

The Digital Entertainment Revolution

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Executive Summary

TV sets, Blu-ray players and video game consoles are already shipping with built-in network connections. As consumers become more adept at the use of these products, content owners will be able to connect directly with their end-users. This creates challenges for “middlemen” that aggregate and distribute content, such as cable TV, satellite TV and telcoTV (IPTV) service providers. However, traditional Pay-TV services are not going away, and up to half of consumers still prefer these tried-and-true methods. **The new markets will not end the old markets.** In addition, **most consumers are also already heavily involved with mobile services.** Cellular networks not only know who is on a call, but where that person is, thanks to global positioning systems (GPS) built into handsets. Social networks and games will further disrupt entertainment. New technologies enable video on a TV screen to be overlaid with enhanced content from the Internet. Semiconductors from Broadcom, ST, and Intel provide advanced graphics capabilities alongside multi-core processors. Texas Instruments, Freescale, NXP, and Qualcomm have low-power products that bring similar capabilities to smart phones and other mobile devices.

All of this connectivity directly between content owners and their audience creates unprecedented opportunities to engage customers 24/7. But the audience is always going to be a moving target. Existing Information Technology (IT) infrastructures are not set up to handle the surge in new applications, nor do they scale up to support tens of millions of users generating billions of transactions. The entertainment industry is going to need to re-engineer their IT systems, interconnect with content delivery networks (CDNs), enable advanced advertising capabilities and create entirely new interfaces with their distribution partners.

Companies that make the right moves can tap into \$10 billion in revenue opportunities made possible by the growth of digital electronic entertainment. Those that don't will be left on the sidelines.

A new ecosystem for entertainment is evolving that creates five new dilemmas:

- How to dramatically improve how content is created and managed using a “lean” approach
- How to protect intellectual property as new usage models come into vogue
- How to guarantee that the consumer experience brings customers back for more
- How to manage a wide variety of business models to optimize revenues
- How to leverage what is learned as these new approaches are implemented



Shifts in Business Models are Inevitable to Gaining Competitive Advantage

There is no silver bullet to stop the disruption caused by the impact of digital and the rapidly changing demands of consumers who themselves have more control than ever before. What makes the digital transformation a real conundrum is the fact that all existing entertainment infrastructures will still need to remain as a significant number of consumers will continue with “business as usual”. Companies must face an inevitable transformation of their business models and fundamental operations as digital revenues will not reach the same peak as physical revenues. Therefore, companies need to consider dramatic changes to their physical and digital operations in order to attain a cost structure that balances the size and margins associated with shift in physical and digital content sales.

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Digital Entertainment Revolution

During this new decade, a digital entertainment revolution is occurring. Content producers, such as movie and TV studios, video game developers, the music industry, TV and radio networks, and news organizations are competing not just with each other but with user generated content (UGC) and community-oriented information services that are all vying for mind share with consumers. Broadband services are becoming nearly ubiquitous. Over 92 million US households will have broadband service to their home by 2013, and nearly 50 million will also be using mobile broadband that lets them take their electronic entertainment along with them, wherever they go. Apple's new iPad is just one of the mobile devices that will help make entertainment truly an anytime, anywhere phenomenon.

Information Technology Becomes Strategically Important

For content owners and content distributors, the markets are fragmenting into ever-smaller pieces. The ability to identify macro trends and micro usage patterns will help to engage with consumers one-on-one. But this creates enormous needs for information gathering, reporting of metrics, data mining and developing insights that can be used to keep moving forward with ever-changing consumer behaviors. An agile and flexible IT machine will be needed to keep up with the accelerating pace of change.

Changing Consumer Expectations Doesn't Shut Down Existing Services

Many, but not all, consumers are taking increased control of how they use media, content and entertainment. What used to operate on a broadcast TV schedule is being supplanted with "everything on demand." However, research indicates that about 45% of US consumers are not interested in doing much of the work themselves. This means that all existing entertainment infrastructures need to continue being supported. But with the number of "eyeballs" tuned in constantly going down, costs for supporting traditional linear TV models need to be reduced to assure sustained profitability.

New "on demand" services will not instantly achieve high penetration rates. The investment in new technologies needs to be managed closely and timed correctly to provide the best near-term return on investment. Finally, all IT solutions that are created for these emerging services must be designed to be "future proof." Entertainment companies need to understand what their current systems can do, create a strategy that moves them forward, and decide what to do with in-house resources – including when it's best to outsource or work with partners for on-going support.

Web-to-TV Changes Everything

The importance of "making the connection" between a broadband service and a TV screen is vital. This is an emerging behavior that, right now, requires that end-users be able to figure out how to connect a broadband device to a TV set. However, beginning this year, TV sets are shipping with network connections built in. **When the Web gets to the TV set, it will change everything.**

Threat to Traditional Revenue Streams

A current hot topic is "cord cutters," who may decide to stop subscribing to a Pay-TV service and use "over the top" video services that are delivered via broadband. One way to counter the broadband threat is to make it easy for consumers to watch high definition TV using the Pay-TV's HD VOD service. This approach is gaining ground, and if Comcast completes their acquisition of NBC Universal, they will gain access to a lot of high-quality on-demand content. Another hot topic is 3D television, which, again, could help keep people subscribing to traditional Pay-TV services, because most broadband connections cannot deliver high enough bit rates for HD VOD and 3D events.

Re-Alignment of Business Models, Competitors and Value Propositions

Movie studios are facing declining sales of DVD discs, or “packaged goods,” which have brought a fifteen year run of good fortune as consumers built up libraries of their favorite movies. Blu-ray discs are gaining momentum, but most Blu-ray purchases are current hits. With Blu-ray players adding 3D capabilities, we expect to see an uptick for packaged goods. However, Pay-TV service providers will be deploying their own 3D capacity and offering up “instant” 3D viewing services. We expect that Content Producers will need to engage with Pay-TV, Internet and mobile service providers and negotiate value propositions that deliver a “win-win-win” scenario across the board.

