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Competition Among Video Streaming Services

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Competition Among Video Streaming Services

Video streaming services allow users to watch movies and television shows over the internet. Some offer video-on-demand, which can be watched at any time, as well as live TV programs being broadcast at that moment. Streaming services can be accessed on websites and apps on computers and mobile devices. They can also be viewed on televisions using digital media players, which include internet-connected televisions with built-in apps (Smart TVs), gaming consoles, and streaming devices that plug into the television.

Companies that offer video streaming services can attract new users by offering popular movies and TV shows. Although some of these companies compete with one another and with other video providers using prices, differences in prices across streaming services can be fairly small, particularly among those that offer only video-on-demand. Thus, some streaming services also compete with video content, as particular movies and television shows may be available exclusively on one streaming service. Some companies that own studios or television networks have started offering their own streaming services as well. These companies hold the rights to certain movies and television shows, meaning they are able to make this content exclusively available on their own streaming service or license it to other services for a fee. The challenge of obtaining content may raise costs for competing streaming services and create a barrier for potential entrants into the video streaming services market.

Some companies that own video streaming services have integrated vertically. Some sell digital media players used to access streaming services on televisions. Others provide internet and mobile services or information technology services that can be used to store and distribute video content, such as cloud computing and content delivery networks. These vertically integrated companies may have advantages over competing streaming services, as their own services do not need to pay to be included on their digital media player or to use their information technology services. A streaming service that shares common ownership with a content delivery network or internet service provider may be able to improve the experience of its users by prioritizing its own video content when internet traffic is congested in order to minimize latency. Companies that own digital media players may be able to limit consumers' access to competing streaming services by refusing to include them on their players.

Some of the video streaming services that have launched recently have had disputes with owners of digital media players. The disputes reflect broader negotiations taking place among media companies, which can involve video content owned by the companies, digital advertising revenue, and the ability to acquire user viewership data. Some recent disputes involve the streaming services Walt Disney Co.'s Disney+, AT&T Inc.'s HBO Max, and Comcast Corp.'s Peacock, as well as the digital media players owned by Amazon.com Inc. and Roku Inc. The disputes could adversely affect consumers, who may face increased limitations on the video content they are able to access on each streaming service, particularly through their digital media players. This means consumers may need to subscribe to multiple streaming services and purchase multiple devices to view content they wish to see.

The Federal Communications Commission (FCC) does not regulate video streaming service providers, which are also known as online video distributors (OVDs). The FCC has the authority to regulate broadcast stations and cable and satellite television services, and has recognized OVDs as potential competitors to these services. For example, in 2019, the FCC determined that the streaming service AT&T TV Now served as a competitor to Charter Communications, a cable television provider, in certain franchise areas in Hawaii and Massachusetts, meaning Charter is no longer subject to rate regulation. In addition, the U.S. Department of Justice's Antitrust Division has considered how proposed mergers involving media companies might affect OVDs. Recent examples include Charter Communication Inc.'s acquisition of Time Warner Cable Inc. and Bright House Networks LLC and AT&T Inc.'s acquisition of Time Warner Inc.

Current laws governing television generally do not address video streaming services. Some aspects of competition among OVDs involve entities for which Congress has established a regulatory framework, and some do not. As committees in both houses of Congress continue to investigate competition in digital markets, it may be important to consider the various ways online video distributors compete, and how that competition may affect consumers.

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Introduction

Recently, consumers have used broadband primarily to stream video content.¹ Through streaming services, users can watch movies, television shows, and other forms of video content over the internet.

Over the last few years, as streaming gained popularity, the number of video streaming services has increased. Some of these services are offered by companies that also provide cable or satellite television services, known as multichannel video programming distributors (MVPDs).² Some companies that own streaming services also own television networks and film studios, while others license all of their video content. In addition, some owners of streaming services operate infrastructure and hardware that video streaming services use to store and distribute video content, such as cloud computing services and digital media players, while others do not.

Committees in both houses of Congress have been investigating competition in digital markets since 2019. One issue raised in these investigations is the difficulty of competing against companies that also distribute their products. Streaming services face similar issues, where companies that are integrated vertically may be able to restrict a competing streaming service's access to content or limit access to the streaming service itself. In addition, although Congress has passed legislation governing broadcast stations and MVPDs, these laws do not explicitly discuss video streaming services.

This report discusses competition among video streaming services. It examines the various ways media companies compete, such as with video content, and the potential impact on consumers, as well as possible issues for Congress to consider.

Overview of Video Streaming Services

Video streaming services allow users to watch movies, television shows, and other media content over the internet. The providers of these services are known as online video distributors (OVDs).³ Video streaming services can be accessed on websites or apps on computers and mobile devices. They can also be viewed on televisions using digital media players, which include televisions with built-in apps and internet connectivity (Smart TVs),⁴ gaming consoles, and streaming devices that plug into televisions.

Video streaming services can offer video-on-demand, which allows users to watch movies and shows at a time of their choosing. Some offer live TV, streaming programs that are being broadcast at that moment; they are also known as virtual MVPDs. Some streaming services that provide live TV offer a digital video recorder on which users may record a live program for later viewing. Oftentimes, streaming services are advertised as alternatives to MVPDs, which also may

¹ According to Sandvine, a manufacturer of internet networking equipment, video streaming services around the world made up 55.44% of broadband use in 2019 and 57.64% from February 1 to April 19, 2020. In the Americas, during this time period in 2020, Netflix and YouTube had the highest shares of internet traffic at 19.11% and 14.43%, respectively (Sandvine, "The Global Internet Phenomena Report COVID-19 Spotlight," May 2020).

² Telephone companies that offer video services may also be MVPDs. Details on MVPDs are beyond the scope of this report. For more information regarding recent legislation involving MVPDs, see CRS Report R46023, *Copyright Act and Communications Act Changes in 2019 Related to Television*, by Dana A. Scherer.

³ Streaming services are also referred to as "over-the-top" services. That term initially came from references to devices that go "over" a cable box, also known as a set-top box.

⁴ Josh Levenson and Ryan Waniata, "What Is a Smart TV?," *Digital Trends*, March 31, 2020, at <https://www.digitaltrends.com/home-theater/what-is-a-smart-tv/>.

offer digital video recorders and video-on-demand. In addition, some companies that own MVPDs own video streaming services as well. Examples of video streaming services, including those discussed in this report, are provided in **Table 1**.

