

“That Movie Was Over the Top!”

How Technology is Changing the Way We Consume Media

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INTRODUCTION

Technology is continuously changing, and nowhere is this more evident than consumer electronics. Mobile phones are increasingly powerful and are becoming more capable devices called “smartphones”; our televisions are bigger, more energy efficient, and have amazing high-definition resolution; and the Internet continues to evolve and we can access it with a growing list of devices at lightning speed. These technologies and others are now beginning to open the door to a new, flexible and fast way we will access a wide range of video entertainment content – “Over The Top,” or “OTT” video. OTT video is video delivered through the Internet, in real time, when you want it, and the freedom to watch it wherever you want on a range of consumer electronics devices – including the TV in your living room and a range of mobile devices. With the living room now becoming Internet connected through new TVs, Blu-ray disc players, and game consoles, our options for accessing video content are about to expand well beyond what the cable and satellite companies have offered for many years. Things are changing once again.



EVOLVING TECHNOLOGY

Since the introduction of the television decades ago, people have been watching TV shows and movies in their homes. As technology has continuously changed, so has the way we consume media. From the initial broadcast (over the air) television networks, where consumers had only a few channels and programs to watch, we have migrated to cable, satellite, and fiberoptic-based television content, with hundreds of digital – and now high-definition digital – channels from which to choose.

Along the way, with the introduction of the VCR (video cassette recorder), and with a brief stopover with the infamous Betamax format

and then VHS video format, we found that we could record television programming and home videos for future viewing. As more people had VCRs, video rental stores emerged and became wildly successful – with the likes of Blockbuster, where you could rent any movie you wanted, bring it home, watch it and return it to the store a couple of days later (watch out for those late fees...).

Technology changed again, and the VCR was replaced with the DVD player, and now DVD players are getting replaced with “Blu-ray” disc players (for high-definition Blu-ray discs – the next generation of the DVD). Consumers can still buy or rent their chosen movies and TV shows on disc, either from a much smaller number of Blockbuster stores (of course, Blockbuster is now in bankruptcy), or the fast-growing Redbox kiosks you can find in supermarkets everywhere, or you can buy the discs at your nearest Best Buy store or online at Amazon.com or a number of other retailers (Best Buy included).

Increasingly, however, the disc is going away. With the introduction of the DVR (digital video recorder) and other set-top-box products and services such as Tivo, consumers could record their favorite shows, set up a program recording schedule so you never miss your favorite shows, and you could even pause and “rewind” live TV. The key here is that we are increasingly moving to a digital file that is being transferred and stored.

Now we stand on the precipice of another significant technology transition, one that introduces an entirely new way that we will consume video. It is called “over the top” video, or OTT video, which simply means video that is transmitted over the internet. While many of us have watched YouTube videos on our computers or smartphones, we are now approaching an inflection point – the ability to consume (buy, rent, watch “on demand”) movies and TV shows delivered instantly through the internet to your widescreen TV in your living room.

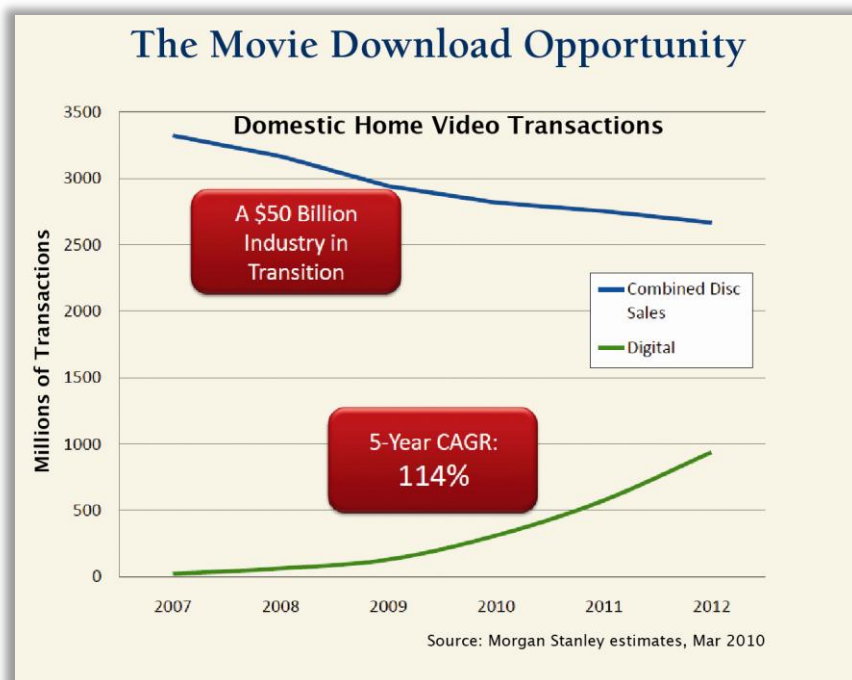


The living room is the key to this transition. For years, we have been able to watch movies on our computers – laptops on airplanes, etc. However, the big change is that nearly every new consumer electronics device in your living room is now “internet capable”. With a growing set of households with broadband (high speed) internet connections and many with home networks set up, and a new set of internet-connected TVs, video game consoles, Blu-ray players, and other set-top-boxes, the infrastructure is being put in place to consume video over the internet, sitting on your couch in the living room.

