

Pay-TV and OTT Industry Overview

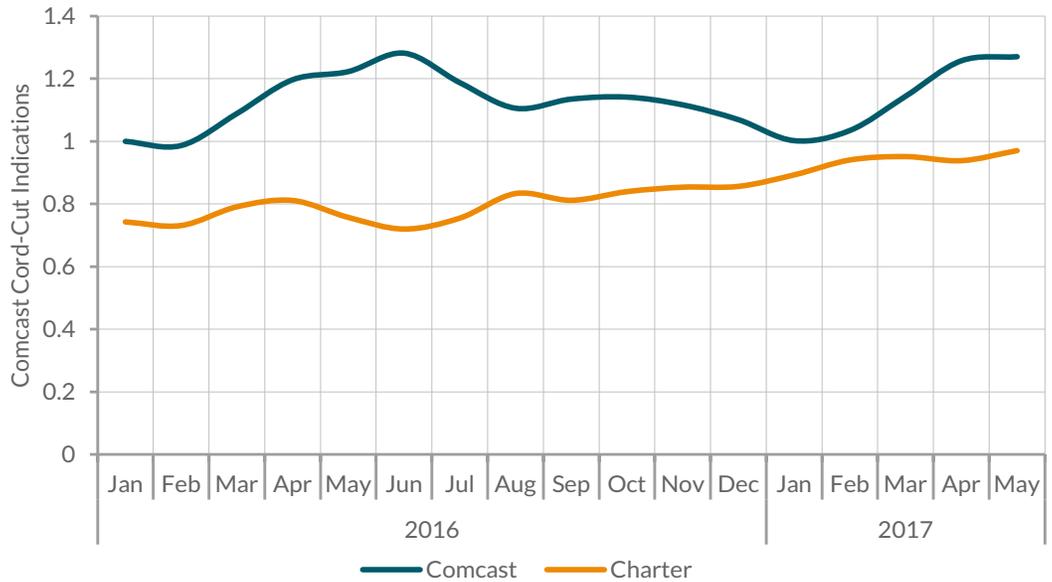
Cord-cutting is accelerating; Hulu subscribers appear more likely to cord-cut than Netflix

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Source: M Science

- **We are presenting a deep dive into the current pay-TV landscape. The aim of this report is to address the following questions:**
 - Is cord-cutting accelerating and what new services might affect that going forward?
 - What impact do Netflix and Hulu have on cable/satellite subscriptions?
 - Are virtual MVPDs (Sling, DirecTV Now) cannibalizing traditional pay-TV subscriptions and how might Hulu and YouTube TV change that?
 - Has the launch of DirecTV Now accelerated overall VMVPD adoption or divided adoption across an additional provider?
- **Key takeaways from today's report include:**
 - Cord cutting appears to have worsened in Q2.
 - We have developed a methodology for tracking cord-cutting indications for Comcast and Charter.
 - Cord-cutting appears elevated so far in Q2 at both Charter and Comcast, but the trend appears more pronounced at Charter.
 - Netflix subscribers' spending habits on cable are surprisingly nearly identical to the average consumer, suggesting little direct influence on cord-cutting.

- The average Hulu subscriber, on the other hand, spends \$10 to \$15 less on cable per month than the average consumer, suggesting a high pay-TV cord-displacement profile for the service.
 - This is also evidenced in Hulu subscribers' being 16% less likely to subscribe to DISH (our proxy for stand-alone pay-TV than the average Netflix subscriber). That doubles to 32% less likely if someone is subscribed to both Netflix and Hulu.
 - Cannibalization of traditional pay-TV subscribers by VMVPD services has been low to-date; we expect this to change with the entry of services from outside the ecosystem (Hulu and YouTube TV).
 - Sling TV clearly dominates the market, and interest in DirecTV Now has been lumpy since launch. In May, Hulu TV and YouTube TV represented approximately 23% of industry gross adds (excludes PlayStation Vue). Given both services are still in soft-launches, we would expect their share to increase dramatically through the summer.
 - While Hulu and YouTube were approximately 23% of gross adds in May, they still represent approximately only 2% of total virtual MVPD payers in the month.
 - Sling share loss from increased competition could drive further deterioration of DISH's fundamentals.
- **Other observations from recent quarterly results that are worth highlighting:**
 - At Charter, net incremental customers are largely single-play (Comcast has shown healthier double-play trends).
 - Comcast, however, did see a material tick-down in video adds relative to customer relationship adds in Q1, which also suggests further decoupling of video from broadband trends, in our view.
 - At DISH, Comcast, and Charter, we saw the lowest video gross profit dollars per sub in Q1 since at least 2014, suggesting pricing power may be eroding. This is not likely to improve with new entrants like Hulu and YouTube TV.

