Company Participants

- Geetha Ranganathan, Analyst
- Michael Greeson, President and Co-founder
- Woo Jin Ho, Analyst

Presentation

Geetha Ranganathan {BIO 15007716 <GO>}

Good morning, everyone, and welcome to today's briefing on Pay TV 3.0 The Rise of the App Aggregator. My name is Geetha Ranganathan. I am a Media Analyst for Bloomberg Intelligence. And today, I am joined by my colleagues Woo Jin Ho, Senior Technology Analyst for BI as well as Associate Media Analyst, Amine Bensaid.

We are very fortunate to have Michael Greeson, the Co-Founder of TDG Research, who will be our guest speaker today. Michael is an 18-year veteran of the connected consumer, pay TV and broadband media spaces and is widely acknowledged as a thought leader having accurately predicted the pace of broadband diffusion, the rise of streaming video and the ultimate impact of these trends on the TV ecosystem.

Before we get started, a few housekeeping items. Today's presentation will be recorded and available for playback. You can ask a question by submitting one to the right of the slide. We will have a Q&A session at the end of the presentation. A copy of the slides will be distributed after the event. And here is just a quick plug for BI. BI is Bloomberg's research platform available to all terminal users. We currently have about 280 research professionals across the globe covering over 135 industries and 1,800 companies.

Let's get right to it. Cord cutting has rapidly transformed the industry and the objective of today's presentation is to not only take a quick look at where things stand, but more importantly and interestingly to see how things are poised to shake out over the next few years. The term cord cutting gets thrown around a lot. This is just basically when users let go of their expensive traditional cable or satellite subscriptions, mostly for a cheaper alternative. And this has cost the US pay TV universe to go from about 100 million subscribers in 2015 to about 90 million at the end of last year. So the industry basically lost about 10 million traditional subscribers over a three-year period.

And so here's a chart that just shows you cord cutting in action. On BI, we track quarterly metrics, subscriber gains and losses. These are video subscriber gains and losses by operator. And if you just see that red box there, we had record traditional subscriber losses in Q1 of this year. So close to almost 1.3 million losses. But along with this whole trend of cord cutting, while this has been in full force, the industry has also witnessed the emergence of a new breed of distributors called vMVPDs or virtual operators who basically aggregate linear TV content and deliver it over the Internet. And so the vMVPD, the main attraction there is they're priced really cheaply compared to your traditional subscriptions of typically around $40 or $45 a month versus the $85, $90 that you shell out for a traditional video subscription.

So here's a quick lay of the land in terms of the virtual services. We've lost about 10 million traditional subscribers, but the industry has managed to regain some of those subscriptions. So currently, we have about 8 million people on these virtual services. And while the industry has ramped up subscribers on these vMVPDs pretty quickly, over the past few years -- over the past few quarters, we've noticed a somewhat disconcerting trend because there's been a slowdown in momentum in some of these services. So especially I want to call out Sling TV and DirecTV now. We've seen some deceleration in subscriber gains there, but at the same time, Hulu live and YouTube TV have really been seeing some acceleration. So that's it from me for now. And I'm now going to invite Michael to give us his take on the industry.

Michael Greeson

Thank you very much, Geetha. Good morning, everyone. Thank you again for joining us. This part of the presentation is -- we're going to lay out some groundwork here in terms of how TDG sees the recent past of pay TV, both legacy and virtual and what the next five years looks like and why it looks that way.

But to begin, I'd like to introduce a three-tier model in terms of how we see pay TV. We say that -- we see it in terms of pay TV 1.0 being the legacy operators, the facility-based operators that own the network, own the CPE. And they -- if you imagine a simplified value chain that ranges from content creation to aggregation to distribution to consumption, the legacy pay TV operator would control the latter three, but for the most part remains out of the content business. This is not to argue they don't have ancillary content interests, i.e., Comcast and NBC, but the operator themselves is not creating their own branded Comcast content to distribute through the service. They license other networks and studios, bring that -- aggregate that content, distribute it and they have company owned CPE. And by the way, this is again on the -- in the end [ph] and this has been the traditional model for some time.

Now, in terms of how we see the future of legacy MVPD subscriptions in the States, we -- our 2017 forecasts, which are illustrated here, we started with around 95 million. We used a three-vector approach in forecasting the future and that's not something we commonly do. We commonly just use a single vector, but there's so much uncertainty at the moment as to how -- just how deeply the legacy pay TV losses will be, how deep they will be over the next five years. But we guided our clients in 2017, we said to focus on the bottom half of these vectors, where you see the red area there. And so, we were forecasting a movement from 95 million in 2017 to somewhere between 73.5 million and 79.7 million by 2023. The 2018 numbers came in at approximately just under 92 million and so that's right between our worse -- or our low line and our mid line. So we're tracking at -- currently at the -- in the direction that we informed our clients we would be.