The Movie Industry as an Example

The movie industry provides a microcosm of the way that entertainment is changing. Table 1, below, summarizes a great amount of internal research to show what we think is transpiring. During 2008, the total value of Home Movie Entertainment was US\$ 21.67 billion, down about 5.7% from 2007. Sales of DVDs have entered a gradual downward slide. The key positive elements out through 2013 will be the up-take of Blu-ray players, and sales of Blu-ray discs. The movie studios have high hopes that 3D-capable TV sets and Blu-ray players will re-energize sales of packaged goods. We agree. The value of physical rentals will be going down, but the use of Pay-TV Video-on-Demand services and the sales of content via the Internet will be increasing. The most important point is that, between 2008 and 2013, we expect the total US value of movies to go DOWN about 1.2%!

Table 1. 2008 to 2013 Movie Industry Revenue Stream End Points (US\$ in Millions)

2008	US Movie Sales and Rentals	2013
US\$ Millions	Packaged Goods Sales	US\$ Millions
\$13,320	DVD annual sales value	\$3,000
\$750	Blu-ray disc annual sales value	\$8,400
	Rentals	
\$6,558	Physical disc rentals	\$4,600
\$554	Pay-TV VOD rentals	\$3,900
\$488	Online rentals and downloads	\$1,500
\$21,670	Total US Movie Value	\$21,400
-	Growth 2008 though 2013	-1.2%

Source: In-Stat, 2/10

What We Think Happens Between the End Points

While Table 1 shows the defining end points between 2008 and 2013, Figure 1 provides the trend lines for each segment that show what happens between the end points — it’s going to be a rough ride.

The most important line is on top, showing that the overall value of US Movie Home Entertainment is expected to see a distinct trough between 2010 and 2011, because the value of DVD sales will continue going down more rapidly than the up-tick in sales of Blu-ray discs.

The value of DVD sales is the red line. The increasing sale of Blu-ray discs is the blue line. The plum colored line shows our forecasts for the value of rentals of physical media, such as Blu-ray rentals from Blockbuster and Netflix. Even though Blu-ray rentals are showing very strong growth, the average price per rental is trending downward. The Redbox 99-cent kiosks that are widely deployed are driving down the value of physical rentals.

While the long-term transition from DVDs to Blu-ray is under way, optimism is growing for electronic “on demand” services. Pay-TV and online usage is going up strongly, the number of households that regularly make purchases “on demand” will be substantially less than 50% of all US TV households until out in 2013, and beyond. The long term outlook for the US movie industry out past 2013 actually looks much better, because the vectors that are showing growth will continue turning upwards into the future.

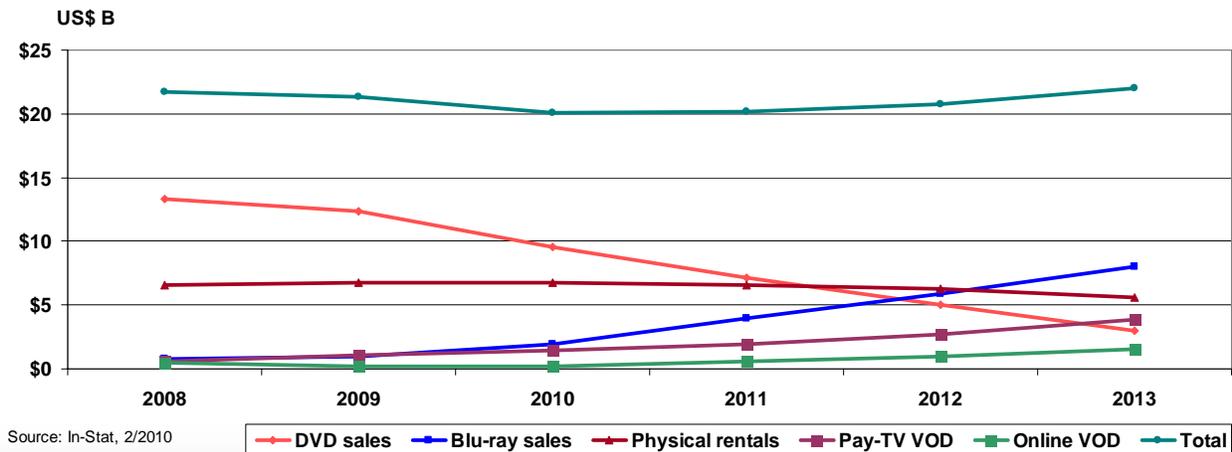
During the next five years, US movie studios are going to need to re-engineer their internal operations to reduce costs, and manage their investments in new technologies very carefully if they are to deliver increasing profits in what is, overall, a flat-growth market.



A Holistic View of Digital Content Services

Based on our experience in enabling digital content services, companies involved with digital content need to look at the impact of the digital revolution holistically. Companies need to review impacts to their supply chain, customer experience, business intelligence, IP management and monetization models and recognize the inter-relationships and dependencies among these “pillars”. Therefore, reacting to the digital revolution is not about implementing a single technology solution or platform but rather creating a portfolio of inter-related services that encompass people, processes and technology. This will require a series of coordinated solutions that not one company will be able to deliver on their own (it would be too expensive and replicate the problems companies currently face on the physical goods side). In our view, multi-tenant solutions for various portions of the digital content ecosystem will be the best way to drive cost and operational effectiveness.

Figure 1. US Movie Industry Sales and Rental Value Trend Lines (US\$ in Billions)



Source: In-Stat, 2/2010

The Shifting Digital Entertainment Ecosystem

The Digital Entertainment Value Chain

From the point of view of a content owner or content producer, the digital entertainment value chain includes:

- Media/Content Creation
- Media/Content Aggregation & Packaging
- Media/Content Distribution
- Consumer Devices and Technologies
- Consumer Experience

Media/Content Creation Now Includes Direct-to-Internet Approaches

Organizations that create media and content include: movie and TV production studios, record labels, gaming companies, publishers, sports leagues, broadcast networks, Pay-TV networks and local broadcasters. All of these entities are facing challenges as their traditional method of delivering content to consumers expands and electronic delivery options begin to supplant or replace some of the old models.