ANALYSIS

We have developed a way to measure indications of cord-cutting.

Our consumer transaction panel provides merchant-level transactional data. Consequently, we do not see within the bill for cable transactions. However, by analyzing the frequency of various price declines across consistent paying subscribers, we believe we have built a directional indicator of cord-cutting behavior at Comcast and Charter. Our observations year-to-date are:

- Cord-cutting indications do not appear to have improved from Q1 through the end of May for either provider.
- Comcast cord-cutting indications have increased dramatically Q/Q. While that trend is consistent with the year-ago period, our data suggests the magnitude is greater Y/Y, meaning a higher percentage of Comcast's subscribers are exhibiting signs of potential cord-cutting through the first two months of Q2 relative to the prior-year period.
- Charter cord-cutting indications have steadily increased since the completion of the company's Time Warner Cable and Bright House acquisitions last summer. This trend is continuing in Q2.
- Cord-cutting indications for Charter were at record highs in May in our data. At Comcast, cord-cutting indications were up Y/Y and nearly in line with the observed high from June.





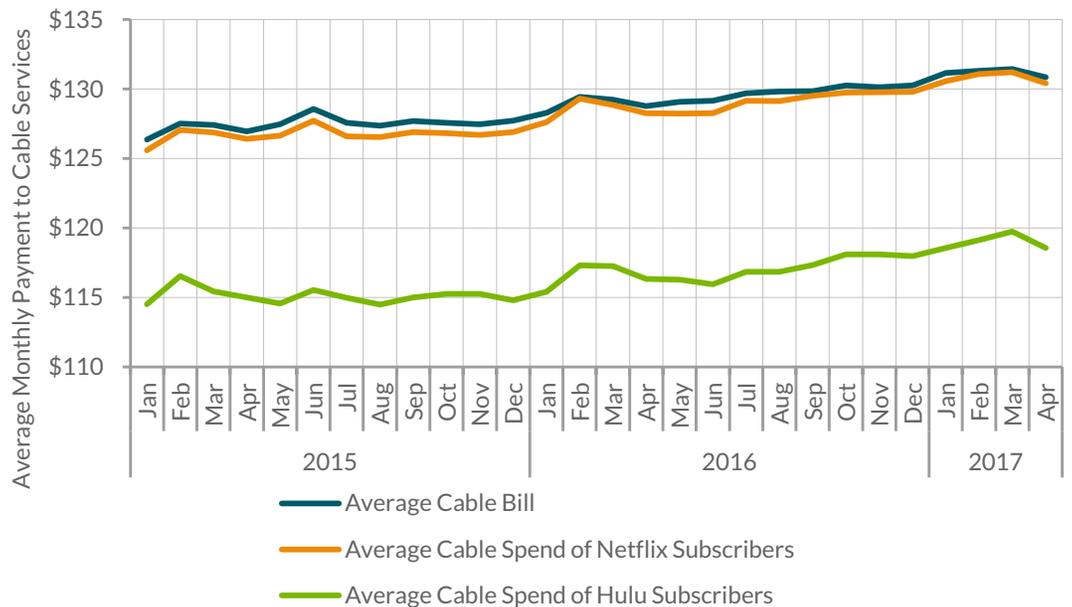
Hulu appears to have a more direct link to cord-cutting than Netflix

An in-depth look into the relative impact of Hulu and Netflix on cable and pay-TV subscriptions and spending suggests Hulu is already being used as a replacement for traditional pay-TV. For example, average Hulu subscribers appear far less likely to spend on pay-TV subscriptions than Netflix subscribers and the average consumer.

We analyzed historical spending patterns on cable/satellite services among Netflix and Hulu subscribers and compared them to average spend across all consumers. Doing this provides insight into the dollar impact Netflix and Hulu are having on total cable spend on a per subscriber basis and paints a picture of willingness (or lack thereof) for SVOD subscribers to also subscribe to traditional pay-TV. We found that:

- Netflix subscribers on average pay approximately \$1 less per month for cable service bundles (video and/or broadband) than the average cable customer. This difference is non-concerning, in our view, unless we begin to observe a greater dislocation. To date, we believe any modest cord-shaving behavior as a function of Netflix replacement has likely been offset by Netflix subscribers’ demand for higher-speed internet options.
- Hulu subscribers on average pay \$10 to \$15 less on cable bundles than the average consumer. This suggests cord-replacement or displacement is relatively high among subscribers to Hulu’s legacy SVOD service, which is estimated to have between 12 million and 15 million subscribers currently.