Table 1. Examples of Video Streaming Services

Parent Company	Video Streaming Service	Video on Demand	Live TV
Alphabet Inc.	YouTube	x	
Alphabet Inc.	YouTube TV		x
Amazon.com Inc.	Prime Video	x	
Apple Inc.	Apple TV+	x	
AT&T Inc.	AT&T TV Now (formerly DIRECTV Now)	x	x
AT&T Inc.	HBO (formerly HBO Now)	x	
AT&T Inc.	HBO Max	x	
Comcast Corp.	Peacock	x	x
Dish Network Corp.	Sling TV	x	x
Facebook Group Inc.	Fubo TV	x	x
Netflix Inc.	Netflix	x	
ViacomCBS Inc.	CBS All Access	x	x
Walt Disney Co.	Disney+	x	
Walt Disney Co.	ESPN+	x	x
Walt Disney Co.	Hulu	x	
Walt Disney Co.	Hulu Live TV		x

Source: Various news sources, including John Fletcher, “Kagan Survey How Coronavirus Has Already Changed Media Consumers,” S&P Global Market Intelligence, April 1, 2020, at <https://www.spglobal.com/marketintelligence/en/news-insights/blog/kagan-survey-how-coronavirus-has-already-changed-media-consumers>.

Notes: This is not a comprehensive list. Several television networks (e.g., AMC), sporting leagues (e.g., MLB), and others not included in this list offer streaming services.

OVDs can generally be classified under at least one of three business models:⁵

- Ad-supported streaming services offer content for free, with advertisements placed at the beginning of or intermittently throughout a video.
- Subscription-based streaming services offer content for a fixed monthly fee.
- Transaction-based streaming services charge a one-time fee to purchase or rent video content, such as a movie or an episode of a TV show.⁶

⁵ Federal Communications Commission (FCC), *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, paragraph 131. MB Docket No. 16-247, released January 17, 2017, at <https://www.fcc.gov/document/18th-annual-video-competition-report>. The FCC separates the business models for OVDs into four categories: subscription, advertising-supported, electronic sell through (one-time purchases), and rentals. For the purpose of this report, the last two categories have been combined as “transaction-based” models because of the similarities in the business models and because most streaming services provide both electronic sell through and rentals together.

⁶ Some transaction-based systems provide discounts for purchasing or renting a full season of a TV show or multiple movies.

Some OVDs combine these business models. For example, Prime Video offers some content through its subscription-based service and other content through transaction-based options; YouTube offers some ad-supported and transaction-based content, and its affiliated YouTube TV is subscription-based; and Peacock offers a free ad-supported version and subscription-based options, with and without advertisements.

Competition with Prices and Content

Video streaming services that use a subscription- or transaction-based system can compete by offering content at lower prices than their competitors. Streaming services that offer live TV can be cheaper than packages offered by MVPDs, depending on the channels the customer subscribes to. Some MVPDs have responded by offering cheaper plans with fewer channels and by improving their set-top boxes to offer some streaming services, such as Netflix.⁷ Some streaming services that offer live TV advertise their services by promising no hidden fees, such as equipment rentals and cancellation fees, and no annual contracts.⁸

Most streaming services that offer live TV do not require an annual subscription; subscribers can sign up on a month-to-month basis instead. While the lack of a long-term commitment can be appealing to some consumers, it also means that prices can suddenly increase.⁹ For example, on June 30, 2020, YouTube TV added eight new channels and increased its price from \$50 to \$65 per month, effective immediately for new subscribers; for its current subscribers, the changes went into effect on July 30, 2020.¹⁰

On average, the price for streaming services that offer live TV is higher than those that offer only video-on-demand (**Table 2**). This may be partially due to cost differences—it tends to be costly to license the rights to air a television network.¹¹ To attract more users, a streaming service that offers live TV may try to expand the number of networks offered on its service, but this in turn increases the cost of running the service. In contrast, a streaming service that offers video-on-demand licenses at least some movies and shows that have been previously shown elsewhere, which tends to lower the cost of licensing this content.

Differences in prices across streaming services that offer only video-on-demand tend to be fairly small. This may be partially due to their relatively low prices, which make it difficult to lower prices further. Thus, in addition to competing with prices, streaming services may seek to offer exclusive access to popular movies and TV shows to attract new subscribers.

⁷ James Willcox, “Cable vs. Streaming Live TV Services: Which Should You Choose?” *Consumer Reports*, July 29, 2019, at <https://www.consumerreports.org/tv-service/cable-vs-streaming-live-tv-services/>.

⁸ For example, see advertisements for YouTube TV (<https://tv.youtube.com/welcome/>) and Hulu Live TV (<https://www.hulu.com/live-tv>).

⁹ Price increases among the top live TV streaming services are available at Deana Myers, Tony Lenoir, and Erica Pabst, “Virtual Multichannel Forecast Remains Strong, Despite Early 2020 Sub Losses,” *S&P Global Intelligence*, July 14, 2020.

¹⁰ Ty Pendlebury, “YouTube TV Hiked Price to \$65: Sling TV and Hulu Offer Better Value,” *CNET*, July 14, 2020, at <https://www.cnet.com/news/youtube-tv-hiked-price-to-65-sling-tv-and-hulu-offer-better-value/>.

¹¹ Kym Nator, “Virtual multichannel carriage: Sports networks,” *S&P Global Market Intelligence*, September 16, 2020; Chaim Gartenberg, “There Are More Streaming Choices than Ever—Why Are Prices Going Up?” *The Verge*, July 1, 2020, at <https://www.theverge.com/21310442/tv-streaming-youtube-fubo-price-increases-carrier-fees-disputes-costs-cable-television>.

Table 2. Prices for Select Streaming Services

Video Streaming Service	Monthly Price	# of Channels
Live TV		
AT&T TV Now (formerly DirecTV Now)	\$59.99 (for the first year)*	65
CBS All Access	\$5.99 (\$59.99/year)	4
Hulu Live TV	\$53.99	60
Sling TV	\$30.00	30
YouTube TV	\$64.99	85
Only Video on Demand		
Apple TV+	\$4.99	
Disney+	\$6.99 (\$69.99/year)	
HBO (formerly HBO Now)	\$14.99	n/a
HBO Max	\$14.99	
Netflix	\$8.99	

Source: Compiled by CRS from various sources.

Notes: The cheapest subscription package is listed for the streaming services that offer multiple subscription choices, which can depend on the number of channels offered, user accounts, and other factors.

* Unlike the other video streaming services listed, AT&T TV Now requires a two-year agreement. The \$59.99/month price is for the first year; the price increases for the second year (<https://www.att.com/tv/>).

