclosure is unprofitable. A foreclosure strategy leads to a loss of between ${{ }} and ${{ }} per online MVPD subscriber even in the long-run case where GE no longer has an ownership interest in NBCU and, hence, $s = 1$. In particular, even in the highly conservative bottom row of Column (2) —in which we assume that the joint venture fully internalizes the effect on Comcast's profits, that Comcast's HSD prices only rise to cover incremental costs, that *OnlineProgProfit* and *OnlineSuppProfit* are at the bottom of the range considered, and that withholding NBCU content causes 1/3 of the online-MVPD subscribers to depart (a fraction we consider far too high to be reasonable)—foreclosure would lead to a loss of more than {{ }} per online MVPD subscriber.

130. An alternative way to examine the incentive to foreclose is analogous to the analysis that the Commission staff performed in the News Corporation/DirecTV transaction and that we undertook in our initial report.[138] In particular, one can compute the critical value of *Change in Online-MVPD Subscriptions* at which the joint venture would be hypothesized to be indifferent between engaging in foreclosure and not. As shown in Table 3, even under the most conservative set of assumptions, the critical value of *Change in Online-MVPD Subscriptions* is greater than {{ }} percent, and in most cases it is substantially higher. The high critical values reported in Table 3 demonstrate that the joint venture would be very unlikely to have an incentive to foreclose an online MVPD. Lastly, note that we did not include the case of $s = 0$ in the table. When $s = 0$, the joint venture would not internalize any of the gains to Comcast's non-NBCU operations and, therefore, would have no incentive to foreclose, regardless of the value of *Change in Online-MVPD Subscriptions*.

138 *See News Corp.-Hughes Order*, Appendix D: Technical Appendix; *Israel and Katz Initial Declaration*, §V.

Table 3: Critical Values for *Change in Online-MVPD Subscriptions*

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131. In addition to providing insights with respect to the costs and benefits associated with the foreclosure of an established online MVPD, the analysis above extends to the foreclosure of a new entrant. Specifically, the model can be used to analyze a hypothetical scenario in which a company has not yet begun to offer service to consumers but has a business model under which it expects to be able profitably to offer consumers an attractive value proposition absent foreclosure.[139]

132. The mechanics of projecting the costs and benefits of foreclosure per online-MVPD subscriber in the case of a new entrant are largely the same as the mechanics in the case of an established online MVPD.[140] For example, in each case, foreclosure would be costly to NBCU

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139 If the entrant does not have a reasonable prospect of being profitable absent foreclosure, then that firm would pose little competitive threat to Comcast because the firm would be unlikely to survive and/or develop into a significant rival. Hence, Comcast would not have a financial incentive to engage in costly actions to weaken such an online MVPD.

140 As should be evident, discussions of the number of subscribers to the new entrant refer to the number of subscribers after the firm has commenced offering service to consumers.

because it would forgo post-foreclosure profits from the sale of its programming to the online MVPD. The discussion of margins presented above would be relevant to the case of a new entrant as well.[141] And the arithmetic calculations would be the same. The equations and parameter values for projecting the effects on over-the-air viewing of NBCU's broadcast networks and on NBCU and Comcast websites is also the same for hypothetical scenarios in which there is an established online MVPD or a new entrant.

133. Although the overall mechanics of projecting the costs and benefits of foreclosure per online-MVPD subscriber are largely the same in the cases of a new entrant and an established online MVPD, there are some places where differences could arise between the two scenarios:

- In the new-entrant scenario, Comcast's cable operations would lose fewer subscribers with foreclosure than without. In contrast, in the established-competitor scenario, foreclosure would lead to Comcast's gaining new subscribers. The distinction between whether Comcast loses fewer subscribers or gains more is potentially relevant because of the differential effects on customer installation costs: when Comcast retains customers, it does not bear the installation costs that it would have to incur if it attracted new customers. Because we took a conservative approach and did not subtract net installation costs from the margin that Comcast cable would earn from additional subscribers in the established-competitor scenario, the numbers derived above for that case are appropriate for the new-entrant scenario.

- In the new-entrant scenario, Comcast's HSD operations would gain fewer subscribers with foreclosure than without. In contrast, in the established-competitor scenario,

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141 As above, we consider a situation in which the online MVPD is willing to pay compensation to NBCU for its content that is in line with what is paid by other MVPDs.

foreclosure would lead to Comcast's losing existing HSD subscribers. Here, too, the difference raises issues about the treatment of installation costs and capital expenditures on network capacity.

Recall that, in the established-competitor scenario, we took two approaches to consumer switching. We can take similar approaches here. The first approach is to assume that no one switches (or, equivalently, that the HSD margin is zero), which makes foreclosure look more profitable than it is because one would expect foreclosure to reduce the number of Comcast HSD subscribers and Comcast's HSD profits. Under this approach, installation costs are irrelevant. The second approach is to assume that all households that would become subscribers to the online MVPD would upgrade their broadband Internet access services. We assume that there would be no installation costs associated with a broadband Internet access service upgrade that involved greater total data consumption but no change in the maximum data rate.

Turning to capital expenditures on network capacity, recall that Comcast's HSD business is growing and Comcast would be investing in its network whether or not online MVPDs exist. Hence, in both the established-competitor and new-entrant scenarios, any effects of foreclosure on desired network investment could be accommodated by slowing the rate of investment. Consequently, the associated capital cost savings are essentially the same in the two scenarios.

134. For the reasons just discussed, the results for the established-competitor scenario reported in Tables 2 and 3 provide estimates of the effects that foreclosure of a new entrant would have on NBCU and Comcast profits. These results demonstrate that, in the new-entrant scenario, too,

Comcast would be very unlikely to be able profitably to induce NBCU to withhold its content from online MVPDs in order to increase Comcast's non-NBCU profits.

IV. CONCLUSION

135. As long as GE owns a percentage of NBCU, the structure of the proposed deal prevents the sacrificing of NBCU profits to benefit Comcast's non-NBCU operations. Even if Comcast acquires complete ownership of NBCU, application of the Commission staff's approach to analyzing foreclosure incentives demonstrates that foreclosure of actual or potential online MVPDs would be very unlikely to be profitable. This conclusion is driven by the facts that: many online-MVPD subscribers would remain with their provider while NBCU would lose substantial amounts of revenue per subscriber; of those online-MVPD subscribers who did leave their video providers, only a small percentage would go to Comcast given its limited geographic footprint and given the fact that, within its footprint, Comcast faces several traditional MVPD rivals; and Comcast's high-speed data operations would suffer lost profits as the result of decreased demand for broadband Internet access. Coupled with the fact that it is speculative whether an online MVPD will emerge over the next several years, this analysis indicates that the proposed transaction does not pose a significant threat to competition in the distribution of long-form, professional-quality video programming, notably the provision of such programming via the Internet.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information. and belief.

Executed on this 4th day of May, 2010.

Mark Israel

Michael L. Katz