Figure 2: Impact of Netflix and Hulu on Average Cable Spend



While Netflix subscribers’ spending habits on cable are nearly identical to the average consumer, Hulu subscribers pay materially less for cable packages.

This indicates very limited pay-TV replacement among Netflix subscribers, but that Hulu’s subscribers are using the service to displace traditional pay-TV.

Source: M Science

We also used cross-penetration with DISH (DBS) as a proxy for cross-penetration with pay-TV at large (we concede that trends at DISH are poor relative to the broader industry).

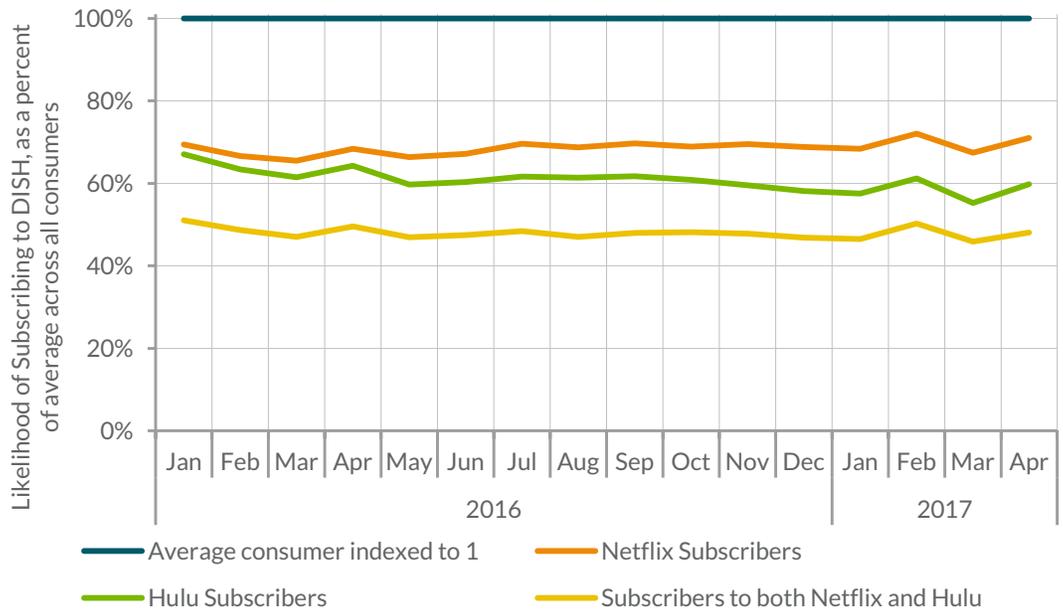




Looking at cross-penetration in this way allows us to gauge the apparent reduced likelihood of Netflix and Hulu subscribers also being pay-TV subscribers, in this case DISH specifically.

- We found that Netflix subscribers are 30% less likely to subscribe to DISH relative to the average consumer (which is benchmarked in the chart below at 100%). However, the magnitude of this differential could owe to differences between rural and urban subscriber penetrations and other broad demographic differences in their respective subscriber bases.

Figure 3: Impact of Netflix and Hulu on likelihood to subscribe to DISH (proxy for pay-TV)