When the first streaming services launched in the late 2000s, they offered movies and shows that had been previously shown elsewhere. For example, when Netflix launched its streaming service in 2007, it offered about 1,000 television shows and movies, licensed from NBC Universal, Sony Pictures, MGM, and others; it did not offer original content.¹² A few years later, some streaming services started commissioning movies and shows from television or film studios. This made streaming services less dependent on licensing agreements with television networks and allowed them to offer original programming, which increased the importance of content.¹³ In 2013, Netflix debuted its first original series, *House of Cards*, and became the first streaming service to win a Television Academy Emmy Award.¹⁴ Original programs from other streaming services have won television awards as well, such as Hulu's *Handmaid's Tale*.¹⁵ In 2020, Netflix received 160 Emmy nominations, breaking the record for the greatest number of nominations of any network, studio, or streaming platform.¹⁶ Nevertheless, streaming services continue to license previously

¹² Miguel Helft, "Netflix to Deliver Movies to the PC," *New York Times*, January 16, 2007, at <https://www.nytimes.com/2007/01/16/technology/16netflix.html>.

¹³ For example, in 2011, Netflix outbid cable networks, including HBO and AMC, for Media Rights Capital's *House of Cards*; see Nellie Andreeva, "Netflix to Enter Original Programming With Mega Deal for David Fincher-Kevin Spacey Series 'House of Cards,'" *Deadline*, March 15, 2011, at <https://deadline.com/2011/03/netflix-to-enter-original-programming-with-mega-deal-for-david-fincher-kevin-spacey-drama-series-house-of-cards-114184/>.

¹⁴ Television Academy, "65th Emmy Awards Nominees and Winners," accessed on July 29, 2020, at <https://www.emmys.com/awards/nominees-winners/2013>.

¹⁵ *Handmaid's Tale* has been nominated for and won Emmy awards (<https://www.emmys.com/shows/handmaids-tale>) and Golden Globes (<https://www.goldenglobes.com/tv-show/handmaids-tale>).

¹⁶ John Koblin, "Netflix Breaks HBO's Record for the Most Emmy Nominations Ever," *New York Times*, July 28, 2020, at <https://www.nytimes.com/2020/07/28/arts/television/emmy-nominations.html>.

broadcast movies and shows from television networks and film studios to complement their original content.

Some streaming services, particularly those that offer live TV, advertise themselves as an alternative to MVPDs. However, streaming services oftentimes rely on the same content creators as television networks, such as sports leagues and television and movie studios.¹⁷ Television networks and movie theaters show a single program at a time, which can create incentives to select the program with the greatest profit potential for each time slot. In contrast, streaming services offer multiple programs for users to choose from. Thus, streaming services can feature content that appeals to various groups of users rather than to the public at large. This may increase competition for video content and provide new opportunities for content creators.¹⁸

Some companies that own studios and television networks offer their own video streaming services. This can create incentives for these studios to license fewer shows and movies to other streaming services, reserving popular content for their own streaming services instead. For example, AT&T, which owns Warner Brothers Studio, stopped licensing certain shows—such as *Friends*, *The Wire*, and *The Sopranos*—to streaming services owned by other companies, offering these shows exclusively on its streaming services HBO and HBO Max.¹⁹ Similarly, Comcast is offering some of its NBCUniversal shows, such as *The Office* and *Parks and Recreation*, exclusively on its streaming service Peacock;²⁰ Walt Disney Co. announced that *The Simpsons* would be offered exclusively on its streaming service Disney+.²¹

Streaming services operated by companies that also own film studios and television networks may have an advantage over their competitors. A company may provide its streaming service exclusive access to its studio's programming, or may choose to license the programming to its streaming competitors for a fee. This means some streaming services are able to restrict access to content, which could make it more difficult for new competitors to enter the video streaming market. Entrants may need to devote significant resources to produce or license content before offering their streaming services to customers.

¹⁷ For an illustration of how content providers work with various operators in the TV industry, see Figure 2 in CRS Report R46023, *Copyright Act and Communications Act Changes in 2019 Related to Television*, by Dana A. Scherer.

¹⁸ There has also been consolidation among content creators. For example, Walt Disney Co. acquired 21st Century Fox, which owned studios and television networks, on March 20, 2019 (<https://www.npr.org/2019/03/20/705009029/disney-officially-owns-21st-century-fox>). Details on competition among content creators are beyond the scope of this report.

¹⁹ The streaming service HBO Now was renamed HBO on July 31, 2020; see Joan Solsman, "HBO Is Ending HBO Go, Renaming HBO Now Since HBO Max Is Live," *CNET*, June 13, 2020, at <https://www.cnet.com/news/hbo-max-hbo-go-hbo-now-roku-amazon-fire-tv-ending/>. On licensing issues, see Julia Alexander, "AT&T Will Pull Popular Shows Like Friends from Competitors, says CEO," *The Verge*, May 14, 2019, at <https://www.theverge.com/2019/5/14/18623082/att-streaming-warnermedia-netflix-hulu-friends-er-disney-comcast-nbc-universal>, and Meghan O'Keefe, "Here's Why HBO Series Like 'The Sopranos,' 'The Wire' Left Amazon Prime," *Decider*, May 22, 2020, at <https://decider.com/2020/05/22/hbo-shows-leave-prime-video-the-sopranos-entourage-the-wire/>.

²⁰ Jordan Crucchiola, "*Parks and Rec* is Leaving Netflix and Every Other Platform for NBC's Streaming Service," *Vulture*, September 17, 2019, at <https://www.vulture.com/2019/09/parks-and-rec-leaving-netflix-for-peacock.html>; Joe Otterson, "'The Office' to Stream Exclusively on NBCUniversal Service Beginning in 2021," *Variety*, June 25, 2019, at <https://variety.com/2019/tv/news/the-office-streaming-nbcuniversal-2021-1203252977/>.

²¹ Joe Otterson, "'The Office' to Stream Exclusively on NBCUniversal Service Beginning in 2021," *Variety*, June 25, 2019, at <https://variety.com/2019/tv/news/the-office-streaming-nbcuniversal-2021-1203252977/>.

Vertical Integration with Video Streaming Services

Some companies that offer video streaming services are integrated vertically in areas other than content creation.²² Some operate digital media players, which are used to access streaming services on televisions, while others provide internet and mobile services, which are used to distribute video content. Some offer information technology services—including cloud computing services and content delivery networks (CDNs)—that can be used to store and distribute video content, which can help with latency. These situations and their potential impact on competition among video streaming services are described further in this section.

Cloud Computing and Content Delivery Networks

Video streaming services can rely on information technology services, particularly cloud computing and CDNs. They typically store their content on “cloud computing” servers accessed over the internet,²³ which they may find more cost-effective than developing and maintaining their own systems.²⁴ CDNs are networks of remote servers that are located near internet service providers’ facilities, avoiding potential congestion points. By using CDNs, streaming services can reduce the likelihood of experiencing latency while delivering content to their customers.²⁵ Both of these technologies are ideal for video streaming services, which store and transmit large amounts of data.