Now, the question for many is just how significant -- after a record setting Q1, how significant will losses continue to be, will they continue at a 3 million to 4 million subscriber loss per year or will that taper off sometime in the next five years. We're not particularly optimistic about that and we're still advising to prepare for worst case. And -- just for those of you that are new to TDG or haven't heard of us, we've been forecasting legacy pay TV since 2006 in our five-year forecast are usually off less than 2 or 3 percentage points. So we have a good team of forecasters here and we think we have a grip on the future of legacy pay TV.

Now, why is it getting -- why do we predict it's going to continue to get worse before it gets better, especially in light of several firms that seem to repeat annually that next year is going to be different? Next year will be the year that legacy pay TV subscriptions. The losses are tempered and a bottom is found. Well, because when we track these -- when we track consumer sentiments via our survey -- our different surveys that we use, this is from benchmarking the connect-to-consumer, which we've been doing for 10 years, we always ask them on a seven-point scale, how likely they are to cancel or to downgrade their service and we take the top two rankings, which means moderately likely to cancel or definitely will cancel and we pool those together into a top two score. And if you notice the blue bars, you'll see that they continually moved up and the Q1 research or the research I just did in May indicated 13% top two. That's the highest top two we've seen since we began tracking these scales. So, at least according to these measurements, the opportunity or the number of people that are considering cord cutting is on the rise. No, it's not declining. So we expect these trends to continue.

Now, the second, pay TV 2.0 is virtual MVPD, so we're using that same four-point value chain, if you will. And to illustrate how the function of these pay TV 2.0 operators differs from that of pay TV 1.0, they aggregate the content, they distribute the content, but there's no -- it's not over a private managed network, it's over the public Internet, the open Internet and it's a bring your own device model. One of the advantages of virtual delivery is that it's TV as an app, so the smart TV or connected TV, the ancillary devices, streaming boxes, game consoles, et cetera. But there's no QoS guarantee all the way down to the premise that that is assured. So they basically take a two of the four elements of the value chain and they're content-agnostic, they'll license whatever content is needed, just like pay TV 1.0 and they'll also use just about any device they can get their app on to and so they're platform agnostic.

Now, as Geetha had pointed out, we have seen some really interesting growth in a couple different virtual MVPD operators, our subscription bases are growing quickly and that includes YouTube TV with over 1 million subs and, of course, Hulu with live TV most recently reported in May, they have over 2 million paying subs. So, and this particular chart shows Sling TV, DirecTV now and as Geetha said, they've run into a wall even experiencing losses late in -- late Q4 and then virtually no growth at all in Q1 of this year. And it illustrates Hulu with live TV and then others include -- the others include the litany of operators that were on Geetha's list. And we're monitoring each and every one of them, but the breakout right now seems to be Hulu with live TV and that's a very fertile model for a number of reasons. We'll talk more about that when we get to pay TV 3.0, why this particular model might work.

I did want to make a quick note, and this is something that's not commonly understood when it comes to calculating pay TV subscriptions. What a lot of people do generally is they'll take the number of legacy subs and the number of virtual subs and they'll add the two together and say that's the gross number of pay TV subscribers. That's actually -- that actually gives you an incomplete picture, it's lower than that because there is a significant overlap in two years of surveys now. Our data reports anywhere between a 30% and 45% overlap among, what we call, dual service subscription among vMVPD subscribers. 40% of them also subscribe to a legacy pay TV service.

So, why would anybody subscribe to both? Well, we ask that question continually so we get an insight into the motivations. And what we find is that it's largely driven by an uncertainty as to whether the virtual service is going to live up to the standards that they expect -- that they've been led to expect from their legacy service. Other options include access during travel, things of that nature, but it's primarily dual service subscription because of their uncertainty about the reliability of virtual services. But this overlap continues. We expect that to decline over time as people become more comfortable with virtual pay TV services, but at the moment, there is significant overlap that's always important to take that into consideration.

As to our forecast for virtual subs, we also start with 2017 as the beginning point and around [ph] 5 million subscribers at that point. And we advised our clients that growth here -- that movement here will be toward the upper half of this diagram, the red area, and we had approximately 8 million subs at the end of 2018. So came in a little bit above our high forecast, but we are not changing our guidance. We believe that the recent gains will be tempered going forward, which we do believe that will fall, we'll have somewhere between about 19 million and 24 million by 2023, most likely almost split in the middle of that when we get to that year. So we could -- we think growth will continue here, but that growth is very different than, say, a legacy addition would be. It's a different business relationship, there's no contract involved, it's very easy to churn. And for comparison, the top two numbers for cancellation proclivities for virtual is about 75% higher among virtual subs than legacy subs. So they're even more likely to churn than legacy subs are. And that has to be considered when you're looking at the long-term viability of this model. So I -- this section was intended just to set the stage in how we see pay TV 1.0, 2.0 and for later as we progress in the conversation and we'll expand pay TV 3.0 and what that means.

But in the meantime, I'm going to turn this back over to Geetha and Woo Jin and -- to talk about cord cutting and who's -- the winners and losers in this space. So (inaudible).