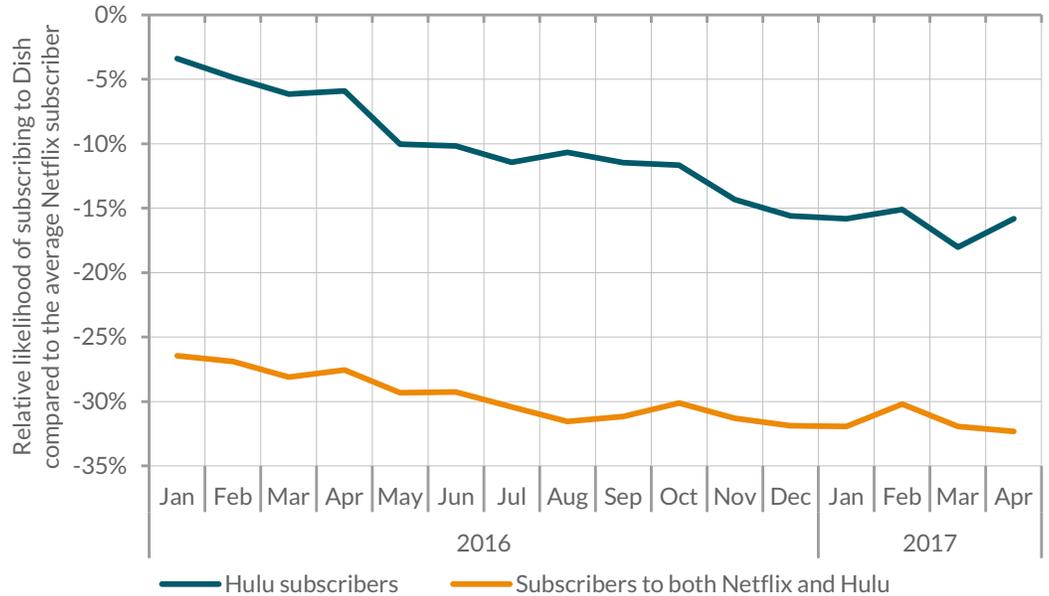
Source: M Science

However, if we peg the likelihood of subscribing to DISH relative to the average Netflix subscriber, we can observe some very interesting data points and trends. (We peg relative to Netflix to normalize for inconsistencies in demographics and geography.)

- We found that the average Hulu subscriber is approximately 16% less likely to subscribe to pay-TV (DISH) than the average Netflix subscriber.
- That doubles if the individual also subscribes to Netflix. Individuals who subscribe to both Netflix and Hulu are 32% less likely to subscribe to pay-TV (DISH) than those with only a Netflix subscription.
- Trend line is also important here. In both cuts of the data, either pegged to the average consumer or the average Netflix subscriber, the likelihood of Hulu subscribers also being pay-TV subscribers is declining. This suggests increased replacement value relative to pay-TV over time, likely a function of both improved content and product, as well as broader industry pressure on pay-TV, in our view.



Figure 4: Impact of Netflix and Hulu on likelihood to subscribe to DISH (proxy for pay-TV)



Not only are Hulu subscribers less likely to have pay-TV than the average consumer, but on average they are becoming increasingly less likely over time.

Source: M Science

Hulu with live TV (and maybe YouTube TV) is more likely to be disruptive than existing virtual MVPD or slim-bundle services.

It is too early to get a good read on the pace of adoption of either Hulu with live TV or YouTube TV or begin to understand their impact on the pay-TV ecosystem. However, we view the two services as likely to be materially more disruptive than services such as Sling TV and DirecTV Now have been. Hulu, as we highlighted above, already exhibits a relatively high cord-displacement profile and it's logical that its subscriber base could be more prone to pay-TV replacement, rather than strictly cord-cutting, as well. Additionally, services from outside the existing pay-TV ecosystem do not have to be mindful of cannibalization. Furthermore, both Hulu and YouTube already operate respective video services at scale, which we believe should make for higher-quality services at launch in comparison to the challenges faced by both DISH and DirecTV at the time of their respective VMVPD launches.

We acknowledge the power of the pay-TV and broadband bundle. That said, we do see room for the balance of this decision to become less cut and dried. Historically, cable providers' ability to leverage a higher price for stand-alone broadband in combination with the greater simplicity of a single box and the trouble of switching to an often lower-quality and limited-selection service made the decision to stay with your cable bundle fairly straightforward.

That may change as virtual MVPD services offer more channels and provide cloud DVR. Most importantly, the content and experience is increasingly ubiquitous and seamless across devices, an area where we expect Hulu and YouTube to leverage their respective strengths.

Hulu with live TV is still in beta and begins at \$40 per month. YouTube TV is currently only available in New York, LA, the Bay Area, Chicago, and Philadelphia. Plans for the service begin at \$35.