Some companies that offer video streaming services operate their own information technology services. Amazon owns both Amazon Web Services (AWS), a cloud computing service with a CDN, and a video streaming service, Prime Video. Alphabet Inc. operates the cloud computing service Google Cloud, which has its own proprietary CDN, and the video streaming services YouTube and YouTube TV. Apple built its own CDN in 2014, paying large internet service providers for direct connections to their networks, and is reportedly using it for its streaming service AppleTV+.²⁶

A video streaming service can use cloud computing and CDNs without incurring an additional cost if its parent company owns these services. In contrast, competing video streaming services may need to pay a fee; the amount generally depends on various factors, such as the services required and the amount of storage needed.²⁷ For example, while Netflix has maintained its proprietary CDNs, it started migrating its central storage to AWS in August 2008 and completed the shift in January 2016, meaning it faces a cost that its competitor Prime Video does not.²⁸

²² Vertical integration is when a company operates at multiple stages along the supply chain.

²³ For information about cloud computing, see <https://azure.microsoft.com/en-us/overview/what-is-cloud-computing/>.

²⁴ For an example of the costs and benefits a company may consider before choosing to use cloud computing services, see Petra Maresova, Vladimir Sobeslav, and Ondrej Krejcar, “Cost-benefit analysis – evaluation model of cloud computing deployment for use in companies,” *Applied Economics*, vol. 49, no. 6 (2017), pp. 521-533.

²⁵ Latency refers to delays between a user’s action and the resulting response. With respect to online video distribution, latency issues can lead to delays in receiving programming, resulting in gaps in video content that is intended to be continuous. More information about CDNs is provided at <https://www.cloudflare.com/learning/cdn/what-is-a-cdn/>.

²⁶ Ben Popper, “Apple Reportedly Paying Internet Service Providers to Ensure Speedy Delivery of Its Data,” *The Verge*, July 31, 2014, at <https://www.theverge.com/2014/7/31/5956743/apple-cdn-content-delivery-network-paid-interconnection-isp-comcast>; Benjamin Mayo, “Apple TV+ Praised for Its High Bitrate Streaming Video Quality,” *9to5Mac*, November 5, 2019, at <https://9to5mac.com/2019/11/05/apple-tv-plus-streaming-quality/>.

²⁷ For example, pricing information for Microsoft’s Azure is available at <https://azure.microsoft.com/en-us/pricing/> and for AWS at <https://aws.amazon.com/pricing/>.

²⁸ Netflix, “Completing the Netflix Cloud Migration,” February 11, 2016, at <https://media.netflix.com/en/company->

However, using AWS may be less costly for Netflix than maintaining its own servers and network. In addition, the number of companies offering cloud computing and CDN services has increased, potentially making it more difficult for vertically integrated companies to gain a cost advantage over streaming service competitors.

Internet Service Providers and Mobile Service Providers

Video streaming services rely on internet service providers (ISPs) and mobile service providers to deliver content to users. Some companies are integrated vertically, offering video streaming services while operating as an ISP or mobile service provider. AT&T is an ISP and mobile service provider that also owns the streaming services HBO, HBO Max, and AT&T TV Now.²⁹ Comcast is an ISP that offers the streaming service Peacock.³⁰ On July 1, 2020, satellite television provider Dish Network completed its acquisition of the mobile wireless service Boost Mobile; Dish also offers the streaming service Sling TV.³¹ Some mobile service providers are also offering special deals to access certain streaming services. For example, depending on their mobile service plan, some Verizon Wireless customers are eligible to receive a free subscription to Disney+, Hulu (ad-supported), and ESPN+ for six months.³²

Companies that are integrated vertically by operating ISPs or providing mobile wireless services may be able to prioritize their own video content at congestion points, thereby minimizing latency. Competing video streaming services may need to pay for prioritization at these congestion points to provide comparable services.³³ The FCC's 2017 Restoring Internet Freedom Order reclassified broadband as an information service and removed the ban on paid prioritization implemented by its 2015 Open Internet Order.³⁴

Digital Media Players

Digital media players allow users to access streaming services over the internet on televisions. Examples include gaming consoles, Smart TVs, which are internet-connected televisions that

blog/completing-the-netflix-cloud-migration. For information on Netflix's CDN operations, see Netflix, "Open Connect Overview," 2019, at <https://openconnect.netflix.com/Open-Connect-Overview.pdf>.

²⁹ AT&T is a Tier 1 ISP, meaning it owns part of the internet backbone and is able to send content to other parts of the internet in the United States for free. DrPeering.net, "Who Are the Tier 1 ISPs?" accessed on August 10, 2020, <https://drpeering.net/FAQ/Who-are-the-Tier-1-ISPs.php>.

³⁰ Comcast is not a Tier 1 ISP, meaning it may need to pay or barter to access portions of the internet backbone in the United States.

³¹ The U.S. Department of Justice entered into a consent decree with T-Mobile and Sprint under which Sprint agreed to divest its prepaid businesses—including Boost Mobile and Virgin Mobile—to Dish. U.S. Department of Justice, "Justice Department Settles with T-Mobile and Sprint in Their Proposed Merger by Requiring a Package of Divestitures to Dish," press release, July 26, 2019, at <https://www.justice.gov/opa/pr/justice-department-settles-t-mobile-and-sprint-their-proposed-merger-requiring-package>. More information on Boost Mobile is available at <http://about.dish.com/2020-07-01-DISH-enters-retail-wireless-market-with-close-of-Boost-Mobile-advances-build-of-the-nations-first-standalone-5G-network> and <https://www.boostmobile.com/support/faq/plans-services/dish-and-boost-mobile-merger.html>.

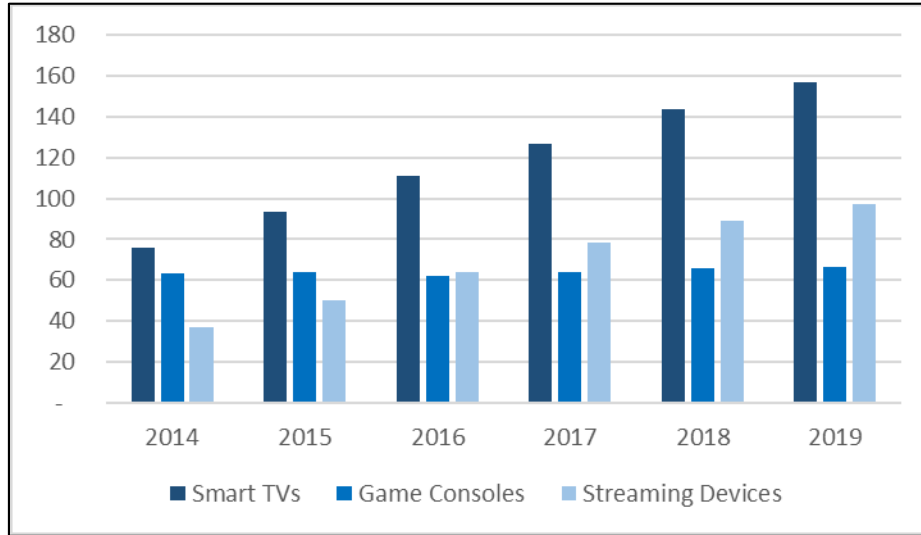
³² Additional details are available at <https://www.verizon.com/support/disney-bundle-faqs/>.

