Title: Cutting the cord

Abstract

Internet and Digital Media are disrupting the traditional Media/Entertainment industry and the Pay TV broadcasting Model, as consumers are increasingly switching to the internet for content. A new trend of “cutting the cord” has emerged and seems to be accelerating among consumers who are dissatisfied with the traditional TV subscription and vie to receive the content through the internet.

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Introduction

The internet and Digital Media have been disrupting the traditional Media/Entertainment industry for some time (example, Music, Newspapers, etc.) (Fig.1) and now, the Pay TV broadcasting model appears to be under threat as consumers are increasingly switching to internet for media content.

Throughout this article we refer to “traditional TV” or “Pay TV” as the content consumers receive through subscription commonly referred to as cable TV but it also includes services received through satellite or telecommunication companies. Also, we refer to the video content consumers receive through internet as “IP TV”, “digital TV”, or “OTT” (Over-The-Top) interchangeably.

![Fig.1](image)

There is consumer dissatisfaction and a general sense of malaise towards the traditional TV (cable and satellite) providers (Fig. 2). This is caused in part by increasing subscription fees, falling network TV’s ratings, and increasing consumer reliance on smart mobile devices for internet content which lead to consumers feeling that they are paying for a bundle of channels they normally do not watch.
Today consumers could access most of the same digital TV content through the web using mobile devices i.e. mobile phones, tablets and others and, with high broadband penetration into the marketplace, set top boxes and TV equipped with internet capability. Pay TV ecosystem has been resilient but is increasingly susceptible to declining viewership, due to consumers having access to increasing amount of online content – IPTV is becoming a reality.

As a result, some consumers are “cutting the cord” and unsubscribing traditional TV, while some are “shaving the cord” by opting for the cheapest TV subscription to watch basic channels and using internet as a supplement for watching other video content, and some (esp. millennial) are “cord nevers” who solely rely on the internet for content. **The transition to using the internet as a channel for content is inevitable and a tipping point will happen in the next 3-5 years.**

## Section I: Pay TV vs Digital Landscape

### 1. Background and Market Dynamics

#### 1.1. Pay TV Conundrum

Pay TV Audience is shrinking and network ratings are falling (Fig 3). To make up the difference, content providers are increasing the fees for service providers, which is being passed on to consumers in the form of increasing subscription fees. As if that wasn’t enough, consumers are further alienated by the frequent blackouts of specific channels due to hiccups in negotiations between content Networks and Service providers.

This has resulted in Pay TV steadily losing subscribers for the last 7 years, with a combined net loss of 85000 subscribers in 2013 alone. While cable companies suffered its...
worst year ever in term of subscriber loss in 2013, its revenues continue to rise as they are charging the remaining customers more in subscription fees, masking and distorting the macro decline of traditional TV.

Another anomaly is the counterintuitive effect that the decline in traditional TV is having on ad sales. Here too, prices are going up even though the number of commercials is actually going down. The reason for this is that it’s still extremely difficult to gather a large, mass audience in any kind of media, mobile or otherwise. For example, the Super Bowl - on traditional TV — is the only media event that can reach more than 100 million people in a three-hour stretch. This scarcity in large audiences is still keeping traditional TV as a valuable format, and it’s declining but still-large enough audience to attract advertisers. At least for now!
1.2. Digital backdrop – technology driving adoption

As a percentage of the overall population, the US broadband penetration, both landline and mobile/wireless, is high and growing which makes online/OTT content accessible to a broad swath of the US population (a similar situation exists in other parts of the world, but this paper is focused on the US market only) (Fig. 4).

At the same time, IPTV technology has been proven, and provides a solid backbone for OTT video, with many established players.

Advancements in technology have helped commoditize OTT video. The adoption of Broadband has replaced the need for dedicated Coaxial cable connections to traditional TV. Similarly, the
availability of Cloud Computing has reduced the capex and technology barriers to host the content and provide real-time feedback and analysis of users’ viewing habits. Open source movements, to open up the hardware design and provide ready to install software bundles, have brought down the cost of streaming media content to the masses and provided more accurate and insightful measurement of the content’s popularity.

The barrier to view internet content on TV has also been lowered. It used to be that the only way to view digital content on TV was to connect it to a computer. Now, standalone set-top boxes or internet ready apps that are built into TV, are used to connect the home internet to TV. The most popular of these devices is Roku which provides more than 1000 channels. Most of these channels are streaming video content (including Netflix, HuluPlus, Amazon videos and even Facebook) but more traditional TV content is starting to appear as well. Some of these traditional content still require cable or satellite subscription, for example: HBO Go and Showtime. Some channels seem to be available without subscription (e.g. PBS or History channel) and some channels are in between where they can provide partial content without traditional TV subscription (e.g. WatchESPN). Each of these channels is effectively an app that can stream any online content.