Movie studios create “event” types of content that most consumers will view one time in theaters, purchase for extended in-home viewing, or rent in physical form, such as a DVD or Blu-ray disc, or rent electronically using a Pay-TV Pay-per-View (PPV) or Video-on-Demand (VOD) service. Another option that is growing in popularity is online video rental services, such as Netflix or Blockbuster’s online service. The big buzz at the 2010 International Consumer Electronics Show was 3D televisions. The movie industry believes that 3D-capable TV sets and Blu-ray players will create a long term growth opportunity as older, library titles get re-mastered and re-packaged for 3D enthusiasts.

TV studios create a series of programs that have value as a first-run show, and then produce recurring revenues through syndication. TV programs are also available for purchase or rental as physical media, or from Pay-TV or online “on demand” services.

Record labels are struggling with a fundamental transition in which physical media such as compact audio discs and DVDs must still be supported, but revenue growth is coming from online downloads of purchased songs, delivery of music through subscription and free-to-air radio services, and from online and mobile music streaming services. The transition from bundled albums sold as physical “packaged goods” to single tunes downloaded to portable music players has devastated the traditional business model. The music industry is being held up as a model for what might happen to the video industry.

Video Games Well Positioned to Benefit from the Digital Transition

While the movie and music industries are facing challenges and threats from electronic distribution, the video game industry has embraced it, and created game console platforms and online video gaming products that use electronic delivery to increase and prolong consumer engagement with their products, and with their brands. Movies and music tend to be consumed in a linear, passive fashion. People watch a movie from start to finish, and people listen to songs in their entirety. Video games are inherently interactive, and have multiple, built-in “pause points” that permit the user to interrupt game play, save the current state of the action, and return to the game when it is convenient. Most video games that are first delivered as a packaged good also provide online features that improve the user’s experience, connect with online communities of like-minded game enthusiasts, and provide downloadable extensions that add more playing time or features to the original version of the game.

Many movie studios, TV producers, publishers, and broadcast networks are actively investigating how they can add interactive features and community connections to their products, to take advantage of the infrastructure that is being built to support interactive gaming applications.

Sports Leagues as a Leading Driver of 3D Technology

Sports leagues occupy a special place in the pantheon of professionally-produced content. Most sporting events are watched “live” and create a definable audience of fans for each particular sport. Once the winner has been crowned, the life cycle of video from a sporting event loses much of its impact, except for short video clip “highlights” and post-game analysis of important or spectacular plays. Since, sporting events are “immediate” the opportunity for piracy is dramatically curtailed, because the “pirates” need time to figure out how to hack into a sporting event video stream and make it available to users. For the most part, sports fans are willing to watch legitimate “feeds” of their favorite team’s games and events.

In the US market, Major League Baseball Advanced Media (MLBAM) is the acknowledged leader for delivering “live” sports coverage to online and mobile services. In addition, Level 3, a major US content delivery network (CDN), provides much of the infrastructure that is currently used to link the primary video feeds from stadiums and facilities back to broadcast network studios and TV network distribution services. MLBAM and Level 3 provide a secure, reliable, scalable, and cost-effective service that other sport entities can take advantage of. MLBAM and Level 3 provide services to the National Football League, the National Hockey League, the PGA Tour, and many other sporting events.

While the movie studios have high hopes for 3D TVs and 3D-capable Blu-ray players re-energizing growth for packaged goods, the major sports leagues will be required to drive forward adoption of 3D TV sets and 3D video delivery services. During the 2010 International Consumer Electronics Show, ESPN announced that they plan to produce and air up to 85 sporting events in 3D during the next 18 months, including the 2010 FIFA World Cup Soccer tournament that originates in the Republic of South Africa. Discovery Communications also announced the upcoming launch of a 3D service, and DirecTV, North America’s largest direct-to-home (DTH) satellite service also announced their 3D carriage plans. All of these 3D initiatives will help create consumer “buzz” about 3D, and will help retailers sell 3D products, and push forward the installed base of 3D equipment into consumer households.

The National Football League (the NFL) has already been producing 3D versions of one professional football game each week.

The Television Broadcast Community

The television broadcast community includes the free-to-air national TV networks (ABC, CBS, NBC, FOX, the CW, PBS, and faith-based services), Subscription-TV or Pay-TV nation-wide networks such as Discovery, Viacom (MTV Networks), Disney, Time-Warner (CNN, HBO, TNT, TBS) and News Corporation (Fox News, Fox Business), and the local TV broadcasters.

The free-to-air networks derive most of their revenues from advertising. The national networks license their content to local TV stations, and the local TV stations license these rights to local Pay-TV services, such as cable TV, telcoTV (IPTV), and satellite TV services. The local TV stations receive payments from local Pay-TV services for “retransmission consent” rights to their local TV programming.

The national networks mainly provide nationwide programs during early morning and prime time (8:00 PM to 11:00 PM Eastern Time) viewing hours. The local TV stations provide their own, self-produced local news, information, sports, weather and community oriented programming.

The subscription-TV networks obtain program licensing fees from the Pay-TV service providers. Approximately half of the revenues that are brought in to subscription-TV networks come from programming fees. They basically double their revenues by selling advertising to national advertisers.

The local Pay-TV services generate most of their money collecting monthly subscription fees from their subscribers. The cable TV and telcoTV (IPTV) services also provide local broadband services, and can create a “triple play” bundle that includes Pay-TV video services, broadband Internet, and voice telephony. The local Pay-TV services are also permitted to sell local advertising. Usually, they get two minutes per hour of time from the national subscription-TV networks to air locally-sold ads.

A high-growth market for local Pay-TV service providers will be ad-supported local Video-on-Demand (VOD) services. For the movie and TV studios, paid VOD provides movies and TV shows on demand and the local Pay-TV service promotes the shows that are available, collects the fees, and makes payments upstream back to the studios. Many local Pay-TV services are either producing their own local news, sports and community-oriented programming, or partnering with local TV stations to provide self-branded local content that adds value to their Pay-TV service offerings, versus the competition coming from the nationwide Satellite TV services, which have much less opportunity to provide locally-produced content, except for a few major cities.