Geetha Ranganathan {BIO 15007716 <GO>}

Thanks, Michael. So before we get into how the industry evolves with pay TV 3.0, I just wanted to quickly touch on how cord cutting has shaped adjacent industries and some of the winners and losers from the whole cord cutting revolution. So one of the platforms that has benefited greatly has been Roku. The stock has been gangbusters, more than tripling since the beginning of the year. Woo Jin Ho covers

Roku for Bloomberg Intelligence and will now tell us a little bit about how the company has been able to cash in, while folks have ditched their cable subscriptions.

Woo Jin Ho {BIO 15225630 <GO>}

Great. Thank you, Geetha. And as Geetha said, I am the Lead Analyst of Roku for Bloomberg Intelligence. For those who are unfamiliar or uninitiated with Roku, the company is a leader of over-the-top devices led by its Roku Stick. And the company has competed effectively versus larger peers, such as Amazon, Apple and Google. Since it was early on in the streaming trend, it was a spin out of Netflix in 2008 and quite frankly it rolled the streaming adoption wave led by Netflix's success.

While Roku is known broadly for its players and, well, we acknowledge that it's important to build out its account base, where Roku really makes their money and will generate its long-term growth is in its ad driven platforms. Now, as you can see in the chart, quarterly perform -- or platform revenue has exceeded player revenue since the first quarter of 2018. And the business is on track to deliver over $700 million in platform sales in 2019 and over $1 billion in 2020 based on consensus expectations. Now, if you look at 2015, that was roughly about $50 million.

So how does Roku make their platform money? There are four main buckets. One, they license the Roku operating system to the third -- to set-top box and TV manufacturers, right, like a Vizio and a TCL. They have revenue sharing agreements from third party as thought providers, such as HBO or Showtime that are sold on their platform, Number three, branded channel buttons. So on the Roku remote, you have the Netflix button, Hulu button, the DirecTV button. They get some money for that. And then lastly the biggest bucket or the largest growing bucket is advertising on their home screen, such as their banner ads, first party video ads and third party video ad revenue sharing agreements.

Now, advertising will be the biggest engine of growth for Roku going forward in our view and what we've learned from its results is that, one, there's a growing appetite for free ad driven streaming content. Now, it's -- Roku channel has had a good reception from its user, it's already a top five streaming app or channel according to the company. And while we -- while some may view the Roku channel as the place where video content goes to die, the content -- the company has actually grown its content library from a few hundred title at its inception to roughly 10,000. And these titles are all opportunities for Roku to insert targeted ads and generate sales.

Now, we may be getting to the point where there is subscriber redux, where it's getting tougher to justify the cost of adding new subscription video on demand services. Now, according to Deloitte, on average, US dreamers subscribe to roughly three services. Let's just say simply put a Netflix, a Hulu and an HBO. Once we get beyond three or four services (inaudible) purposes of the cost benefits of streaming versus traditional pay TV. And -- but at the same time, the amount of content continues to grow, amount of video content continues to grow and some of these smaller niche providers may need to come up with a -- come to a strategic decision to whether it be a subscription based or an ad based revenue model. And our view is that Roku being one of the prevailing streaming platforms, coupled with its targeted ad insertion technology, it's well positioned to be one of the beneficiaries of the broadening landscape of that base streaming content. So as these -- as a long tail of subscriber apps continue to grow, they'll have to go somewhere and it'll be one, two or four of the leading platform providers that we think Roku is going to be a beneficiary for that.

That's it on Roku. And I'm going to pass it over to Geetha.

Geetha Ranganathan {BIO 15007716 <GO>}

Thanks, Woo Jin. So while Roku has been a big winner, we have the content owner, so the big media companies on the flip side who have really kind of borne the brunt of a decline in subscriptions. So I just wanted to pull up this chart here quickly to give you a sense of the number of cable subscribers or cable network subscribers by each of these big media groups. And this is data that is reported by Nielsen.

So the affiliate fees that media -- that big media gets paid is directly related to the number of pay TV subscriptions. And so if you see the chart back in 2018, we track two columns there. One is just the traditional-only subscriber base and the other one tracks traditional along with virtual. And so, obviously, there has been a little bit of cushioning effect provided by the virtual subscribers, but you see a 4% decline in traditional subscribers. That gets kind of paired to about 1% in 2018. We're actually seeing a little bit of an acceleration, so the situation is kind of worsening a little bit in 2019 year-to-date. So 5% just traditional-only and only a 2% -- which kind of gets paired down to a 2% moderation when virtual services are included. So, obviously, subscribers still falling.

Now, this has kind of been the whole reason, this has been kind of the precipitating force for not only a wave of mega media mergers, which has included the Disney-Fox merger, the AT&T-Time Warner and whatnot. It is also responsible for the pivot to the all important direct-to-consumer and we're going to see a whole flood of new services coming into the market later this year.

But with that, I'm actually going to pass it back to Michael to talk about pay TV 3.0.