![Diagram of cloud computing and set-top box integration]

So far, the winner appears to be Roku who has provided an easy and open mechanism that allows anyone to create a new channel. In fact, beyond the official channels provided by Roku, there are many private channels (most notably CNN videos and CNN international live streaming) that are not yet officially available by Roku but consumers can add them if they know the specific code. Roku’s success highlighted an unfulfilled need by consumers to be able to watch online content on their TV and this has attracted companies like Apple, Google and Amazon to provide their own devices.

This new surge of popularity has also prompted TV manufacturers to add their own internet connectivity with the line of smart TVs and can be connected to the Cloud directly reducing
the need for a separate set top box. Commoditization of these technology components have helped bring down the cost of the set top devices further increasing their adoption.

1.3. Market Observations

**Macro View:**
Due to consumer’s preoccupation with the Web (Internet and Social media), the habit of consumers is changing from watching TV to watching TV and other video online. The content includes premium online-only videos as well as popular TV shows, live Sporting events, and Movies.

As for distribution medium, broadcasting video via traditional TV is being replaced by OTT distribution of video on the internet. Consequently, Smartphones/Tablets are doing to the TV, what TV did to the Big screen (screen form factor changes, but content survives).

The worldwide traditional TV Market has become a battlefield between the new Internet companies and the traditional TV media companies and service providers. Undoubtedly, this trend leads to upheaval of existing entertainment ecosystem and creates significant opportunity for both new and old players in this market segment. Opportunities have emerged for both creating and distributing new online content as well as distributing traditional TV content through direct streaming to consumers.

**Related/Complementary trends:**
- Ubiquitous and High-speed internet access - Broadband (Cable, Fiber), Wireless (LTE), each with ~70-75% penetration, and is still increasing
- Smartphones, Tablets, and internet enabled TV screens are the majority of the viewing platform today
- Millennial (Cord Nevers) impaired by the great recession, are unwilling to pay for bundles and demanding more economical access to content
- Dissatisfied Cable/Telco customers (Cord Cutters) are following suite, demanding fewer channels ala carte/on-demand (10-20 channels)
- Lower income consumers opting for Smartphones as "must-have" screen and foregoing TV altogether, using Wireless/Wifi to get entertainment/news/sports via the web
- Wealthy consumers spending more time on tablet screens

In summary, consumers are demanding fewer channels at a lower price point (don’t want to pay for entire Pay TV bundle). In essence, Cord-cutting has become an economic phenomenon. Rapidly rising prices are squeezing lower-income consumers out of the ecosystem. Moreover, consumers, who are used to browsing online, now expect a unified experience across TV, mobile, and the web.

All this is changing the traditional model for producing and distributing commercial or social programming. Whoever provides a seamless user experience at reasonable cost wins.
The intriguing question is if the internet is just an additional platform with parallel ecosystem (accretive for content programmers and existing ecosystem), or competing platform that will completely disrupt Traditional TV ecosystem altogether?

2. TAM Definition (Revenue, Growth projections)

The focus of this white paper is only on **IPTV (Digital Video delivered OTT) area** (Fig. 6), which is a subset of the overall Digital market and the paper is concentrated on **US market only**. Global market is much bigger and if TV hardware is included it would be even bigger (Fig. 7). Apple has proven that it is not just subscription and ad revenues at stake in this battle, hardware plays a major rule. However, this white paper is focused only on **content & distribution**, not hardware.

![Diagram](image)

**US IPTV market addressed by this White Paper**

**Fig.6**
3. Business Model and Ecosystems

The Internet is poised to fundamentally change the TV market. With online video, there is a parallel ecosystem and some diffusion in distribution of content, which gives opportunities for contenders to disrupt the incumbents.

3.1 Traditional TV content ecosystem

Content gets bundled into channels, which are then packaged by media companies. These media packages are yet again bundled by service providers and provided to consumers.
Bundling is the key to traditional TV ecosystem. Beyond the three layers of bundling mentioned above, service provider companies have created a fourth layer by bundling Broadband (Double Play) and Phone (Triple Play) to customers as well.