Professional TV Content Moves Direct-to-Internet with Multiple Versions

All of the above-mentioned media and content creation entities now operate branded Direct-to-Consumer online portals and partner with other online web sites to obtain maximum exposure.

Content from National Free-to-Air networks is readily available on Hulu.com, CBS interactive, Fox Interactive Media, YouTube, and other sites. Content from Subscription-TV networks can be found on Viacom Digital, Turner Network, and newly-launched TV Everywhere sites, such as Comcast’s Fancast Xfinity. Every local TV station provides their own web portal and actively invites viewers to send in photos and video clips for posting on the web site or use on the air, especially during periods of news-worthy weather conditions or local emergencies. Many local TV stations also have agreements that permit them to provide online viewing of their affiliated major network Prime Time TV shows, as well.

Each initiative to move content directly to the Internet brings with it the possibility that the programming could by-pass traditional delivery services and move directly from the Internet onto consumers’ TV screens, reaffirming that Web-to-TV does change everything.

Even as all the professional content creators move directly to the Internet, they have to respect and find ways to continue relationships with their traditional partners that provide content aggregation and packaging services. After all, a lot of the money that flows back to the media and content creators comes from these traditional service providers.

Media/Content Aggregation & Packaging

While movie and TV studios create one-off products or a sequence of episodes, the broadcast networks and subscription-TV networks aggregate content into “channels” and provide a convenient and well-understood revenue stream. In general, major TV networks bid on programs, and when a commitment is made, the studio that produces the content gets a contract that can be enforced. It’s up to the TV network to promote the programs as part of a schedule, interest advertisers in buying time on the show, providing distribution services to local affiliated TV stations, and making payments to the studios after the show has been aired.

One of the ways that a media and content creating studio makes additional revenues is by syndicating their TV programs once they have completed several seasons of first run appearances. The multi-channel networks have been eager bidders to obtain multiple seasons, or all seasons, of programs that have previously run on the national networks. Viewers can often find back-to-back episodes of their favorite older programs, such as MASH, Law and Order, and Friends on Pay-TV services like TBS and TNT.

Some TV shows don’t go directly to Broadcast TV networks. These shows are called “first run syndication,” because they are first run but not on a major network. The Mighty Morphin’ Power Rangers, Baywatch and Xena, the Warrior Princess, are examples of very successful TV shows that were delivered as first run syndication programs.

Original Programming, High Definition, and VOD Add Value to Multi-Channel Networks

Multi-channel networks, such as Discovery, ESPN, MTV and Turner aggregate programming, events and movies into “channels” and license these to local subscription-TV service providers. Each aggregator promotes their “line-up” of shows, and helps the local subscription-TV service gain subscribers by offering “bundles” of channels that attract large portions of the viewing population. During the past decade, the multi-channel networks have all been creating their own original productions, which put them in an improved bargaining position for obtaining preferential programming fees. Multi-channel networks have also recently benefited by upgrading their programs to high definition. Besides offering “channels” of linear television programming, the major multi-channel networks enhance their offerings by licensing their most popular shows for use in Video-on-Demand services. The multi-channel networks have also been working closely with local Pay-TV services to authenticate qualified subscribers, and making selected Pay-TV programming available online through emerging TV Everywhere initiatives, such as Comcast’s Fancast Xfinity service.

Movie Channels as a Special Case of Content Aggregation

Movie aggregators, such as HBO, Showtime, and Starz/Encore have an excellent business providing premium movie channels for which local service providers charge additional monthly fees. Like the multi-channel networks just mentioned, these movie aggregators have added value by providing their own original programming, upgrading to high definition and licensing content for VOD. However, as more movie studios consider licensing late-breaking movies directly to local Pay-TV services for high definition VOD, the market for “just another movie channel” may begin to weaken.

HBO has an established position, especially with their campaign that “it’s not TV, it’s HBO.” The Sopranos, Entourage, Rome, and HBO original movies are seen as valuable Content, so HBO-branded services such as HBO On-Demand will continue to keep them viable. For CBS’ Showtime, the case is similar. Original programs like The Tudors and Dexter make them a strong additional brand that can probably support branded Showtime On-Demand services. Finally, Starz/Encore has a solid third position, though with much less original programming.

Packaged Goods Subscriptions as a Special Case of Content Aggregation

Packaged goods subscription services, such as Netflix and Blockbuster, should be considered a special case of content aggregation. The “library” of content gets promoted by the branded entity, and subscribers must engage with the service’s online portal to see what’s available and select “titles” based on their current interests. Redbox provides a convenient in-store kiosk service that permits users to go online, choose among about 300 of the most popular current movies, and pick up the disc for a fee of only one dollar. Consumers who don’t watch a lot of movies support Redbox because of its low costs and are not likely to sign up for one of the packaged goods subscription services.

Media/Content Distribution

Currently, about 85% of all US TV households subscribe to a subscription-TV service, such as Cable TV, satellite TV, or telcoTV (IPTV). About two-thirds of US households have a broadband connection to their homes. But not all consumers who have access to these services regularly use all of the features. For example, only about 50% of Pay-TV subscribers who actually have access to VOD regularly use it at least once a month.

Most consumers who have broadband report watching some online video regularly, only about one-third watch professional TV programming online. The great majority of online video viewers report watching short video clips from YouTube or other online sources that are mainly delivering user generated content, also known as UGC. UGC is difficult to monetize for advertisers, because they cannot predict which videos will be popular at any given time, and sometimes the content of the UGC video does not provide a good tie-in with a brand’s image.

So how many US households are likely to be “in the mix” for watching ad-Supported Video-on-Demand that features professionally-produced TV programming? The reason TV programming is so important is that TV programs can deliver repeatable audiences to advertisers.