Figure 5: Feature and Price Comparison of Virtual MVPD Services

	Hulu with Live TV	YouTube TV	DirecTV NOW	PlayStation Vue	Sling TV
Starting Price (per month)	\$40	\$35	\$35	\$40 (\$30 in certain markets)	\$20
Channels (in entry-level package)	More than 50	40	More than 60	More than 45	More than 20
DVR	Yes	Yes	No	Limited	In Beta
On-Demand	Yes	Yes	Yes	Yes	Yes
Device Support	Android, Apple TV, Chromecast, iOS, Xbox One	Android, Chromecast & Chromecast-enabled TVs, Computers, iOS	Amazon Fire, Android, Apple TV, Chromecast, Chromecast-enabled TVs, Computers, iOS	Amazon Fire, Android, Apple TV, Chromecast, Chromecast-enabled TVs, Computers, iOS, PS3, PS4, Roku	Amazon Fire, Android, Apple TV, Chromecast, Chromecast-enabled TVs, Computers, iOS, Roku
Simultaneous Streams	2	3	2	5	1 (\$20 per month) 3 (\$25 per month) 4 (\$40 per month)

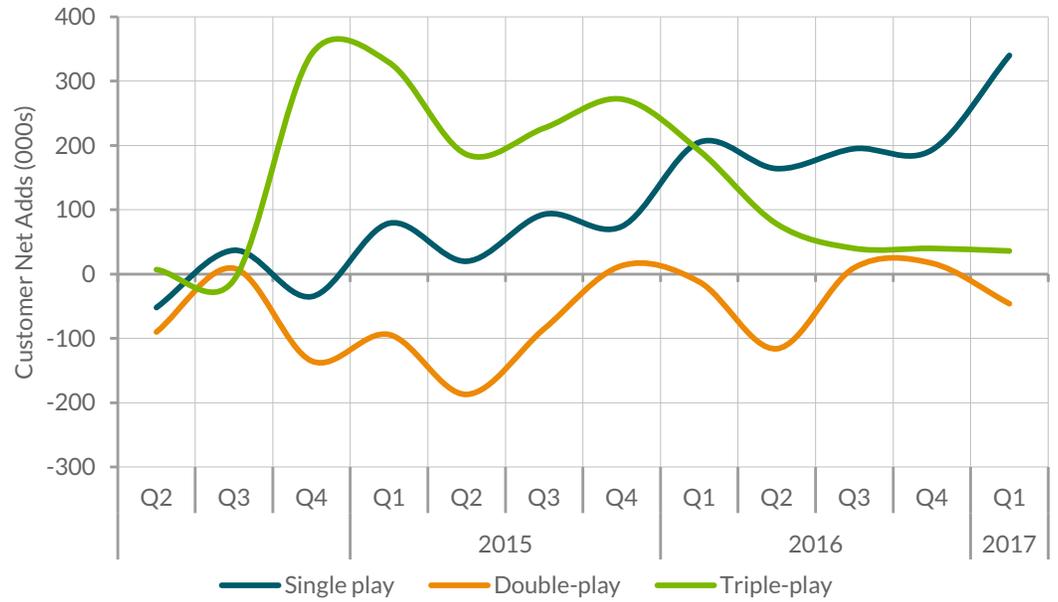
Source: M Science

Video and broadband trends show signs of de-coupling, an indicator of increased cord-cutting.

Among the various factors contributing to cable share gains in recent quarters, higher-quality broadband has been a critical contributor. In turn, the cable providers are extremely efficient in converting a generic customer addition into a double- or triple-play subscriber. However, on a net basis, Q1 suggests this ability to maintain multi-play may be deteriorating, as evidenced by the dramatic increase in single-play contribution at Charter and the weakest video add trends relative to total customer adds in more than two years at Comcast (refer to charts on the next page). Our new methodology for tracking cord-cutting indications suggests this trend is likely continuing in Q2 for both Comcast and Charter.