Michael Greeson

Very good. Picking up on Geetha's last comments there. These -- the decline in subscribers for each of the major networks, the industry, the pay TV industry in general. This is trickling down and impacting the bottom lines of the networks that are licensing content to these services and is a -- and this is, again, a part of the new reality that these companies are having to adjust to. So as she noted, you're -- this is precipitating a large number of both vertical and horizontal consolidation. That is to say, not only are large content companies buying up other large content companies, they're also buying up those that create the -- create other -- create and distribute other types of products, so they buy up the technology companies, they buy up the distributors. They have a presence in CPE. They're looking to take advantage of the new value chain that's emerging. And to offset these losses, they're bypassing -- they're choosing to add to their arsenal a product that bypasses traditional gatekeepers. And in lieu [ph] of that offering branded D2C services as was referenced for what we expect two of the largest players to the rolling services here in the next six to nine months that being Disney+ and WarnerMedia services.

And key to this and another condition that is setting the stage for this evolution of the pay TV model is a wave of tribalism that goes with this. When a powerful brand decides to launch their own D2C service, the first thing they're naturally going to do is hoard their high value content. So Disney, for example, chose in 2017 not to renew its Netflix contract. That was pretty much the first drop, if you will, in the bucket and others were paying close attention to how that played out and what Disney was -- how Disney was going to -- what they were going to do with that high value content if they weren't going to distribute it through the (inaudible) aggregators.

So they're holding that content to populate their own branded direct-to-consumer services. And this creates a very different choice environment for the consumer, offers them a new way to access some of their favorite content, but it also complicates the -- as was pointed out earlier as well, it also complicates the budgeting (inaudible) video services. It can become complicated very, very quickly when one gets in, when one has more than three, four, five different services.

So the question is, how does D2C play long-term and how does it impact the pay TV business model? Well, the reason why Disney and others are choosing to launch these services is, as indicated on the prior slide, the conditions are right for this, the timing is right and they were closely -- and folks have been closely watching this success, the early success of HBO Now, which has approximately 5 million subscribers and CBS All Access and Showtime, which had combined approximately 5 million subscribers -- pardon me, got 8 million subscribers as reported in 2018. But they're -- here's the interesting part, and this seems a bit pie in the sky to me, but this is -- their internal estimates were suggesting 25 million by 2022. That's -- these were -- this is publicly released information. These are their expectations. That's astounding because our forecast call for -- in terms of the number of subscribers not actually the number of subscriptions, but the number of subscribers, to be around 45 million to 50 million by 2023. So if CBS's estimates are correct, they could make up -- half of subscribers would be using CBS All Access and Showtime.

I find that somewhat untenable, but then, again, the rapid growth in these services has been surprising to most folks. And the Disney+ expectations, you've probably seen them from multiple firms, our own -- our only internal research, I will say in a very clear voice that this is the most -- this service tested more positively than any hypothetical service we've ever tested in TDG's history. The number of consumers that are interested in paying $6.99 a month for that particular content combination was astounding. So they're expecting 60 million to 90 million subscribers by 2024, two-thirds of those from international viewers. In other words, the domestic subs will range from 20 million to 60 million by their own numbers by 2024.

Now, that's a lot of gray between 20 million and 60 million. Given the enthusiasm that we observed in our May survey for this new offering, there's no -- I don't seeing any reason why Disney can't have as many of 20 million subs by 2021. This -- I think this service will move very fast. But more and more of the major networks, again, they're holding their content, pulling back their high value -- eight of the top 10 most viewed shows on Netflix are owned by third party studios or third party networks that are launching their own D2C services. So don't be surprised to see not only the office disappear as NBC gets further along in its D2C efforts, but other important shows disappear from the menu and which -- it's another story, but we're talking about Netflix's future and how they will deal with the fact that a lot of their high value third party content will be leading to populate these services.

Now, it's important that when I talk about pay TV 3.0, I want to make sure everyone is familiar with the technical or legal FCC definition of what a multi-video program distributor is, what we call an MVPD. That was originally defined as such, I won't read the entire definition for you, but I did want to focus on the last part. It's a program -- it's a distributor that makes available for purchase by subscribers or customers multiple channels of video programming.

Now, channel was traditionally understood as a signaling path provided by a cable television system. Now, with the emergence of virtual MVPDs, these conceptions were broadened to include Internet delivery, which essentially reversed many years of case law that required an MVPD to control the entire distribution infrastructure back in network and CPE. As I illustrated in pay TV 1.0 in the previous chart, that's the end-to-end service that they provided and that has been challenged by the rise of virtual. And I'm not going to wait around until the FCC decides to update its definition of MVPD to suit my purposes.

I think that the technology and the business models are evolving at such a pace that the FCC will be lagging in this respect and ultimately it becomes -- it's not truly relevant whether the FCC agrees that what I call pay TV 3.0 is indeed an MVPD. That's not important to me. What's important to me is that I'm able to advise my clients what the future looks like and what the future looks like is more like this type of chart. Pay TV 3.0, I'm talking here about the D2C aggregators, such as Amazon channels, such as the Roku channels, such as Apple TV, such as the ecosystem that Hulu is building, which includes a virtual pay TV service, but it also includes aggregation and curation of D2C apps.