US Households regularly Using Pay-TV VOD or Broadband On-Demand Services

Table 2, below, presents estimates and forecasts for the number of US TV households that we believe are regularly using either a Pay-TV VOD service or regularly viewing online TV programming. At the end of 2008, research indicates that only about 45% of the 38.2 million Pay-TV subscribers who were getting a digital service capable of providing Video-on-Demand were using it regularly on a monthly basis. For broadband households, only 31% were regularly viewing TV programs. By 2013, there will be over 64 million US households with access to Pay-TV VOD, and 85% of these households will be regularly using it. By 2013, we expect that 93 million US households will have broadband, and nearly two-thirds of these will be regularly using online VOD. The number of US households regularly using Pay-TV VOD will be 54.5 million in 2013, and the number of US broadband households regularly viewing professional TV programs from an online service will be about 59.0 million.

Table 2. 2008 to 2013 Households Regularly Using “On Demand” Viewing (in Millions)

2008	US Households Regularly Using On-Demand	2013
Millions	US TV Households	Millions
111.4	Total US TV households	118.0
38.2	Pay-TV HHs with VOD available	64.1
17.2	Pay-TV HHs regularly using VOD	54.4
45.0%	% of Pay-TV HHs Regularly Using VOD	85.0%
72.9	Households with broadband	93.2
22.8	Households regularly using broadband VOD	59.0
31.3%	% of BB HHs Regularly Using BB VOD	63.3%

Source: In-Stat, 2/10

Broadcast TV Ad-Supported Online Video Services

Table 3, below, provides estimates and forecasts for the value of the advertising delivered through online video services. In 2008, this market was nascent. By 2009, Hulu.com was reporting solid viewing numbers and strong revenue growth. By 2013, we expect this market to have grown by over 1,400 percent, up to about US\$ 1.8 billion. It's important to look at the details for 2013. We expect that 59 million US households will be generating 520 "views" per year, and creating an opportunity for 116 billion ads to be delivered. However, we believe that the ability of online services to provide detailed demographic information about each viewer will remain limited and that the cost per thousand (CPM) for advertising will basically double from about US\$ 8.00 in 2008 to about US\$ 16.00 in 2013.

Table 3. 2008 to 2013 Ad-Supported Online Video Revenue Stream End Points

2008	Ad-Supported Online VOD	2013
22.8	Broadband VOD HHs (M)	59.0
360	Broadband VOD views per year per HH	520
8,208	Broadband VOD Views per year (M)	30,680
2.0	Average ads per viewing	3.8
16,416	Ads delivered (M)	116,584
\$8.00	Pro forma CPM for Internet VOD	\$16.00
\$131.3	Value of Internet VOD Ads (US\$ M)	\$1,865.3
-	Growth 2008 through 2013	1420.4%

Source: In-Stat, 2/10

Pay-TV Ad-Supported Video-on-Demand Services

Table 4, below, provides estimates and forecasts for the value of advertising delivered through Pay-TV VOD services. In 2008, this market was still under development and real deployments are only now being announced. By 2012, we believe that most households with access to VOD will also be receiving advanced advertising services. Because Pay-TV services have developed innovative and powerful ways to provide demographic information, we expect that CPMs for Pay-TV VOD will be double what they are for online services in 2013. We expect Pay-TV VOD services to provide over US\$ 2.6 billion in ad revenues to the Pay-TV industry in 2013.

Table 4. 2008 to 2013 Ad-Supported Online Video Revenue Stream End Points

2008	Ad-Supported Pay-TV VOD	2013
17.2	Pay-TV VOD HHs (M)	54.4
180	Pay-TV VOD views per year per HH	400
3,095	Pay-TV VOD views per year (M)	21,780
1.0	Average ads per viewing	3.8
3,095	Ads delivered (M)	82,764
\$10.00	Pro forma CPM for Internet VOD	\$32.00
\$30.9	Value of Pay-TV VOD Ads (US\$ M)	\$2,648.4
-	Growth 2008 through 2013	8558.1%

Source: In-Stat, 2/10

Devices & Technologies

During the coming decade, in addition to network-capable TV sets, and 3D-capable Blu-ray players that connect to the Internet, consumer electronics manufacturers are taking everything they have learned about TVs, computers, portable devices and cell phone handsets to date, and blending them into new types of connected devices. The cable TV industry has adopted and begun deploying tru2way technologies that will permit consumers to legally purchase and download premium content to a multitude of new devices, in which, we have detailed coverage, by region, of shipments of a wide array of consumer electronics and mobile devices.

Capabilities, Features

Focusing on three types of network-connected consumer electronics devices: Blu-ray players, video game consoles, and media center personal computers, it's important to note that not all network-capable devices will actually be hooked up to an in-home network, and not all of them will be used for connecting to broadband Internet services to access online sources for media and content. Table 5 shows estimates for the percentage of US broadband households with Blu-ray devices. By 2013, we expect about 56.7 million will have at least one network-capable Blu-ray player, but only about 11.3 million will be used for online video streaming, and only about 4.5 million of them are expected to be subscribing to a "for pay" streaming service.

Table 5. US Penetration of Network-Capable Consumer Media Devices

2008	US Penetration of Networked Devices	2013
	Blu-ray Players	
6.40%	% of US BB HHs that own Blu-ray devices	51.90%
4.6M	Total US BB HHs that own Blu-ray devices	59.7M
3.1M	Network-Enabled devices	56.7M
.3M	Online video streaming enabled devices	11.3M
.03M	Devices used with a streaming service	4.5M

Source: In-Stat, 2/10

Table 6 shows estimates for video game consoles used as in-home entertainment hubs. We expect there will be more than 73 million US households with an online-enabled game console, and about 16.6 million using their game console for online video viewing. Only about 4.2 million are expected to be paying for an online subscription streaming service.