The next step will be an array of services – pay-per-view, rental, subscription, purchase – that open the door to a variety of content, without being limited to your cable or satellite service’s programming and its typically high prices. Additionally, you will be able to consume this content on any digital device you own – your TVs, your smartphone, your laptop, your tablet computer (such as the Apple iPad) – from anywhere. This change is significant, and it presents investment opportunities across the technology, consumer electronics, and media industries.

THE OTT VIDEO MARKET OPPORTUNITY

With billions of home video transactions every year, and the associated billions of dollars generated, the market for home entertainment is large. The traditional markets of DVD rentals and DVD purchase, are beginning to migrate to internet-based options – both in the forms of rentals and purchases, plus subscription services. Looking at the chart and table below, you can see an \$18.6 billion market in 2010, which is still dominated by the “old” DVD-based technology, but the digital, internet-based transition is beginning.



Per Morgan Stanley estimates on the previous page, the \$50 billion domestic market for home video is in transition to include a substantial contribution from digital distribution. The “disc” market – purchased and rented – is likely to be in decline moving forward, as the consumer transitions to an internet-based OTT model. The first mover in this transition is Netflix, with a majority of its growing subscriber base now utilizing its Watch Instantly internet streaming service, and the trend is expected to accelerate. As Netflix is more of a “back catalog” driven business – i.e. new releases play less of a role until they have been on DVD for at least 28 days – the opportunity for OTT video offerings of premium, new release content is still in its early stages.

Today, this opportunity is serviced through the cable companies’ On-Demand offerings (pay-per-view), but the market is moving toward the internet-based offerings from newer entrants such as Hulu, Vudu, Amazon, Best Buy, BlockBuster, Sonic Solutions and others.

Looking at the JPMorgan and Adams Media Research estimates below, DVD sales remain in decline, while DVD rentals are flat to growing in low-single-digit percentages. However, the “internet sales and rentals” segment (OTT video) is just getting off the ground and is estimated to grow at 40-60% rates in 2010 and 2011. These growth estimates could prove conservative as they point to OTT video capturing only a very low 5% of the overall home video market by 2014.