³³ For more information on paid prioritization and net neutrality, see CRS Report R40616, *The Net Neutrality Debate: Access to Broadband Networks*, by Angele A. Gilroy.

³⁴ Federal Communications Commission, *In the Matter of Restoring Internet Freedom*, WC Docket No. 17-108, adopted December 14, 2017, released January 4, 2018, at <https://www.fcc.gov/document/fcc-releases-restoring-internet-freedom-order>; and Federal Communications Commission, *In the Matter of Protecting and Promoting the Open Internet*, GN Docket No. 14-28, adopted February 26, 2015, released March 12, 2015, at <https://www.fcc.gov/document/fcc-releases-open-internet-order>.

contain built-in apps, and streaming devices that can be plugged into a television, generally at the HDMI port. The number of households with Smart TVs and streaming devices nearly doubled from 2014 to 2019 (Figure 1). As of the second quarter of 2020, most of the streaming devices owned by households were Amazon or Roku products (Figure 2).

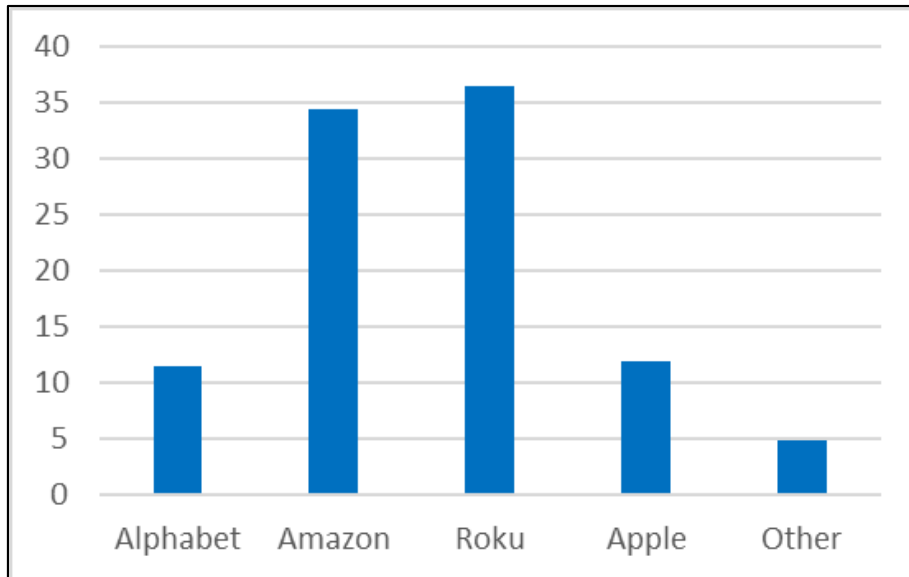
Figure 1. Number of Households in the United States with Digital Media Players
(in millions)



Source: S&P Global Market Intelligence.

Notes: Excludes enterprise tablets and game consoles that do not connect to the internet. Streaming devices combine streaming sticks (e.g., Chromecast and Fire TV Stick) and streaming media players (e.g., Apple TV and Roku Players).

Figure 2. Streaming Devices Owned by Households in the United States
(in millions)



Source: S&P Global Market Intelligence.

Note: The estimates are for the second quarter of 2020. “Other” includes NVIDIA.

Most users access streaming services on their television using digital media players. In 2018, Netflix reportedly showed that 70% of its viewership occurred on televisions rather than directly on smartphones, tablets, or computers.³⁵ To be included on a digital media player, a streaming service may agree to pay a fixed fee or a portion of the revenue or may reach some other agreement with the owner of the digital media player. Details of such agreements are generally not publicly available.

Some companies have integrated vertically by providing streaming services as well as digital media players. For example, Amazon, which owns the streaming service Prime Video, released its own digital media player in 2014—the first-generation Fire TV. Apple offers both streaming service Apple TV+ and streaming device Apple TV, and Alphabet operates both streaming service YouTube and streaming device Chromecast.

Companies that operate digital media players can limit consumer access to streaming services by excluding individual services from the players. However, these companies also have an incentive to offer content from various streaming services to attract potential consumers, particularly if they receive a portion of the other streaming services' revenue. Vertically integrated companies balance these opposing incentives, which may involve weighing how much revenue is generated from the digital media player versus the streaming service.

An important issue for video streaming services that rely on digital media players to reach consumers is control of user data. A digital media player collects data on the frequency and duration of use for each app downloaded on the device, including streaming services. If the player is owned by a vertically integrated company, this information can be used to determine the popularity of competitors' streaming services. The company operating the digital media player may be able to use this information to improve its ad targeting, to increase revenue by selling or sharing the data with other interested parties, and to use whatever insights it obtains to improve its own streaming service. Some digital players allow users to adjust their privacy settings to limit targeted ads, although this may not keep the player from continuing to collect users' data.³⁶

Recent Disputes Involving Video Streaming

Several video streaming services have been launched since fall 2019.³⁷ Some of these streaming services—including Disney+, HBO Max, and Peacock—have had disputes with some companies that own digital media players. Some streaming services are currently unavailable on some digital media players, meaning these streaming services may be unable to reach all potential consumers.

The disputes reflect broader negotiations taking place across the media industry, illustrating that competition among streaming services cannot be evaluated without examining competition among media companies more broadly. Some disputes over the inclusion of competing streaming

³⁵ Peter Kafka, "You Can Watch Netflix on Any Screen You Want, But You're Probably Watching It on a TV," *Vox*, March 7, 2018, at <https://www.vox.com/2018/3/7/17094610/netflix-70-percent-tv-viewing-statistics>.

³⁶ Hooman Mohajeri Moghaddam, Gunes Acar, Ben Burgess, Arunesh Mathur, Danny Yuxing Huang, Nick Feamster, Edward W. Felten, Prateek Mittal, Arvind Narayanan, "Watching you watch: The tracking ecosystem of over-the-top TV streaming devices," *Proceedings of the 2019 ACM SIGSAC conference on computer and communications security – CCS '19*, 2019, New York, NY: ACM Press, at <https://www.princeton.edu/~pmittal/publications/tv-tracking-ccs19.pdf>.