Table 6. US Penetration of Game Consoles Used as Entertainment Hubs

2008	Game Devices as Entertainment Hubs	2013
	Gaming Devices	
52%	% of US BB HHs that own gaming devices	66%
37.2M	Total US BB HHs that own gaming devices	63.3M
23.7M	Total Online-Enabled Gaming Devices	73.1M
7.7M	HHs using game devices for online video viewing	16.6M
1.4M	Game devices used w/streaming service	8.7
1.1M	Game devices used for downloading content	1.7M
5.2M	Game devices used as mediation device	10.7M

Source: In-Stat, 2/10

Table 7 shows estimates for penetration of media center PCs, which will be a respectable 45.2 million in 2013. We expect about 18.1 million households will be streaming video from online services directly to their TV set. We expect about 10.7 million video game consoles will still be in use as a “media extender” to mediate the connection between a media center PC and a TV set.

Table 7. US Penetration of Media Center PCs Connected to TV Sets (in Millions)

2008	Media Center PCs	2013
	Media Center PCs	
18M	HHs with Media Center PCs and In-Home Network	45.2M
7M	HHs that stream video to the TV	18.1M
100%	% HHs using PCs for downloading content	100%

Source: In-Stat, 2/10

Pay-TV Services Will Also be Streaming Online Videos through Set Top Boxes

The Pay-TV services are likely to be providing some amount of online video streaming that can be delivered directly to subscribers’ TV sets through traditional Pay-TV set top boxes. These viewers would not be picked up by Tables 5, 6 or 7.

A company called Active Video Networks is already providing YouTube video streams through Oceanic Cable’s VOD infrastructure. It’s possible that online video streaming may not all be “over the top.” Some of it may actually come in through Pay-TV VOD services.

The Pay-TV services are quite experienced with managing a variety of tiers of services. They may find ways to monetize “over the top” video streaming, or improve upon the existing “over the top” services. This remains to be seen.

Hybrid Broadcast and Broadband Emerging in Europe

The European Broadcast Union has launched an initiative to combine linear TV program streams with enhancements that come into the TV set, or set top box, through a broadband connection. They call this initiative the Hybrid Broadcast Broadband service. With the hybrid approach, it’s possible for advanced advertising features to be provided using traditional Linear TV. In addition, when a linear TV program gets streamed as a VOD product, updated information that is brought in via a broadband connection can be instantly displayed on the TV screen. It will be mid-2010 before these early approaches for hybrid service can show their true value, but it could be a game-changer or a market disruptor in the future.

More information is available at: <http://www.hbbtv.org/>

Two approaches are currently being deployed in the Netherlands. DailyMedia TV has their PitBox set top box that includes DVB-T tuners and broadband, and delivers enhanced programming directly to consumer TV sets. Visit <http://www.dailymedia.tv/eng/index.html> for more information.

Metrological has partnered with Intel and created their MediaConnect TV set top box that can tune in a TV program and overlay enhancements from the Internet. Their web site is at <http://metrological.com>

Consumer Experience

In-Stat regularly conducts surveys of consumers so that we can verify and improve our audience segmentation analysis and spot and quantify important trends.

Consumer Behavior: Power Users, Social Users, Passive Users

In a recent survey, three key audience segments: power users, social users and passive users were identified.

Power users regularly consume professional video content from both online and Pay-TV sources. They are also emerging as a driving force for mobile entertainment services. Power users want to “stream” content from the Internet immediately or use Video-on-Demand from their Pay-TV service, and they will not wait for content to be downloaded.

Social users tend to follow the lead of the power users but with a two to three year lag time. Social users want “the machinery upstream” to handle all the complexities so that they can search for what they want, select it, and have it begin playing on whatever device they have in hand. To fulfill the desires of the social users, entertainment services are going to have to provide a lot of intelligent infrastructure that makes it easy for social users to find and use the content they will pay for.

Not All Consumers are Going to be On Board with the Changing Technology

In-Stat’s continuing consumer research has un-earthed an important fact: not all consumers are going to be on board with the changing technologies. Passive users are likely to be happy with things the way they are now. This means that content owners and content distributors will still need to provide all of the traditional customer touch points while figuring out which new approaches work.

Recent findings indicate that only 12% of US broadband households consider themselves power users while 41% consider themselves as social users. The social users tend to follow the lead of the power users, but with a lag time of several years. By 2013, only about 16% of consumers are expected to be exhibiting the behavior of power users. This group will not drive tremendous growth because of its limited numbers. However, the social user group is expected to grow to 49% of consumers, making social users the “sweet spot” that deliver high audience numbers who are receptive to the services and products of the entertainment industry. About one-third of US consumers will remain passive users, who may **never** become big users of “on demand” services, which means that traditional Pay-TV approaches will need to be supported throughout the coming decade.

Table 8. Percentage of Users by Type: Power User, Social User, Passive User

Percentage of Users by Type	2009	2010	2011	2012	2013
Power users	12.0%	13.0%	14.0%	15.0%	16.0%
Social users	41.0%	43.0%	45.0%	47.0%	49.0%
Passive users	47.0%	44.0%	41.0%	38.0%	35.0%

Source: In-Stat, 2/10

Social Users Are the “Sweet Spot” for Entertainment Initiatives

Table 9, below, quantifies the power user, social user, and passive user households through 2013. This provides a baseline to develop business models for products that appeal to each market segment.

Table 9. US Broadband Households by Internet User Behavior (in Millions)

US BB HHs by Internet User Behavior Segment (in Millions)	2009	2010	2011	2012	2013
Power users	9.8	12.0	14.2	16.3	18.4
Social users	33.3	39.7	45.7	51.2	56.4
Passive users	38.2	40.6	41.6	41.4	40.3
Total US BB HHs	81.3	92.3	101.5	109.0	115.0

Source: In-Stat, 2/10

Multitasking: Today—a Laptop or Netbook, Tomorrow—a Smart Phone or iPad

Another important consumer behavior is multitasking. People of all ages regularly surf the web, exchange emails, or update their Facebook pages using a laptop computer while they are also watching a TV program. This takes advantage of the ready availability of Wi-Fi (Wireless Fidelity) networks in broadband homes. No new infrastructure needs to be built, but new opportunities to connect with consumers are created.