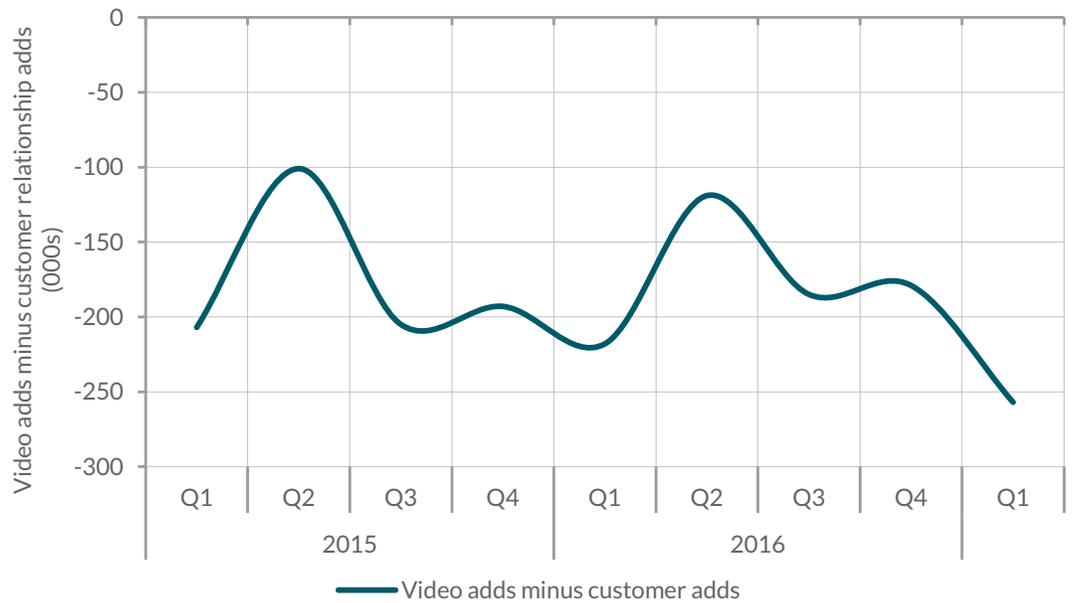


Figure 6: Charter Net Adds by Bundle



Source: M Science, Company Reports

Figure 7: Comcast Video Adds in Relation to Customer Adds



Source: M Science, Company Reports

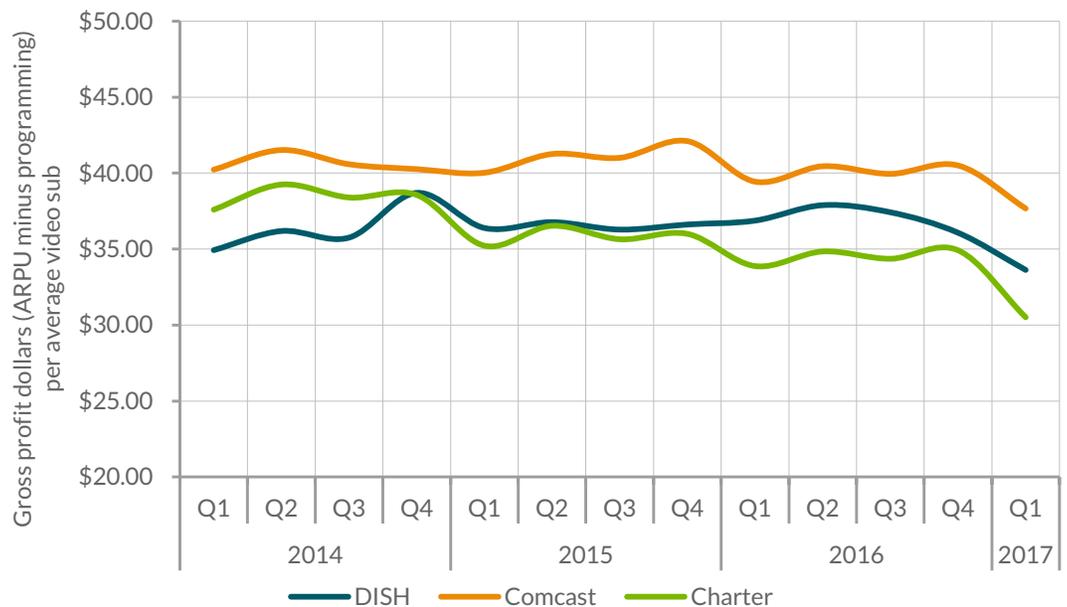




Pay-TV ARPU growth is not keeping up with programming fee growth, driving video margin pressure.

Specific ARPU trends for broadband and pay-TV are subject to bundle allocation, and cable providers clearly have pricing power on the broadband side. Nevertheless, video gross margin (ARPU minus programming fees per sub per month) have taken a hit as programmers continue to seek aggressive rate increases while the service providers have remained relatively consistent with their explicit video pricing. Additional competition in the form of virtual MVPD offerings from Hulu, PlayStation Vue, and YouTube TV will likely further pressure video gross margins going forward.

Figure 8: Video Gross Profit Dollars per Subscriber per Month



Source: M Science, Company Reports

New entrants could drive further deterioration in DISH Networks’ fundamentals in 2017.