³⁷ Shelly Tan, "Your Guide to New Ways to Watch TV in 2019," *Washington Post*, October 31, 2019, at <https://www.washingtonpost.com/graphics/2019/entertainment/new-streaming-services-2019/>; Dan Reilly, "A Guide to All the New Streaming Services That Want Your Money," *Vulture*, November 5, 2019, at <https://www.vulture.com/2019/11/new-streaming-services-2019-2020.html>.

services on a digital media player involve access to video content and the sale of advertising spaces on television networks.

Disney+

Disney+ launched in the United States on November 12, 2019. It offers content owned by Walt Disney Co.—such as movies and shows from the Disney, Pixar, and Marvel studios—as well as Disney+ original programming.³⁸ Walt Disney Co. also owns film studios, cable networks such as ESPN, and the broadcast television network ABC, and has operational control of Hulu, another streaming service that also offers live TV.

Some video content owned by Walt Disney Co. is not available on Disney+ due to preexisting licensing deals with other streaming services.³⁹ In addition, some of the Marvel shows that were scheduled to be released on Disney+ in 2020 have been delayed due to the Coronavirus Disease 2019 (COVID-19) pandemic.⁴⁰ However, some movies that were scheduled to be released in theaters are being premiered on Disney+ instead, giving it exclusive content to offer subscribers. For example, the live-action remake of the movie *Mulan* was released on Disney+ in September 2020 to subscribers willing to pay an additional fee.⁴¹

Walt Disney Co. disputed with Amazon over the inclusion of Disney+ on Amazon’s digital media players—Fire TV devices.⁴² Amazon reportedly pushed for the right to sell a substantial percentage of Walt Disney Co.’s ad spaces, although Disney+ currently does not have any ads.⁴³ Instead, Amazon wanted the right to sell advertising on other media services owned by Walt Disney Co., such as apps for its television networks, which include ABC, ESPN, and the Disney Channel. The companies reached an agreement before Disney+ launched;⁴⁴ details are not publicly available.

HBO Max

HBO Max was launched in the United States by AT&T Inc. on May 27, 2020. AT&T owns various cable networks, including HBO and TNT, and the streaming services HBO (formerly HBO Now), HBO Max, and AT&T Live TV.⁴⁵ Subscribers of the cable network HBO and the

³⁸ More information is available at <https://www.disneyplus.com/>.

³⁹ Sarah Whitten, “Some Disney Movies Won’t Appear on Disney+ on Launch Date—or Ever,” *CNBC*, November 7, 2019, at <https://www.cnn.com/2019/11/07/a-number-of-disney-movies-wont-appear-on-disney-on-launch-day.html>.

⁴⁰ Paul Tassi, “Disney Plus Has Delayed All Its 2020 Marvel Shows Due to COVID,” *Forbes*, July 18, 2020, at <https://www.forbes.com/sites/paultassi/2020/07/18/disney-plus-has-delayed-all-its-2020-marvel-shows-due-to-covid/#9f8d52b2d5df>.

⁴¹ Todd Spangler, “Mulan Movie Premiere on Disney Plus Can Be Purchased Through Apple, Google, Roku,” *Variety*, August 21, 2020, at <https://variety.com/2020/digital/news/mulan-disney-plus-purchase-apple-google-and-roku-1234743675/>.

⁴² Fire TV devices include Smart TVs (e.g., Insignia – Fire TV Edition) and streaming devices Fire TV Stick and Fire TV Cube. Details are available at <https://www.amazon.com/Amazon-Fire-TV-Family/b?ie=UTF8&node=8521791011>.

⁴³ Dana Mattioli, Sahil Patel, and Patience Haggin, “Amazon Clashes with Disney Over Terms for Offering Apps in Fire TV,” *Wall Street Journal*, October 3, 2019, at https://www.wsj.com/articles/amazon-disney-fight-over-ad-revenue-from-apps-on-fire-tv-11570117659?mod=article_inline.

⁴⁴ Dana Mattioli and Ethan Smith, “Amazon’s Fire TV to Carry Disney+,” *Wall Street Journal*, November 7, 2019, at <https://www.wsj.com/articles/amazon-s-fire-tv-to-carry-disney-11573162055>.

⁴⁵ HBO offered a streaming service—HBO Go—that was offered for free with an HBO subscription through a TV provider. For subscribers, it was retired on August 31, 2020. HBO Now, a stand-alone streaming service that contained the same content as HBO Go, was rebranded as the HBO app on July 31, 2020. Details are available at

streaming service HBO Now received an automatic upgrade to HBO Max, although some may need to download a new app.⁴⁶ HBO Max offers video content available on the streaming service HBO, as well as content produced by AT&T's Warner Brothers Studio and original HBO Max programming. The programming on the streaming service HBO is also available as a "channel" on competing streaming services, including Amazon Prime Video and the Roku Channel.⁴⁷

AT&T has been seeking distribution agreements for HBO Max with several companies. It reached an agreement with Comcast hours after HBO Max officially launched, allowing customers who subscribe to AT&T's HBO cable network as part of a Comcast cable television package to access HBO Max for no extra charge.⁴⁸ According to its website, HBO Max is available on several streaming devices, including Chromecast, sold by Alphabet Inc., and Apple TV.⁴⁹ Currently, HBO Max is not available on digital media players created by Roku and Amazon, although they have access to the streaming service HBO.⁵⁰

The dispute between Amazon and AT&T centers on whether HBO Max content will be available on Prime Video's HBO channel. AT&T's CEO John Stankey reportedly stated that Amazon is treating HBO Max differently than other streaming services.⁵¹ AT&T reportedly would be able to track users' consumption habits more easily by providing them content through a separate HBO Max app on Amazon's digital media players, as streaming services like Netflix and Hulu do.⁵² However, Amazon would like to make the HBO Max content available through its HBO channel on Prime Video. Amazon reportedly stated that AT&T's approach is denying access to HBO Max content to the 5 million customers who subscribe to the HBO channel through Prime Video.

Details of AT&T's dispute with Roku are publicly available only from news articles citing unnamed sources. Roku and AT&T have stated only that they have been unable to reach an agreement. Some articles report that the dispute centers on the share of revenue and ad spaces Roku would receive by making HBO Max available on Roku's digital media players.⁵³ Others report that the dispute with Roku concerns whether HBO Max content would be available on

<https://www.hbo.com/hbo-news/hbo-max-hbo-go-hbo-now-difference>.