Table 1: U.S. Home Video Entertainment Market Forecast

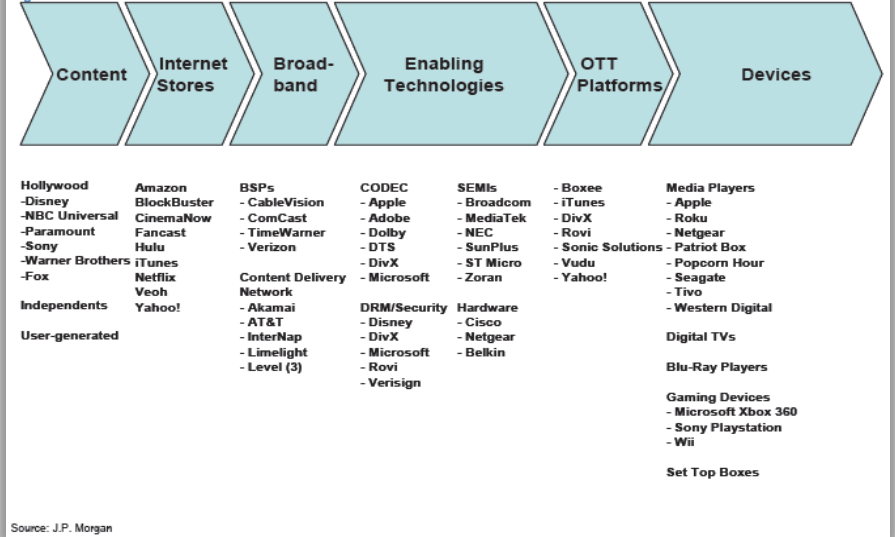
\$ in millions

Home Video Market	2008	2009	2010	2011	2012	2013	2014
DVD Sales	12,430	10,870	9,880	9,554	9,353	9,132	8,628
% y/y change		-13%	-9%	-3%	-2%	-2%	-6%
% of total	59.5%	56.8%	53.1%	50.5%	48.7%	47.0%	45.2%
DVD Rentals	6,925	6,548	6,693	6,998	7,128	7,265	7,217
% y/y change		-5%	2%	5%	2%	2%	-1%
% of total	33.2%	34.2%	36.0%	37.0%	37.1%	37.4%	37.8%
Internet Sales & Rentals	214	283	454	640	828	925	908
% y/y change		32%	60%	41%	29%	12%	-2%
% of total	1.0%	1.5%	2.5%	3.5%	4.5%	5.0%	5.0%
Subscription Network Sales & Rentals	1,308	1,439	1,583	1,741	1,915	2,107	2,317
% y/y change		10%	10%	10%	10%	10%	10%
% of total	6.3%	7.5%	8.5%	9.2%	10.0%	10.8%	12.2%
Total Home Video Market	20,877	19,140	18,610	18,933	19,224	19,429	19,070

Source: Adams Media Research, IDC, J.P. Morgan estimates

The OTT value chain diagram on the following page lays out the numerous participants in this complex effort – from the Hollywood studios to the end consumer (the ones buying the devices on the right). At the beginning (left side of the graphic below) of the chain is Hollywood – the content creators, which is where it always starts. From there, the Internet opens the door to a new set of participants – from internet stores (where you go online to access the content), to the internet infrastructure required to download or stream the content (your broadband internet providers, content delivery networks – companies that help deliver that content to you).

Figure 1: OTT Video Value Chain - Schema



Source: J.P. Morgan

THE INFRASTRUCTURE IS NOW IN PLACE AND GROWING

The tables and chart below show that the infrastructure is in place to enable the transition to OTT video, and the number of consumer electronics devices representing the last gateway to the living room is growing fast. Broadband Internet penetration in the U.S. is now about 65% of total households and growing, and there are over 50 million home networks in the U.S. today, and over 166 million globally.

With content ready to be served over the Internet, and home networks in place, the final piece of the puzzle is the internet-connected device in the living room, enabling consumers to watch the content where they want to – in the living room. The added capability of being able to watch your content wherever you are – using your iPad, smartphone, laptop, or your internet-connected TV – should further accelerate adoption. Additionally, technology is rolling out which will enable customers to store their purchased or rented content online (in the “cloud”), regardless of from which internet store the content was purchased (as long as it’s from a compatible source), and the media can then be consumed on any device, from anywhere.

Table 8: US Consumer Broadband Adoption Exceeds 60% of Households

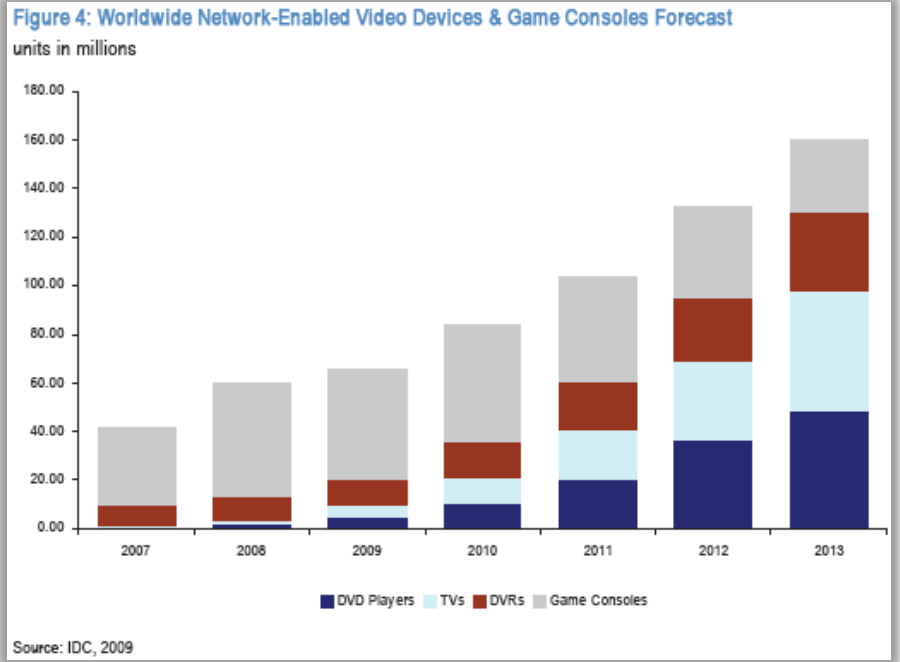
	2008	2009	2010	2011	2012	2013
Broadband subscribers	66	70.8	75.2	79.3	83.2	87
Growth (%)	9.8	7.3	6.2	5.4	5	4.5
Net subscriber additions	5.9	4.8	4.4	4.1	3.9	3.8
Households	114.2	115.3	116.4	117.4	118.4	119.4
Broadband household penetration (%)	57.8	61.4	64.6	67.5	70.3	72.8