And as you see, I've got all four of the elements of the chain here connected under this model, but I do want to clarify these red boxes around a couple, so we're clear on what the concepts mean. D2C aggregator -- or these aggregators don't necessarily populate the service -- their curated app store, if you will, it doesn't contain their own proprietary content, for example Prime channels doesn't have any Amazon channels or content collections in it. That's available to Prime video subscribers or Prime members, but they can easily dovetail some of that content into their own type of D2C channel if they wished. They still serve as an aggregator, there's no doubt about that. In terms of distribution, the -- these aggregators don't distribute the content in and of themselves, they provide a gateway to interact with the app. The app and the company that owns the app are in charge of distribution and guaranteeing a quality experience.

And consumption ultimately, it's still a BYOD model, but interestingly enough, many of these D2C aggregators have significant plays in the CPE realm. Amazon with Fire TV, Roku with the Roku streaming boxes, et cetera. So they create a virtual integration here, where you can imagine them creating some of their own content aggregating, distributing some of their content or certainly facilitating the distribution of content through a branded portal to an end user and they could own -- in many cases, they will own the same device -- their own branded device in a consumer household.

So it's a very different play on the four key elements of a pay TV operator, little variances along the way, but to the end user, the result is an integrated service that acts very much like a pay TV service. And these type of providers, they aggregate a wide variety of third party apps, they facilitate the purchase of streaming channels. We'll call these apps and HBO Now is an app, but it's important that we start using the word channel here because this is branded content from a studio that's -- that app is virtual -- that is a virtual channel, if you will.

And they do this through a single branded portal and, again, often paired with branded hardware on top of that. They provide a one-stop-shop for premium channels, the HBOs of the world and other D2C apps. It's a curated marketplace. And importantly, they integrate billing, access and content search into that gateway. So it provides you very much a set-top box type experience. When you pull up the Amazon channels app, you can surf around your channels, you can add one quickly, drop one quickly. You can -- what we call toggling, a new phenomenon that we're observing and we're launching studies on here in the next two months. That they can switch back and forth between these channels at will all within the same payment ecosystem.

Amazon has your credit card, so you could quickly add without having to set up new credentials or quickly cancel without having to worry about -- or without having to worry about billing relationship with, say, HBO Now, you talk directly to Amazon to make sure that you're being properly billed and you're getting the access that you need. So it's a portal that's very similar to a guide on a -- they -- one would argue that it's even easier to use than a guide on your pay TV system. And it's just a virtual interface that becomes the entry point for -- what will become the entry point for a lot of people that are watching streaming TV instead of just traditional live linear TV.

Well, while primarily on -- these are primarily on-demand services, you're seeing an increasing amount of live content, especially sports come into these portals via major league services as well as ESPN+, you'll see DASAN [ph] entering into these app stores as well. So it's a mix of on-demand and live channels and we expect that you'll see more and more live sports especially coming into the direct-to-consumer space.

Now, just to give you an idea of the brand power of the folks involved and we've already touched on Roku a little bit, let's start with Amazon. 55% of adult broadband users report using Amazon Prime, with 38% watching Prime video and that's where Prime channels resides. Right now, we see that Amazon is -- Amazon channels as responsible for somewhere between 30% and 35% of all direct-to-consumer app purchases. That's how powerful this store is.

Now, we observed something similar in late 2017 when we were doing an early 2018 when we did our initial D2C research the dominance of Amazon channels was striking. And what it said to us is that there will be others, we said in early 2018, others will join this model and we particularly pointed to Roku and Apple as candidates. And this has in fact transpired. Roku recently reported 27 million active users, up 40% in just 12 months. And importantly, they're also strongly considering producing originals now. I remember talking with my D2C analyst early last year. And I said we need to keep our eye on Roku because they're very likely to get into original content. He dismissed that idea, he said, no, they're going to stay with the model they've got and not playing originals. Well, earlier this year and late last year we started hearing rumors about Roku getting into the originals business. So, they're certainly considering that.

Jump to Apple TV for a moment, that's the reason why we know very little about the service other than what you see when you go to the store or open up that gateway. It's very much -- it's modeled very much like Amazon channels and Roku. It's a curated app store, but Hulu is really interesting. I saved that for last because they recently reported about 28 million users. And that's up 3 million in five -- in basically four months between the end of last year and May 1st. That's astounding. And they've got over 2 -- they've grown to over 2 million subs in early May for their Hulu live TV service. What's more -- and they're creating their own curated app store within the Hulu environment.

What makes this particular model so dangerous as a pay TV player in general not just the 3.0 player is that they can offer a pay TV 2.0 service that is a virtual pay TV service in combination with an on-demand service with ads and on-demand service without ads. And so you have a combination of four different elements here. And where Hulu's job -- Hulu's goal is is to make it easy for the Hulu user to switch between those different services based on their needs. So for example, if I want to watch an NFL season, I can go over and subscribe to a certain service for a few months, watch a bunch of NFL games, discontinue that service and then switch over to maybe an on-demand service. You flip back and forth between apps and services with great ease. They're trying to create an ecosystem that combines all the pay TV 2.0 entry point all together, so that a user doesn't have to leave the Hulu ecosystem to customize their services to their particular needs at a particular time. That's a very strong model.