⁴⁶ The HBO app is no longer available on TiVo's DVRs, although HBO Max users can still download the new app (<https://www.fiercevideo.com/video/tivo-dvrs-will-lose-hbo-app-at-end-august>). Some cable companies do not carry HBO either, such as Dish Network, which has not carried HBO since November 2018. Details on how subscribers can obtain access to HBO Max through various devices are available in the following article: Todd Spangler, "HBO Max Launch: How to Get the Streaming Service (and How You Can't)," *Variety*, May 26, 2020, at <https://variety.com/2020/digital/news/hbo-max-how-to-get-streaming-service-free-1234616599/>.

⁴⁷ Amazon Prime Video and Roku Channel subscribers can add a subscription to various channels, including the streaming service HBO, where the subscription fee for each channel is included in the Prime Video or Roku Channel subscription. These channels are accessed through the Prime Video and Roku Channel app, meaning that the subscriber must be logged into Prime Video or Roku in order to access them.

⁴⁸ Ben Munson, "Comcast Reaches Distribution Deal for HBO Max," *FierceVideo*, May 27, 2020, at <https://www.fiercevideo.com/cable/comcast-reaches-distribution-deal-for-hbo-max>.

⁴⁹ A list of streaming devices that can be used to access HBO Max is available at <https://www.hbomax.com>.

⁵⁰ Julia Alexander, "HBO Now subscribers can continue to stream on Amazon after all," *Verge*, July 31, 2020, at <https://www.theverge.com/2020/7/31/21349487/hbo-now-amazon-fire-tv-stream-august-max-go-roku-negotiation>.

⁵¹ Edmund Lee, "AT&T Signed up 4 Million HBO Max Customers," *New York Times*, July 23, 2020, at <https://www.nytimes.com/2020/07/23/business/media/att-hbo-max.html>.

⁵² Joe Flint and Lillian Rizzo, "HBO Max Is Left Out of Amazon's, Roku's Platforms at Launch," *Wall Street Journal*, May 27, 2020, at <https://www.wsj.com/articles/hbo-max-leaves-at-t-at-odds-with-amazon-and-roku-11590597190>.

⁵³ *Ibid.*

Roku’s digital media players exclusively through HBO Max or whether it would be available on the HBO channel on the Roku Channel.⁵⁴

Peacock

Peacock, owned by Comcast, launched nationally in the United States on July 15, 2020.⁵⁵ It offers video content from Comcast-owned NBCUniversal, including video content broadcast on the NBC network, and from various film studios owned by Comcast, including Universal and DreamWorks Animation. Peacock also provides original content. Peacock has three subscription tiers: (1) a free version with ads and about two-thirds of Peacock’s library, including *Parks and Recreation* and *30 Rock*; (2) a premium version for \$4.99/month with ads that offers Peacock’s complete library, including *The Matrix* trilogy and more sports coverage; and (3) a premium plus version for \$9.99/month, which offers the same content as the premium version, but without ads.⁵⁶

When Peacock initially launched, it was available on various streaming devices, including Apple TV and Google Chromecast, but not on Amazon’s or Roku’s digital media players.⁵⁷ The disagreements reportedly centered on advertising and including content from NBCUniversal on their own video streaming services.⁵⁸ Peacock and Roku reportedly reached an agreement on September 18, 2020, which includes adding NBC content to the Roku Channel and entering a digital advertising partnership.⁵⁹ Peacock and Amazon have yet to reach an agreement.

Oversight of Video Streaming Services

The Communications Act of 1934 created the FCC. It has the authority to regulate broadcast stations and multichannel television, including limiting the number of broadcast stations an entity can own. It generally does not regulate broadcast content, aside from prohibiting obscene or indecent content and prohibiting cable operators from exercising “undue influence” over affiliated television networks over the sale of programming; it does not regulate information provided over the internet.⁶⁰

⁵⁴ Todd Spangler, “HBO Max’s 80 Million Household Dead Spot: Why Streamer Isn’t on Roku or Amazon Fire TV,” *Variety*, May 27, 2020, at <https://variety.com/2020/digital/news/why-hbo-max-not-available-roku-amazon-fire-tv-1234615984/>.

⁵⁵ Rick Marshall, “Peacock: Everything We Know About NBCUniversal’s Streaming Video Service,” *Digital Trends*, July 15, 2020, at <https://www.digitaltrends.com/movies/everything-to-know-about-peacock-nbc-universal/>.

⁵⁶ For details about Peacock’s subscription service, see Alison Rayome, “Peacock free vs. Premium vs. Premium Plus: What’s Included in Each Plan and What Isn’t,” *CNET*, August 20, 2020, at <https://www.cnet.com/news/peacock-free-vs-premium-vs-premium-plus-whats-included-in-each-plan-and-what-isnt/>.

⁵⁷ Digital media players that can be used to access Peacock are listed at <https://www.peacocktv.com/help/article/what-devices-and-platforms-are-supported-by-peacock>. Peacock is also available through some cable set-top boxes, including those leased by Comcast’s Xfinity and Cox.

⁵⁸ Lillian Rizzo and Joe Flint, “Peacock, NBCUniversal’s New Streaming Service, Joins Crowded Field at Challenging Time,” *Wall Street Journal*, July 13, 2020, at <https://www.wsj.com/articles/peacock-nbcuniversals-new-streaming-service-joins-crowded-field-at-challenging-time-11594665415>.

⁵⁹ Josef Adalian, “Peacock is (Finally) Headed to Roku,” *Vulture*, September 18, 2020, at <https://www.vulture.com/2020/09/why-peacock-isnt-on-roku.html>.

⁶⁰ Details about the FCC and its regulatory authority are available at <https://www.fcc.gov/media/radio/public-and-broadcasting>. For more information on past regulations on MVPDs, see CRS Report R46077, *Potential Effect of FCC Rules on State and Local Video Franchising Authorities*, by Dana A. Scherer, and CRS Report R44122, *Charter-Time Warner Cable-Bright House Networks Mergers: Overview and Issues*, by Dana A. Scherer.

Video streaming services, or online video distributors, are generally not regulated by the FCC. However, the FCC does recognize OVDs as potential competitors to multichannel video programming distributors and broadcast television stations. In its 18th report on the Status of Competition in the Market for the Delivery of Video Programming, the FCC lists the three main providers of video programming as MVPDs, broadcast television stations, and OVDs.⁶¹ This means that the presence of OVDs can affect how MVPDs are treated by the FCC. For example, in 2019, the FCC determined that AT&T TVNow satisfied the local exchange carrier test,⁶² serving as a competitor to Charter Communications by providing video services in certain franchise areas in Hawaii and Massachusetts; this means Charter’s cable service in those areas is no longer subject to rate regulation.⁶³

The FCC has considered regulating OVDs similarly to MVPDs. In 2014, it proposed a rule amending its interpretation of the term MVPD to include OVDs. For example, OVDs would have to negotiate with broadcast station owners for consent to retransmit broadcast programming, as MVPDs must do now, which could raise OVDs’ costs.⁶⁴ The order was never voted on, but TV station affiliates of the ABC, CBS, Fox, and NBC broadcast networks reportedly requested FCC Chairman Ajit Pai to revisit the order in June 2020.⁶⁵ If the order were to be adopted, OVDs would come under FCC regulation for certain purposes.