Source: IDC 2009

Table 9: Worldwide Home Networking Estimates

units in thousands	2008	2009	2010	2011	2012	2013
United States						
PC networks	28,267.3	25,363.5	23,950.6	23,839.8	20,176.7	19,977.2
Multimedia networks	15,204.4	20,705.0	27,608.8	33,087.2	44,091.6	51,807.0
Total households with a network	43,471.7	46,068.4	51,559.4	56,927.0	64,268.3	71,784.2
Worldwide						
PC networks	86,516.8	87,621.3	92,110.4	95,846.0	103,833.1	110,865.5
Multimedia networks	38,887.9	52,477.7	74,100.0	93,178.5	117,408.3	139,870.4
Total households with a network	125,404.7	140,099.1	166,210.3	189,024.6	221,241.4	250,735.9

Source: IDC, 2009



WHAT ARE TODAY'S OTT VIDEO OPTIONS?

There are a few OTT video options today, but the list is very likely to grow quickly in the coming years. Probably the most talked about service in recent months, is Netflix' Watch Instantly streaming service, which lets customers "stream" (the digital file is transmitted to the user's device as it is being watched) all the content they want (typically, older movies and prior seasons' TV shows) for about \$7 per month. Netflix' offering rapidly went from infancy to having over half of the company's subscribers using the service – all in 2010, demonstrating the desire of consumers and the demand for using OTT services.

Other OTT services include Hulu. Hulu is a company formed in 2007, owned by NBC Universal, News Corp., Disney, and Providence Equity Partners – effectively owned by the major networks, including ABC, NBC, and Fox. Hulu is an online video streaming service, and its Hulu Plus paid service lets customers watch current season network TV programming from the major networks (among 225 content sources) for \$7.99 per month. Hulu is growing fast and is widely expected to go public in 2011 – again demonstrating consumer demand for such services. Both Netflix and Hulu Plus enable customers to watch their content on "the four screens" – TV, computer, mobile phone, and tablet (such as Apple's iPad).

Other than the Netflix and Hulu Plus subscription services, which offer unlimited "all you can eat" content, there are a number of rental (pay-per-view) and purchase offerings emerging, including Best Buy's "CinemaNow" offering (which is increasingly embedded in TVs and other consumer electronics devices sold at Best Buy), Amazon On

Demand, Blockbuster On Demand, Vudu (which claims it has the largest offering of high-definition movies of any internet-based service today – available as soon as the movies are released on DVD), YouTube, and Apple’s iTunes service, which now includes video content as well as its massive array of digital music.

Lastly, and importantly, the cable and satellite companies are aggressively attempting to offer similar services to their millions of cable/satellite TV and Internet service customers. There is a lot of discussion about consumers “cutting the cord” – which means turning off their traditional cable/satellite TV services, and adopting OTT video services only. Should this begin to occur in large numbers, it would clearly be a major concern for the cable/satellite companies, given the large monthly cable/satellite TV bills that most of us pay every single month. As a result, services like Comcast’s “TV Everywhere” offering (to be called “Xfinity online TV”), and similar services being offered by other major service providers, are beginning to come to market – in a clear defensive move against the likes of Netflix, Hulu, YouTube, and others. It remains to be seen if these cable service provider services will slow down the launch or success of new Internet-only services, but it is a clear statement that the world is changing.

CONCLUSION: WHERE ARE THE OPPORTUNITIES?

There is little doubt that the media industry – and how content will be delivered to consumers – is changing rapidly. The Internet has significantly impacted numerous industries, and the OTT video transition likely represents another case. OTT video gives the studios another avenue to reach consumers, and the business models are still being developed. What is certain is that consumers will have more access to premium content, likely in a cost effective way, and this access will be flexible, customizable, and mobile.

As this transition takes hold, there are several areas that represent potential investment opportunities:

- **OTT content providers** – the companies offering OTT services could deliver strong growth as these services ramp.
- **Consumer electronics** – consumer electronics devices are the delivery mechanism for OTT services, and leading providers could outgrow their peers as a result.
- **Next-generation Internet/network infrastructure** – to achieve widespread Internet-based OTT video adoption, network infrastructure investments will likely grow to accommodate the massive increase in data transferred across the Internet. Online video (especially high definition) files are substantially larger than typical non-video files, and the bandwidth requirements will climb as a result. Providers of the key infrastructure to satisfy these challenges could experience stronger demand in

the coming years as a result.

- **OTT video software and technology platforms** – the software and other technology required to deliver content – from Hollywood to consumers – could be a growth driver for the companies offering these platforms, providing customers with enjoyable, easy-to-use tools to access the content they want.

There are multiple industries and segments that should benefit from the shift to an Internet-based OTT video market. We expect this significant technology and media transition will continue to present a wide range of interesting investment opportunities in the coming years.

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