Now, for the -- one of the key drivers in our observation about -- prediction about the rise of pay TV 3.0 is the amount of research we continue to do on this subject, one of the most fascinating questions we ask is we tested about -- we told consumers you've got -- imagine out of these 20 channels we've listed below that you can choose five channels to populate a TV service, any five you want and we included in that list (inaudible) apps like Netflix and premium channels like HBO as well as families of networks like NBC (inaudible) et cetera and we define what channels were involved in that. No big surprise, Netflix topped the list as the most popular channel in this service, Disney finished second.

But when we asked -- actually asked them -- asked folks about the five services they'd like to have in this new service, we follow up with a question on would you prefer that to have a single operator or a single service that aggregates all of these and you have a unified interface, you've got unified search, unified billing, all of this or do you prefer to use the individual apps that are optimized for certain viewers, like HBO Now has a very specific app, and I want to have a relationship with HBO. Well, about 55% of all respondents said that this was universal across all adult broadband users, 55% of them said they prefer a single app that aggregates all of these networks together and provides a single interface and search. Now, 22% had no preference, but only 22% said they preferred separate apps.

So the future of pay TV looks a little bit like the past pay TV in that the aggregate -- the role of the aggregator is not going to disappear. In fact, as was mentioned earlier, you get to a certain point where there's diminishing returns in having four or five separate apps. Not only is it too expensive, but it's difficult to navigate, it's difficult to search across all of those to find the types of content that you want. So even though we're splintering up into these individual D2C apps, we expect these aggregators to begin to offer what we're going to call a bundle of packages, a bundle of individual apps. So, for example, they might tier the three tiers of services, they might say for X a $30 a month, let's say for the sake of argument, you can get one premium app that would be from a premium channel listing HBO, Showtime, Cinemax, et cetera or -- and then you could also get three mid tier channels and then you could get five low tier channels and you bundle those together and give them a discount for multi-app purchases.

Now, if that happens, that's going to take out the cost factor in having -- the cost element in considerations of whether I have too many apps or not. The first notion is, well, yes, I have too many apps because I'm paying too much. I might as well get a pay TV service. Well, if that can be addressed by sort of bundling and these would be real skinny bundles, not the make-believe skinny bundles that were advanced through virtual providers and ultimately the costs have increased to such an extent that they're not much less expensive than full on legacy offerings. These type of offerings could be legitimate skinny bundles, where you have -- you may only have eight to 10 channels on it, but they're exactly the channels that you want. You can buy them individually or in bundles. The bundles make a lot more sense when you start talking about more than four or five different apps.

So this was very striking research that we've done on this subject and it led us to believe that there is a model here and we believe that especially Amazon and Roku, they are looking closely at this model right now, how to aggregate these apps and present a form of a paid -- form of a pay TV bundle to their multi-app subscribers. So the future is virtual -- the future is streaming, the future is TV as an app, but the future of the aggregator in this new universe, this new pay TV 3.0 universe, is quite solid and we believe that these large -- a lot of these large tech media companies will be the ones to provide these gateways and this -- and introduce this new model.

So that's all I have for right now, so I'll turn it back over to Geetha.

Questions And Answers

A - Geetha Ranganathan {BIO 15007716 <GO>}

Thank you so much, Michael. That was absolutely fascinating. So that concludes the prepared remarks section and we will now switch to Q&A. So just give us a moment here. Okay. So our first question for you Michael, what do you think of cable network affiliate fees? Via aggregation, do you see them going up or down in the coming years?

A - Michael Greeson

That's a good question. I think they'll continue to go up and it's because there's so much pressure on the model right now to generate revenue and the margins are razor thin. So they'll look for these -- look for additional fees as a way to make up for some of that revenue. What do you think, Geetha?

A - Geetha Ranganathan {BIO 15007716 <GO>}

We've actually seen -- I mean, gone are the days when we had 9%, 10% increases in affiliate fees. We've kind of seen them now settle at more like low to mid single-digits. Obviously, the vMVPDs like what you just mentioned Michael have kind of helped them stabilize quite a bit. But I think as more and more content owners go D2C, I'm not sure that they are going to go up substantially, I think. The best that -- the best case scenario for the content owners, for the big media companies is that they're going to try and maintain probably like low single-digit growth probably, but it's going to be really interesting, especially with the whole D2C revolution.

A - Michael Greeson

I agree. And there's -- again, there's other competitive pressures on them not to rise -- not to increase that rate too quickly for fear of just spurring more -- just encouraging -- fueling the D2C fire. But I certainly don't see them not growing. Low single-digit increases makes sense, given the context.

A - Geetha Ranganathan {BIO 15007716 <GO>}

Next question. Using an analogy from Internet usage, do you view these video aggregators like a portal i.e., Netscape or a search engine i.e., Google?