Table 10 quantifies the number of multitaskers by gender and by age group. About one-third of all males and about one-quarter of all females **already multitask**. 52.4% of males aged 35–39 report multitasking. These may be men with school-age children. 30% of females, aged 45–49, are multitasking. These may be young grandmothers keeping in touch with recently married children, or networking with friends now that the kids have moved out.

A portion of each age group is actively multitasking while watching TV. This opens tremendous opportunities for content owners, sports leagues, and other business entities to literally “reach out and touch” consumers who are also viewing TV screens filled with your brand message. Content owners and advertisers need to figure out how to leverage millions of consumers who are multitasking.

People who are already multitasking currently use a laptop PC or low-cost netbook. Within the next year, we expect some of these multitaskers will start using a smart phone. When multitaskers abandon their PCs for their smart phones, we expect entirely new usage models to develop that take advantage of the “always on, always nearby” features of personal smart phones.

Table 10. US Multitaskers by Gender and Age Group (Number in Millions by Age Group, Percent of Total in Age Group)

US Multitaskers by Age Group	18–24	25–29	30–34	35–39	40–44	45–49	50–54	55–64	65+
Male multitaskers (millions)	6.5	4.6	3.5	5.5	2.7	5.0	3.7	3.2	3.5
% of all males in age group	42.1%	41.2%	34.8%	52.4%	25.5%	44.2%	34.7%	19.7%	21.3%
Female multitaskers (millions)	4.8	3.5	2.8	3.5	1.4	3.5	2.0	3.3	3.2
% of all females in age group	32.9%	33.3%	28.9%	33.3%	13.5%	30.0%	18.6%	18.7%	14.3%

Source: In-Stat, 2/10

In-Stat Summary: Up to US\$10 Billion Is on the Table by 2013

Influence & Impact on Media Companies

From tables 5, 6 and 7 the number of households expected in 2013 to be using a Blu-ray player, a video game console, or a media center PC to stream video from the Internet to a TV set is about 46 million. Of those, only about 8.7 million are expected to actually be subscribing to a subscription-based streaming service. This represents only about 18.9% of those who are streaming video from the Internet willing to pay extra for a subscription service.

The aforementioned tables illustrate that not all consumers will be on board with the new technologies. If power users find ways to obtain premium content without payment, they are likely to continue doing that, and the passive users are not likely to do any of this. This most likely leaves a portion of the social users who are most likely willing to pay for a subscription streaming service that can be played directly to their TV set through a Blu-ray player or video game console.

Overall, the information and research shared in this document points to a strong and sustained growth pattern for the electronic entertainment industry. By simply totaling up the revenue forecasts in this report, we've identified up to US\$10 billion in revenues that do not exist today will be on the table for electronic entertainment by 2013. From Table 1, we have US\$3.5 billion for Pay-TV VOD and Pay-per-View (PPV), plus US\$1.5 billion for online VOD. From Table 3, we have US \$1.8 billion for ad-supported online VOD. Table 4 shows US\$2.6 billion in ad-supported VOD from the Pay-TV services. **That's US\$10.3 billion in new revenues.**

However, to be successful in obtaining such revenues, three things need to be done: (1) select strategies that map today's assets into an electronic future, (2) begin work on an automated media exchange, and (3) create a "cash engine".

Select Strategies that Map Today's Assets into an Electronic Future

First, each participant in the business needs to be looking forward and creating strategies that leverage their current resources -- setting the stage for continuing incremental growth. Each organization within a company has control of key assets that can be leveraged in the move to digital. In many cases, existing corporate business units operate today as independent business units that cannot readily share content, assets, or information across the greater company. Companies must be working from the bottom up to identify and capture all available assets, and then working from the top down to create linkages and opportunities that can be supported over the long term. Outside assistance may be valuable during the strategy-setting phases of development.

Begin Work on an Automated Media Exchange

Second, IT resources need to be put in place to permit new levels of connectivity directly with consumers. This means that all entertainment companies need to be creating data centers that can store and manage their content, and connecting with CDNs to present their offerings to consumers. The long term implementation of these efforts will be what we call an **Automated Media Exchange**.

It will take many years for all the specifics to be worked out, but any company that wants to participate in the future of electronic entertainment has to be able to identify all their assets, manage the assets in a sophisticated data center, and be able to quickly find and deliver assets according to an internal business model. Over time,

we'll begin to see examples of internal Automated Media Exchanges that provide key business advantages for companies that have them.

The third, and probably the most important thing that needs to be done is creating a powerful, flexible and scalable internal billing "machine" that eventually becomes the "cash engine" for the enterprise.

The Ability to Track Individual Consumers for Individual Usage is Critical

All of the industry segments mentioned above operate through customer billing systems that are based on point of sales or subscription models. These billing systems can charge for individual purchases, such as packaged goods purchases, Pay-per-View (PPV) and Video-on-Demand (VoD), but for the most part they can only identify the account holder that made the purchase, not the actual individual who initiated it. In addition, the billing systems are not operated directly by the content rights holders. The billing systems are operated by the distribution channel partners. Retail stores charge for point of sale at their checkout counters, or on their store websites. Cable TV, TelcoTV (IPTV), and Satellite TV services collect the money for subscriptions and PPV and VOD purchases.

The DECE and Disney's Keychest Approaches Require New IT Infrastructure

Two new initiatives have been announced that are expected to make it possible for content owners to directly monitor how consumers are using legally-acquired content. The idea is to permit consumers to sign up for something called a "digital rights locker" when they purchase a piece of entertainment content. Consumers opt in to these services, and pay a fee. Once their content purchase is registered, they will be permitted to stream that piece of content to any device, anywhere in the world. Imagine purchasing a movie on Blu-ray disc, but then being able to log in from a PC or from a smart phone and view the movie at any time, for no additional charge. Studios believe that some portion of the consumer audience will find this "up sell" option attractive, and it will help bring in additional revenues. The "digital rights locker" approach could also be paid for when a consumer chooses to purchase a movie on a Pay-TV or online VOD service.