DirectTV Now has shown only modest contribution to VMPVD in total, according to our data. The question remains whether the virtual MVPD space is a zero-sum market or whether new entrants are accelerating total adoption. That is even more uncertain with the recent entry of Hulu and YouTube. However, DISH’s first-mover advantage with Sling has allowed the service to capture the vast majority of share to date. In the process, we estimate DISH has grown the Sling subscriber base to greater than 1 million.

However, DISH’s success with Sling has covered up the erosion of the company’s core satellite TV business. Despite reporting 512,000 total pay-TV net subscriber losses over the past four quarters, we estimate DISH’s core satellite service has actually lost a million subscribers, having been offset by 500,000 Sling net adds over the same period. If Sling share loss as a function of competition is not offset by a corresponding acceleration in awareness and total VMVPD market growth, we believe Sling adds could decelerate. If this occurs, the reported total pay-TV net losses at DISH would become materially worse, all else being equal.

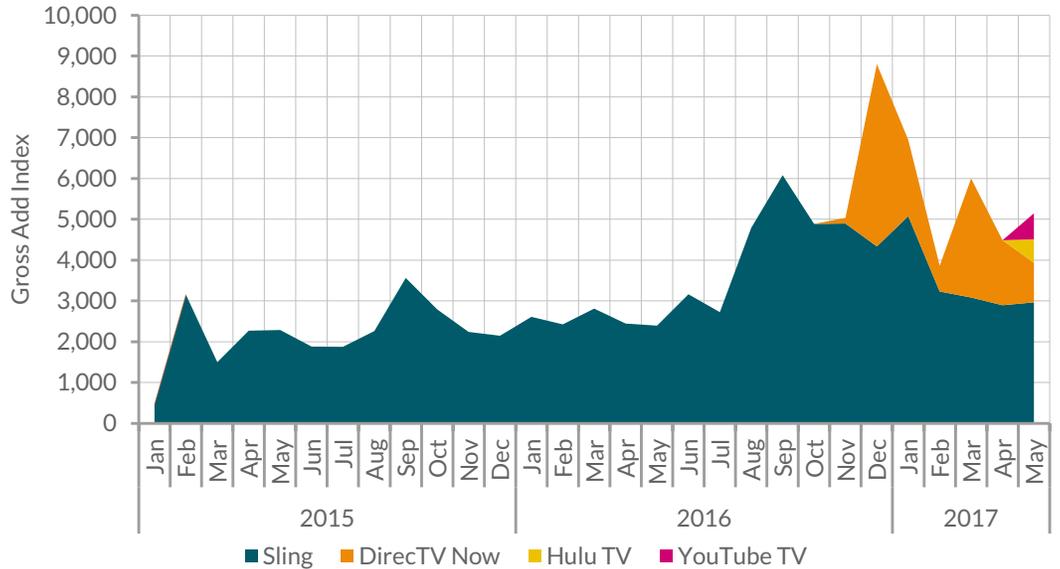




We actively track DirecTV and Sling TV subscriptions. Subscription activity for YouTube TV and Hulu with live TV remains much too small to be a meaningful contributor (<2% the size of Sling; Hulu is still in beta, YouTube TV is soft-launched in five markets). We track what we believe is only a portion of PlayStation Vue subscribers, due to how it is billed.

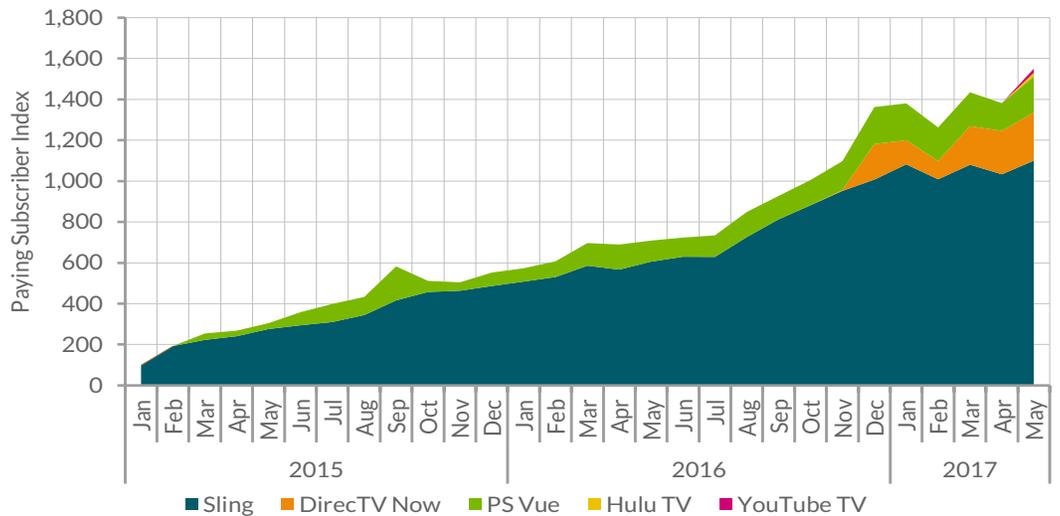
Sling TV clearly dominates the market and interest in DirecTV Now has been lumpy since launch. In May, Hulu TV and YouTube TV represented approximately 23% of industry gross adds (excludes PlayStation Vue). Given both services are still in soft launches, we would expect their share to increase dramatically through the summer.