A - Michael Greeson

Both, both. They'll integrate search and discovery and recommendations across multiple apps. Now, this is when they're more mature. Of course, we don't have any of these offerings on the plate right down. This is looking toward the meta, looking in the next several years how things are likely to evolve. Once they get to that point and offer such a service, one of the key benefits of it is the integration of search, discovery and recommendations across all of one's apps. So I think that they will incorporate search and serve as a portal gateway. It's not an either or. I think it's both.

A - Geetha Ranganathan {BIO 15007716 <GO>}

Next question. If software is a solution for the bundle, doesn't it just become like a browser, a commodity product?

A - Michael Greeson

That's a very, very interesting point. Yes, but to the extent that its IP that's owned by the individual company, Roku owns its own IP and will design its interface as it sees fit. And Amazon will do the same when they get to that point as well. So each will still have their own -- develop their own interfaces for their own service and it won't be -- you could say that the -- you could argue it would be commoditized, but there won't be that many players that are doing this. So -- it doesn't mean there's going to be a million similar products out there or thousands of similar products out there, it will be that these aggregators have interfaces that operate similarly or may even look similar. To that if you want to infer from that that's somehow commoditized. I -- yeah, it's a tough word to use in that context. They will all have similar features and functionality, but there's no doubt that each gateway will try to outdo their competitors with the features of that gateway, the ease of use, the different options available to it, the power of their search engines, the power of their recommendation engines, et cetera. So it's commoditized -- it has the potential to become commoditized only to the extent that they share common feature sets but within the individual gateways I can imagine these companies [ph] a small fortune to make sure that that gateway, that interface, that portal if you will is optimized so they have a value add or a differentiation point from other competitors.

A - Woo Jin Ho {BIO 15225630 <GO>}

And this is Woo Jin Ho. And just to chime in here. It all depends on the form factor of consumption. And if we just think about mobility for instance, it could potentially be commoditized or browser-based, Roku can be accessed via web browser. But if you look at the -- where a lot of the consumption is coming from, we're still seeing a fair amount of consumption coming through TVs, either via through the Roku Stick or the Amazon Fire Stick or the Apple TV Stick. You just can't carry around your TV along with you and they're only one of four platforms that you can use in the United States, and its Amazon, Roku, Apple or -- and even Android TV. So if you win (technical difficulty) one of those four platforms on a TV or a set-top box, you could potentially win it on the smaller form factor side as well. So is it a commodity product by definition? Potentially yes. By the level of deployment right now, no. And the other thing, I think Michael pointed out very elegantly, is that there's a lot bigger underlying technology that's helping -- assisting the aggregation here. It's not only, number one, the aggregation of the different content, but also the billing. So there's a lot of back-end integration that needs to be done by these providers, but I don't know if a -- another third party may be willing to do. Google has the wherewithal to do that, Amazon has the wherewithal to do that, Apple has the wherewithal to do that and little Roku has a lot of technology, this -- focus on this one bit of TV aggregation and billing available to them. So, I'm hesitant to say that it's going to become commoditized at least in the intermediate-term.

A - Geetha Ranganathan {BIO 15007716 <GO>}

Okay. Next question. If Amazon [ph] is going to be able to make billions of dollars on advertising, their own content and IMDB, doesn't that put them in conflict with other services? I think we lost Michael here. But here's another question on Comcast. Comcast explicitly says, it's aiming to position its Xfinity service as a program aggregator similar to Amazon or Roku. What do you see as Comcast opportunities, challenges here?

Yeah. This is a really interesting question. So Comcast just recently introduced a product called Flex, where it is charging about $5 a month and working as an app aggregator. I think what they're really trying to do there is kind of -- they've already made their shift, their pivot to connectivity. And so that's really where their thrust is. And so I think that the Flex is really a clever way to get people back into the ecosystem. I think ultimately what Comcast is realizing is obviously the main product focus for them over the next few years is going to be broadband and to try and to get more people to stream and take higher tiers, basically consume more data and have higher price tiers. So I think that's definitely a big opportunity for them. Of course, the bigger challenge for them obviously is are they precipitating cord cutting and they're obviously trying to be very careful not to do that. It's going to be interesting to see what happens when they launch their NBC service in 2020 and how -- again, they have to tread very, very carefully because they are exposed on both sides here. But I think as of right now, it looks like they have a pretty good strategy.

So Michael, we have a few more questions here. There was one question on Amazon. If Amazon is going to be able to make billions of dollars on advertising their own content, does that put them in conflict with other services?

A - Michael Greeson

That's -- what's that old expression, the fox guarding the hen house. Yes. Everybody is in competition with everybody because of the level of consolidation that's going on. Sure, of course. Of course, they'll be in competition. There's an inherent tension there again when you -- vertical and horizontal consolidation, you're bound to compete with yesterday's partners or today's partners or tomorrow's competitors. So absolutely.

A - Geetha Ranganathan {BIO 15007716 <GO>}

Okay. So I know you spoke a little bit about sports and zone [ph]. A question here on regional sports networks. What is your view on regional sports networks? Where will they fit in in the pay TV 3.0 ecosystem?