Bundling provides a good way to subsidize the cost of content production. Content and service providers essentially have a symbiotic commercial relationship with each other. Bundling allows content providers to mainly operate on up-front revenue basis and concentrate solely on providing content. Similarly, bundling helps service providers to work only the quality of content delivery. On the other hand, bundling has increased dissatisfaction for consumers as they may be paying for the content they are not interested to watch. An alternative approach is known as a la carte where consumers can pay for individual channels they want to watch. In the most extreme form, consumers would have a choice of paying for an individual video content such as a movie or an episode in what is known as an OTT (Over The Top) model.

Tradition TV ecosystem has so far strongly resisted the unbundling but as the gap of consumer demand and what they can deliver is widening, cracks in the bundling strategy is also widening.

The phone service bundle is pretty much broken already, as many consumers are already opting out of home phone and use cell phone, and for the ones who still need it, some have chosen VOIP providers (e.g. Vonage) with cheaper monthly fees and some have purchased a VOIP telephony device such as OOMA and reduced the monthly fees to only the minimum mandatory government fees.

The cable video service bundle has proven more resilient, as often, the cable providers are also the ones providing broadband internet services. In effect, they have increased the cost of broadband internet to allow basic video channels and, as a result, many consumers that may intend to cut the cord completely, end up switching out of the more expensive video plans i.e. “shaving the cord” by having the basic channels in addition to the internet.

### 3.2 Internet TV content ecosystem

Regular content from movie studios in digital format is aggregated by online video service providers i.e. Netflix, Hulu, Amazon and Roku and are directly streamed to consumers through internet al a carte.

Digital content like YouTube shorts and online courses are directly available on internet and may be viewed by consumers. Increasing availability of free WiFi hotspots provided by the likes of Starbucks has given birth to a generation of users that don’t pay for any kind of Internet service. Fig. 8 depicts sections 3.1 and 3.2.
3.3 Traditional TV revenue ecosystem

Total revenue of traditional TV ecosystem is about $150B. About $80B is the revenue from subscription and video on-demand which is charged by service provider companies, shared with media companies and all the way back to the beginning to fund the creation and production of new high quality, long form content. The $70B marketing dollars are a separate, revenue stream which is comprised of $30B upfront buys that are committed to at the beginning of the year. Another $30B is in network scatter for inventory that is not bought on an upfront annual basis and, finally, $10B in spot buys which is reserved for local markets. Overall $70B of the whole revenue goes to major conglomerates.

3.4 Internet TV revenue ecosystem

Total revenue of Internet TV ecosystem is based on subscription and advertisement. The subscription revenue goes to internet video service providers i.e. Netflix, Hulu and Amazon.
The advertising revenue is about $6B for video. Internet providers still make money which is not considered here. Overall digital ads spending in US is about $43B. Fig. 9 depicts sections 3.3 and 3.4.
Section II: Disruption Strategies and Trends

Online companies are employing many different strategies to attract bigger audience and to disrupt the traditional TV ecosystem e.g. new a la carte packaging (library of video content), new content (short form video), new devices and interfaces for better user experience (UX), multi-platform support (smartphones, tablets, PCs, digital TVs, game consoles, web-connected devices), and so on. In the long run, the killer weapons are really the OSes (iOS, Android, Windows) which will service as the backbone for Apps in the new platform, integrated with hardware and web analytics data. The data in turn is used by online advertisers to better target users in order to derive better ROI on ad dollars.

However, the incumbents’ strategy has consistently been to block new players, at least until their own strategy is fully formed.

1. Disruption Strategies (by Online Video providers)

- Engage the audience: advertisers, broadcasters, and film studios will follow
- Leverage Search and Mobile (Smartphones & Tablets) as a wedge to grow market share in ads space and establish a robust Social/Interactive OTT TV platform
  - Ads (interactive, native display & video), Gaming, Short Video, eCommerce, etc.
- Customize/unbundle premium content and provide a unified online digital experience: Ultimately better services to consumers
  - Unbundling dwarfs any other risk to the Pay TV ecosystem, ~50% of total TV ecosystem revenue would evaporate – fewer than 20 channels would survive in an a la carte world
- Invest in premium online content
- Invest in high speed wireless and Fiber to the home
- Use copious user profile data for better ROI to advertisers
- Hardware: (Roku, Apple TV, Amazon FireTV, Google Chromecast, etc.)
  - Better connected home experience (with Consumer Electronics manufacturers) and software powered programming for improved User Experience
  - Better remote control and TV Everywhere than Pay TV operators

2. Trends: Some Chinks in the Pay TV Armor?

Some trends have started to emerge in tug of war over viewers and dollars.