Figure 9: Gross Adds by Virtual MVPD Service



Source: M Science, Company Reports

Figure 10: Total Paying Subscriber Index



Source: M Science, Company Reports



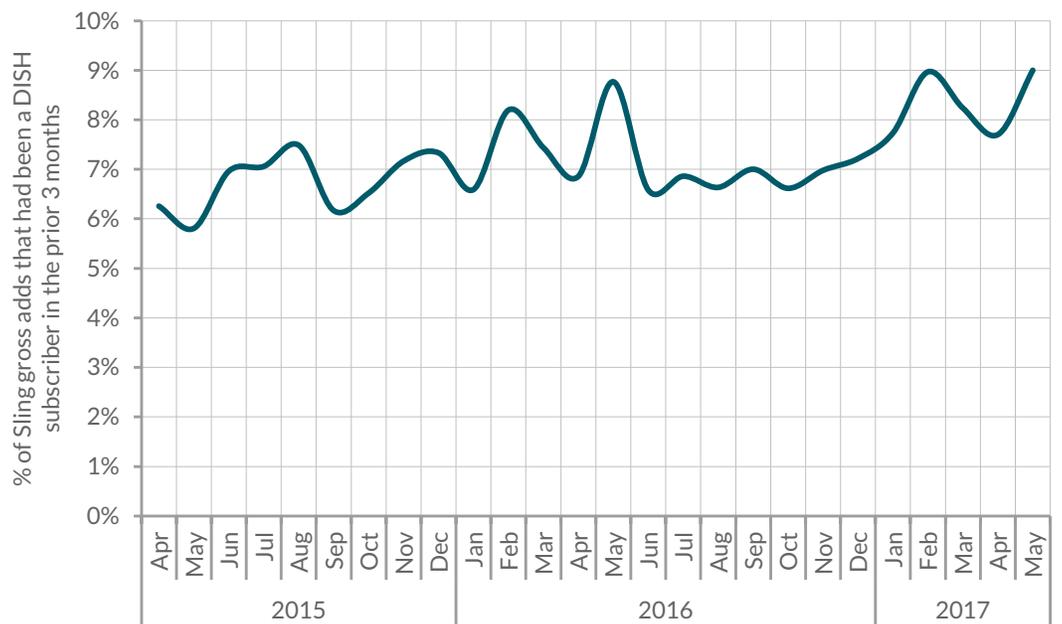


Cannibalization of traditional pay-TV subscribers by VMVPD services has been low to date; we expect this to change with the entry of services from outside the ecosystem.

We use DISH's Sling TV as the best proxy for the rate of cannibalization of traditional TV from virtual MVPDs. And to DISH's credit, the vast majority of new Sling subscribers had not recently been DISH subscribers, supporting the idea that the majority of subscribers were cord-nevers (disregard for a moment what this means for exactly how organically poor DISH's satellite service trends have been). We estimate the percent of Sling subscribers that had been DISH subscribers in the prior three months ranged between approximately 6% and 9% since launch. While this appears to be on a very modest upward trend, and has been near the high end of that range in recent months, we still believe cannibalization is objectively low.

That said, Sling and DirecTV have likely been purposeful in their promotions and marketing to avoid more significant cannibalization of their hypothetically at-risk legacy subscriber bases. This is not and will not be the aim of new services from Hulu and YouTube, which will seek to indiscriminately capture share. We expect this to result in more material cannibalization from the virtual MVPD market as these services build momentum.

Figure 11: Percent of Sling Gross Adds That Had Been DISH Subscribers in the Prior 3 Months



Source: M Science, Company Reports





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