A - Michael Greeson

Just as an app, I would assume, just as their own D2C app just like many of the RSNs or many of the set of college leagues, et cetera, I would include in this conversation. They have their own linear channels, so they have their own apps. So if they have a premium fee-based app, then they -- those -- they would be included as an option. Now, I am sure for any given sports, there's limitations on the -- on how -- who owns what rights and to -- how are those rights windowed or limited. That will be certainly an inherent issue in how -- what role they play, but I think that to the extent if the leagues continue to grow their D2C traffic like they're doing now, there's no reason why the regional sport networks can also be involved. Again, I'm acknowledging that the negotiations to get those rights, to introduce such a service may be problematic. That's not my area of expertise. But there's no reason -- there's no prima facie reason why you couldn't -- why you shouldn't think that developing apps and including such apps in these types of portals and these types of curated aggregator stores. No reason to think that they wouldn't be included in it. Now, I think there's a play, then the question will be, whether or not they can generate sufficient revenue from these types of relationships.

A - Woo Jin Ho {BIO 15225630 <GO>}

Michael I have a question. So you were talking about the content creators and then as we move to the D2C, the platform vendors are going to be beneficiaries. I know we focus on like the top 10 plus sports content creators, like -- and content aggregrators, let's just say, Netflix, HBO and Disney. But what about the hundreds of other smaller content creators on a subscription basis? I mean, there's got to be so much room for content acquisition by consumers. I mean, what did those guys do? Do they stay in a subscription based model or do you think they'll have to cut -- look at themselves in the mirror and say maybe we have to switch to an ad based model? How do you think that will play out over the long-term?

A - Michael Greeson

I think that's a great question. I think it really depends on the brand of the network, the channel we're talking about. We did a really interesting report, it was probably a decade ago. We wrote this report on small channels in the age of streaming. This is far ahead of the curve. The author was Colin Dixon, who many of you on the call will know. He was lead analyst for TDG back then. And he analyzed AMC Networks going D2C and US -- let's see, it was US -- or USA Network and then the Outdoor Channel. And the conclusions of that exercise was that this -- if it's a strong niche like the Outdoor Channel is, they might do quite -- they may do really well there. But not, if they're competing with offering to a -- it won't bring in enough revenue relative to what they could have brought in if they were part of a pay TV package. A large network like USA, their reach is substantial and their power is substantial. They could do a D2C offering and probably do pretty well with it.

So if you got scale, you could do well. Or if you're smaller and you've got a really legitimate niche, where your linear viewers who are truly dedicated to your content and that's part of their lifestyle like an Outdoor Channel would be for maybe a hunter or a fisher -- fisherman, then you might stand a chance on a fee based subscription level. But I would argue that the first play would -- for a small channel would probably be to go fee based through one of these portals and then wait before you do a free ad based service.

I see free ad based services as -- I know they're -- all the rage right now and that's largely driven by the success of SVAD or AVAD [ph] aggregators, like Pluto TV and XUMO and Tubi. They're the ones that are pulling in millions and millions of users, but the individual -- let me back up. I want to take -- let's take fuboTV as an example. For them, they've not been able to grow their subscriber base very quickly and that's disappointing because they've got a really solid offering, especially if you like sports, but they just launched a free ad based streaming service and they're creating their own content. So this is another example of someone -- of traditionally a model that didn't create their own content. The pay TV operators, you've got them creating their own content. But they've launched that service. And I -- to me, it was -- when I heard they were going to launch (inaudible) that tells me just how poorly they are doing on their paid subscriptions. It was a last resort offering and they're spinning it as a marketing that will help (inaudible) some of their content not necessarily their best content on there. But if they give it away for free, we ultimately will grow our subscriber base. It's not an end in itself, it's a means to an end of growing subscribers. And I think that that dual approach, let's move away from a pay TV operator to an individual channel, I think that dual approach could be helpful. And I think you're going to see a lot of people starting with fee based, adding ad based or even fewer will do the reverse of it. If you do ad based and you're not doing very well, it's silly to add a fee based. I mean, you've proven to yourself you're not going to have the market for it. But we -- I see a dual approach there. I see individual app, much like Hulu does. You can pay X for ad free, you pay Y to put up with some ads. I think that dual approach is likely for smaller channels. But I think it's critical that play -- if they're going to play in the D2C game that they've got to get into these portals, as I mentioned earlier the -- that imaginary model or that fictional model I made, you buy one premium service, three mid tier services and five low tier services, they want to make sure their brand is in that one of those tiers. So that when a hunter goes on to, I can optimize my package here, I better find Outdoor Channel on it because that's what I watch on regular TV. And if I can't get it on there, the value of the service is significantly diminished because that niche is not filled for me. And this is supposed to be a customizable TV service, in theory. Just big brush strokes here. Yeah. So that --

A - Geetha Ranganathan {BIO 15007716 <GO>}

Got it. Okay. So thanks, Michael. We are actually out of time. Thank you all for joining us today. If you have any further questions, please feel free to reach out directly to any one of us. Our emails are listed here on slide 26. Thank you once again Michael for a fantastic discussion and thank you all.