Four key areas:
1. Use of Mobile Devices for video (2nd/3rd screen)
2. Premium Content availability online (unbundling)
3. Change in Viewership (demographics)
4. Digital Ad growth (2nd order effect)
Consumers are spending increasing amounts of time and sharing digital content online, including short videos and digital photos. Since internet enabled devices integrate online content with digital videos much better, viewer preferences are changing. Watching trend is moving from watching TV to watching Video Online, particularly mobile devices. More eyeballs are moving away from TV to Mobile screens (2\textsuperscript{nd}/3\textsuperscript{rd} screens) (Fig. 10). Mobile video traffic is surging exponentially including long format video (Fig. 11). If this trend continues, mobile screen will impact the TV screen in the same way the TV screen impacted the big screen years ago.

Mobile Video consumption is growing. 44% of smartphone users and 61% of tablet users regularly watch video on those devices. 45% of smartphone viewers and 71% of tablet viewers watch long-form video content, be that TV programs, movies or sport events. Mobile engagement is observed more on Apps than websites (Fig. 12).
Early on, online video was mostly viewed on computers and traditional video was viewed on traditional TVs. With the advent of DVR devices (e.g. Tivo) and through the use of set-top boxes (e.g. Apple TV, Roku, …) more online content can now be viewed on TV. Also, as more of the traditional content is available for streaming, some consumers are viewing these traditional TV content on mobile devices.

We are also observing the shift of the digital content from its original amateur short film format toward more premium content. Another new phenomenon in the digital content production is the role of big data. The House of Cards original series produced and distributed by Netflix is a good example. Traditionally, a pilot episode is made and then the rest of the series is produced but in the case of house of cards, Netflix already predicted it is going to be a hit based on careful study of the subscriber viewing habits and interest. Amazon also started a number of original series where they posted the pilots of many series to gather real-time user feedback before they produced the remaining series (Fig. 13).
Viewership by Format – Traditional TV is in decline

Viewership of time shifted, digital video, TV on computer and Mobile Video is on the rise which points to the fact that traditional TV viewing is on the decline (Fig. 14).
Digital Viewership is increasing
Hours spent across all age demographics is on the rise, which points to the fact that the increase isn’t just a millennials phenomenon (Fig. 15).

OTT Streaming is proliferating
Millennials are leading the trend shift to digital viewing. Streaming seems to be the dominant format (Fig. 16).

Ads are a lagging indicator – 2nd order effect. Mobile Ad growth is high – case in point Q3’14 earnings from Facebook and Yahoo were positive, driven by growth in Mobile Ads.
2014 AD Spend
Traditional TV ad spend is about $70 billion and showing a 3-4% year to year growth. This proves the resilience of traditional TV ecosystem. The main reason for this increase is that traditional TV advertising prices are on the rise. In contrast, digital TV annual ad revenue is about $6 billion which is a very healthy ~20% year to year growth (Fig. 17).

![eMarketer TV Spend Projection](image)

![eMarketer Digital Video Spend Projection](image)

Fig. 17

Digital Ad Revenue Increasing
Video Ad revenue still small compared to traditional TV but increasing along with overall rise in every format (Fig. 18).

![Top Online Ad Formats, by Share of Revenues](image)

Fig. 18

Digital Ad Forecast
As of 2014, TV advertising revenue is about $70B and digital advertising revenue is about $42B. With the current rate of growth, digital expected to overtake TV by 2018 (Fig. 19).
Section III: Risks

Trends are positive, but the battle is still on! The transition away from traditional TV is getting closer to a tipping point. Here are a few factors to watch:

- **Powerful Incumbents**
  - The incumbent strategy is simple: block new players until their own strategy is fully formed.

- **Oligopolistic practices by Broadcast Internet providers**
  - Netflix strikes deal to pay Comcast to ensure online videos are streamed smoothly.

- **Legal/Regulatory uncertainty**
  - Net Neutrality is still being heated debated and the outcome has significant impact on the future of Internet TV.
  - Recent Supreme court ruling against Aereo as a digital rebroadcast company may set a precedence on hugh and lengthy legal battles.

- **Sports content availability**
  - Sports is one of the final strongholds for traditional TV. Most sportscasting networks contracts will be up for renegotiation by 2018.