Companies that offer video streaming services have engaged in mergers and acquisitions, which are subject to antitrust enforcement by the U.S. Department of Justice (DOJ) and Federal Trade Commission. In 2016, the DOJ and FCC worked together to evaluate Charter Communications Inc.’s proposed acquisition of Time Warner Cable Inc. and Bright House Networks LLC.⁶⁶ It approved the merger under the condition that the new merged company could not enter or enforce agreements that would make it more difficult for OVDs to obtain video content from programmers.⁶⁷ In June 2020, the merged company petitioned the FCC to remove those conditions in 2021, citing a flourishing OVD market as evidence that the conditions are not necessary.⁶⁸

⁶¹ The list of reports is available at <https://www.fcc.gov/general/media-bureau-reports-industry>. Although the FCC requested comment for the 19th Video Competition report on August 24, 2017 (<https://www.fcc.gov/document/media-bureau-seeks-comment-19th-video-competition-report>), the report has not been released.

⁶² In the Cable Television Consumer Protection and Competition Act of 1992, Congress authorized local franchising authorities to regulate cable rates if comparable video programming is not provided in the area.

⁶³ Federal Communications Commission, *In the Matter of Petition for Determination of Effective Competition in 32 Massachusetts Communities and Kauai, HI*, MB Docket No. 18-283, CSR No. 8965-E, adopted and released October 25, 2019, at <https://www.fcc.gov/document/fcc-grants-charter-communications-effective-competition-petition-0>.

⁶⁴ Federal Communications Commission, *In the Matter of Promoting Innovation and Competition in the Provision of Multichannel Video Programming Distribution Services*, MB Docket No. 14-261, adopted December 17, 2014, released December 19, 2014, at <https://www.fcc.gov/document/commission-adopts-mvpd-definition-nprm>.

⁶⁵ John Eggerton, “TV Stations Ask FCC to Revive Item Regulating OTT,” *Next TV*, June 22, 2020, at <https://www.nexttv.com/news/tv-stations-ask-fcc-to-revive-item-regulating-ott>.

⁶⁶ For more information, see CRS Report R44122, *Charter-Time Warner Cable-Bright House Networks Mergers: Overview and Issues*, by Dana A. Scherer.

⁶⁷ Department of Justice, “Justice Department Allows Charter’s Acquisition of Time Warner Cable and Bright House Networks to Proceed with Conditions,” April 25, 2016, at <https://www.justice.gov/opa/pr/justice-department-allows-charter-s-acquisition-time-warner-cable-and-bright-house-networks>.

⁶⁸ Counsel for Charter Communications Inc. petition to Federal Communications Commission, *In the Matter of Conditions Imposed in the Charter Communications-Time Warner Cable-Bright House Networks Order*, WC Docket No. 16-197, June 17, 2020, at [https://ecfsapi.fcc.gov/file/10617776920059/Charter%20Merger%20Conditions%20Sunset%20Petition%20\(6-17-20\).pdf](https://ecfsapi.fcc.gov/file/10617776920059/Charter%20Merger%20Conditions%20Sunset%20Petition%20(6-17-20).pdf).

In 2017, the DOJ filed a civil antitrust lawsuit to block AT&T's proposed acquisition of Time Warner Inc.⁶⁹ At the time of the lawsuit, Time Warner owned various cable networks (e.g., HBO and TNT) and film studios through Warner Bros.; it was also a partial owner of the broadcast television network CW, which is partially owned by ViacomCBS. Part of the concern was that AT&T, the nation's largest distributor of television, would harm competition by forcing rival distributors, including emerging OVDs, to pay more for Time Warner's popular programming.⁷⁰ The merger was allowed to proceed in 2019 after the U.S. Court of Appeals for the District of Columbia Circuit ruled in favor of AT&T and Time Warner.⁷¹

Considerations for Congress

Current laws governing broadcast stations and MVPDs generally do not address video streaming services. For example, the Television Viewer Protection Act of 2019 (Title X of Division P of the Further Consolidated Appropriations Act, 2020, P.L. 116-94) permanently extended some legal provisions governing MVPDs, but did not mention video streaming services.⁷²

Committees in both houses of Congress have been investigating competition in digital markets since 2019. As an increasing number of companies operate in multiple markets, it may be important to consider the various ways these companies compete. Companies that are integrated vertically may be able to restrict a competing streaming service's access to content (e.g., by not entering or renewing licensing agreements) or limit access to the streaming service itself (e.g., not including the service on its digital media player). A similar issue was raised in a House Judiciary Committee Antitrust Subcommittee hearing in January 2020, when representatives of various small companies spoke about the difficulties of simultaneously competing against companies that also distribute their products.⁷³

It is unclear how competition among video streaming services affects consumers. Consumers may benefit from the increasing number of companies offering video streaming services, particularly those that offer multiple media services and products. Some of these companies may offer multiple services for lower prices as package deals. For example, AT&T offers one year of free access to HBO Max with certain DIRECTV satellite television packages and AT&T TV Now streaming packages. However, the recent disputes illustrate that consumers may face limitations on the content they are able to access, depending on the services available on the digital media players and the licensing agreements. In addition, the disputes illustrate that companies participating in multiple markets may compete by controlling access to content in addition to pricing.

⁶⁹ Time Warner Inc. and Time Warner Cable Inc. are two different companies. Department of Justice, "Justice Department Challenges AT&T/DirectV's acquisition of Time Warner," November 20, 2017, at <https://www.justice.gov/opa/pr/justice-department-challenges-atdirectv-s-acquisition-time-warner>.

⁷⁰ See CRS In Focus IF10526, *AT&T-Time Warner Merger Overview*, by Dana A. Scherer.

⁷¹ *United States of America v. AT&T Inc. et al.*, no. 18-5214, at <https://cases.justia.com/federal/appellate-courts/cadc/18-5214/18-5214-2019-02-26.pdf>.

⁷² For example, the act prohibits broadcast stations from entering exclusive contracts with cable, satellite, or telephone companies that are used to transmit broadcast signals. For more information, see CRS Report R46023, *Copyright Act and Communications Act Changes in 2019 Related to Television*, by Dana A. Scherer.

⁷³ A recorded video of the hearing is available at <https://judiciary.house.gov/calendar/eventsingle.aspx?EventID=2386>.

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