The Digital Entertainment Content Ecosystem, or DECE, is an industry-wide consortium that has signed up 48 member companies that provide entertainment content, software, hardware, retail services, or infrastructure and delivery systems. Recent milestones announced at the 2010 CES show are:

- Agreement on a common file format, an open specification for digital entertainment, that will be used by all participating content providers, services and device manufacturers
- Vendor selection for and role of the Digital Rights Locker, a cloud-based authentication service and account management hub that allows consumers rights access to their digital entertainment
- Approval of five Digital Rights Management (DRM) solutions that will be DECE-compatible

The Walt Disney Company has also announced their Keychest service, which has similar characteristics, including a permanent, online "digital rights locker".

Capgemini Insights and Capabilities

Digital Content Services: A Framework for Transformation

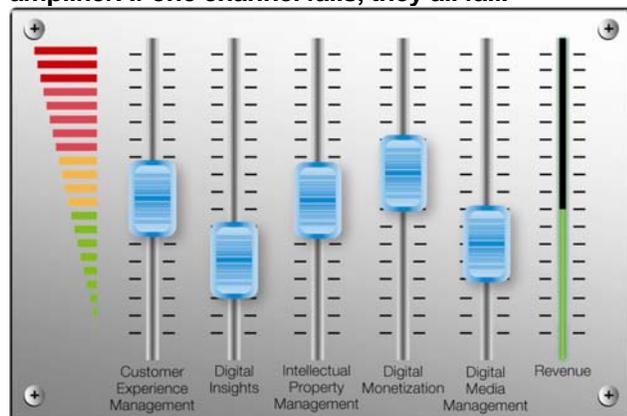
Content is moving from physical to digital and for most, the digital world is all new—new products and processes, new customer expectations and distribution channels, new revenue streams and cost structures. Capgemini is helping define, shape and implement new business models for pioneering media and entertainment companies.

Digital Content Services (DCS) is our innovative framework that enables digital entertainment transformation and creates competitive advantage. It features five areas that need to be addressed:

- ✓ Customer Experience Management
- ✓ Digital Insights
- ✓ Intellectual Property Management
- ✓ Digital Monetization
- ✓ Digital Media Management

Within each, the changes that need to be made can be substantial and dramatic, and the challenges each company faces will depend on its maturity in each area.

The five components work together like a revenue amplifier. If one channel fails, they all fail.



Source: Capgemini

We're Helping Media Companies Work (and Make Money) in the Digital World

Capgemini is an industry leader in service areas that directly impact digital content management. Our first step is to sit down with your business to review your digital strategy. We'll work with you to assess each area of DCS and level-set on the maturity of your company's capabilities and roadmaps in achieving the 'right level' of competency needed to succeed in your marketplace. As we work with you to rationalize the opportunities, we can support you beyond the Digital Strategy in service areas including:

- Implementation Assistance — Develop new business processes and technologies to achieve efficiencies through industrialization, automation and integration.
- Business Process Outsourcing — Provide higher service levels at lower costs.
- Technology Outsourcing — Delivering systems/application development, management, and hosting.

Capgemini's TME practice has the credentials and willingness to collaborate with your company to solve the issues that may be holding you back from succeeding in the digital world.



Maximizing Assets, Unleashing Growth, and Transforming to Succeed

Telecom, Media & Entertainment (TME) is one of Capgemini's global sector organizations, dedicated to helping the telecommunications, media, and entertainment industries achieve strategic goals and world-class results. By combining technical expertise and insight with a passion for innovation, TME delivers true value to clients worldwide. With a dedicated team of 5,000+ management consultants and systems integrators based around the globe and a 40-year track record of delivering benefits to 300+ customers worldwide, we help our clients maximize assets, unleash growth, and transform to succeed.

About Capgemini

Capgemini, one of the world's foremost providers of consulting, technology and outsourcing services, enables its clients to transform and perform through technologies. Capgemini provides its clients with insights and capabilities that boost their freedom to achieve superior results through a unique way of working, the Collaborative Business Experience™. The Group relies on its global delivery model called Rightshore™, which aims to get the right balance of the best talent from multiple locations, working as one team to create and deliver the optimum solution for clients. Present in more than 30 countries, Capgemini reported 2009 global revenues of EUR 8.4 billion (approximately USD \$11.6 billion) and employs 90,000 people worldwide.

More information is available at www.us.capgemini.com.

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Methodology

This white paper was developed using internal In-Stat research and analysis.

Reports listed below provide a representation of the kinds of data available from In-Stat.

Related In-Stat Reports

- IN0904467MBI *US Advanced Advertising*, December 2009
<http://www.instat.com/catalog/mmcatalogue.asp?id=289#IN0904467MBI>
- IN0903978MBI *Global Interactive Program Guides and Content Discovery*, Sept 2009
<http://www.instat.com/catalog/mmcatalogue.asp?id=289#IN0903978MBI>
- IN0904016MBI *CDNs and Data Centers to Usurp Video-on-Demand*, July 2009
<http://www.instat.com/abstract.asp?id=289&SKU=IN0904016MBI>
- IN0904474MBS *3Q09 PayTV Subscribers Summary*, January 2010
<http://www.instat.com/catalog/mmcatalogue.asp?id=288#IN0904474MBS>
- IN1004547ME *Worldwide Blu-Ray and DVD Player/Recorder Market*, January 2010
<http://www.instat.com/catalog/mmcatalogue.asp?id=162#IN1004547ME>
- IN0904477ME *The Digital Set Top Box Market: Global Demand Remains High*, Nov 2009
<http://www.instat.com/catalog/mmcatalogue.asp?id=162#IN0904477ME>
- IN0904404CM *Web-To-TV Video Changes Everything*, April 2009
<http://www.instat.com/catalog/mmcatalogue.asp?id=212#IN0904404CM>
- IN0904820CM *So That's What an Early Adopter Looks Like!* December 2009
<http://www.instat.com/catalog/mmcatalogue.asp?id=212#IN0904820CM>
- IN0904469MBS *3D TV Coming Soon to a Home Near You*, December 2009
<http://www.instat.com/catalog/mmcatalogue.asp?id=212#IN0904469MBS>

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