- **Content creators are not as financially incentivized in existing digital ecosystem as in TV ecosystem and unless this obstacle is removed switching to digital TV would be delayed.**

- **Fractured Online ecosystem**
  - Digital TV ecosystem has many players and still is evolving. Major consolidations would be necessary to create worthy adversaries for traditional TV players.
Section IV: Predictions

1. Chronological changes

**Now:**
At this point in time, majority of households have access to broadband internet and there is a lot of digital content available for streaming to PC, mobile devices and increasingly on devices like Roku or Apple TV. So far, the majority of that content has been in the new form of short videos in YouTube but increasingly more traditional TV content is made available online. With the recent announcements from HBO and CBS to stream their content, most of the popular traditional TV content is now available online. This is one of the important dominos that has fallen and we predict that remaining content providers will follow suit to avoid being locked out of the increasing number of cord-cutting and cord-shaving consumers.

**Short Term - 1-3 years:**
The last key popular content is sports and at this point, streaming content e.g. WatchESPN is only allowed as a bundle with traditional TV subscription. We predict this domino will fall in the next three years due to consumer demands. However, at this point, despite the high rate of growth, the digital video advertising is still small for the sports content providers to risk their current investment in the traditional system. On the other hand, digital video advertising provides a much more accurate targeting and within the next three years it will get to a point that pushes sports content providers to add unbundled streaming services.

**Medium Term - 3-5 years:**
Once the popular content is available through the online media, the remaining dominos will rapidly fall as many consumers will downgrade their subscriptions and completely opt out of the traditional TV. Broadcasters will also follow through with their online offering. Traditional TV providers will be facing a difficult choice of continuing to resist the trend and risk losing customers or embrace the change, and offer a la carte programming and perhaps, add digital mega channels for Hulu, Amazon Video and Netflix. Online TV advertising will reach a critical point of at least 25% of total advertising revenue and will continue to grow as the traditional TV advertising shrinks. The fractured digital advertising ecosystem will go through significant consolidation and big players with significant funds at hand such as Google and Facebook may attempt to bridge the gap from the content to the consumers in the digital advertising ecosystem through acquisition and their own developments.

**Long Term - > 5 years:**
Online video advertising revenue will equal or exceed traditional TV advertising. Also, as pre-funding for the content production is tied to the current system and will go away with streaming, the content production will shift to leverage new technologies especially big data analytics.

Cutting the cord
Over time, traditional Telco/Cable companies will become mostly broadband providers. Alternate high speed broadband access, such as Fiber to the home, will emerge to compete with Cable. There is also a strong possibility that with the explosion of the availability of online content, consumers may start to feel nostalgic about traditional TV and embrace new bundles provided through the winners of the content consolidation battles.

Broadband pipe ownership is the key. Until there is an alternative last mile solution, cable companies and telcos will not be completely disrupted.

2. Business Impact

Based on previous content disruptions by digital media (i.e. music, newspaper, and etc), distributors have typically been disrupted first, e.g., Tower Records for music by iTunes, Borders for books by Amazon, Blockbuster and Hollywood video by Netflix.

However, since cable and telco companies control the broadband pipes, the situation here is different. Weaker players like set-top-box and Satellite providers will be impacted first, e.g. Satellite providers will resort to servicing mostly the niche/rural segments.

Content providers are playing the field to maintain a foothold on advertising and affiliate fee but will work with whoever controls the eyeballs.

The set-top box providers for digital content e.g. Roku will initially benefit from this trend but will quickly get disrupted by the TV manufacturers and eventually disappear altogether. Their opportunity is to establish partnerships with major TV manufacturers to use their set top software and monetize capturing user data and providing the data to the advertisers.

A wave of major consolidation has started. Already AT&T is in talks to acquire DirecTV. At the same time, Comcast is acquiring TW Cable, to solidify it’s stronghold on broadband.

The online video advertising is getting more popular with the advertisers due to accuracy and effectiveness for targeting the audience. This market is currently very fractured and will likely consolidate in the future.

Section V: Conclusion

Traditional TV ecosystem will continue to resist change. The ecosystem is quite resilient because of its oligopolistic control over the bundling of popular content and its financial prowess to push back on consumer demands for at least another few years. But the transition to provide content via internet is inevitable due to consumer preference in the form of smart mobile devices as well as advertisers preference to reach more targeted audiences through
online advertising. Dominos are starting to fall, and a tipping point when majority of consumers will view content through the internet will happen in the near foreseeable future.

**Section VI: References**


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National rankings consistently place UC Berkeley's undergraduate and graduate programs among the world's best. Berkeley is home to top scholars in every discipline, accomplished writers and musicians, star athletes, and stellar scientists—all drawn to this public university by its rich opportunities for groundbreaking research, innovative thinking and creativity, and service to society.