

## Programming Windows Growing Increasingly Complex for Rights Holders

*Managing Media Content in an Increasingly Complex Industry*

- **The advent of digital technology is** altering the landscape of the entertainment business, fueling changes in the way television programming is sold and marketed in its multiple windows and altering release patterns throughout the world.
- **About 500 movies are released** annually, 6-8 titles opening each weekend, creating severe competition for the movie going public. Studios generated \$9.2 billion at the box office during 2003.
- **Home Video is a \$26 billion industry,** generating over 50% of Hollywood's revenue. This window barely existed 20 years ago.
- **The stakes are high for management** of movie and television assets and timing is increasingly short for effective revenue growth. The need for effective digital rights management and sophisticated software solutions growing is ever important.

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## 1. Overview

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The advent of digital technology is altering the landscape of the entertainment business, fueling the changes in the way television programming is sold and marketed in its multiple windows.

It has transformed the Home Video business, created new markets in cable and satellite, spawned the DVD revolution, and provided downloading of video over Internet. In short, the business of movie and television distribution is being altered by the impact of digital technology.

Industries are responding to changes in a variety of ways. Content holders are creating new windows where none previously existed. The distribution patterns of theatrical releases are shrinking in time and compressing geographically.

The complexity of distribution is awesome. Including the major Hollywood studios, there are over 600 entities that directly or indirectly distribute feature motion pictures to worldwide markets. Approximately 350 distributors specialize in foreign territories and 250 specialize in domestic territories. Of these, approximately 225 companies distribute motion pictures to the theatrical markets, 250 to home video, 310 to television, 70 to pay-per-view and 95 to the syndication markets.

On the content exhibition side, feature content is output to four major television networks, 37 cable channels, and hundreds of independent stations in the United States. DVD and VHS tapes are sold to over 20,000 retail video stores in this country alone.

Each distribution outlet requires its own separate negotiation and contract, with protections and commitments delivered to both sides. Each piece of content has a particular format associated with it, whether it is high definition, closed captioning, or home theater high quality audio.

The result is an increasing demand on content companies' rights management and asset tracking capabilities. Companies are struggling to keep up with the hectic and relentless progress in the consumer electronics industry and the ever evolving consumer behavior with appropriate and flexible IT systems.

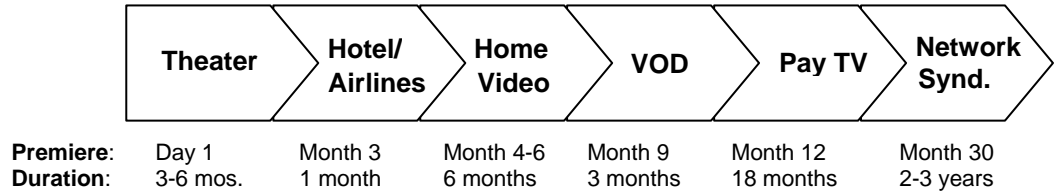
This brief details many of the critical dynamics that are altering the media and entertainment landscape, and discusses how companies are being challenged to respond and adapt to the transformation if they are to remain competitive in the future.

## 2. Lifecycle of a Title

With the premiere of a film at its theatrical debut, most every movie flows through a very typical pattern of releases into different windows, which is the timing of a title's availability for a certain distribution.

These windows follow a typical pattern, as detailed in Figure 1.

**Figure 1: Windowing of a Theatrical Title**



Technology is having a tremendous impact on altering the availability of titles in windows, the revenue generated by each window and the pattern of releases throughout the world. The stakes for management of movie and television product are high, the timing increasingly short, and the need for effective digital rights management software solutions growing more important daily.

The availability of a title through its windows follows a logical progression.

**2.1 Theatrical release.** As shown in Figure 1, the theatrical premiere of a movie signifies its exhibition first window, the first date on which the movie is available to the general public.

The box office window is usually preceded by several weeks of advertising and promotion, in which studios spend tens of millions of dollars to market the product in an attempt to turn the movie into a “brand”. There is often a short time to create this brand.

The average studio feature is in first-run release for approximately 8 weeks, exhibiting in between 1,000 and 2,700 screens, and grossing \$10 to \$40 million. The same picture plays in second-run theaters for the balance of its theatrical life, which can be up to approximately 6 months after premiere. Independent pictures gross much more modest sums, but their production and marketing budgets are considerably less as well.

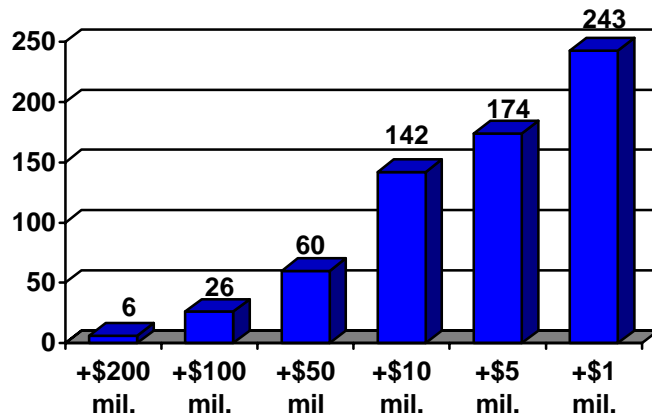
Industry box office receipts totaled \$9.2 billion, representing 1.52 billion admissions, at an average ticket price of \$6.03 in 2003. The industry had to settle for second place all-time as revenues dropped 1.2% and admissions declined 5%. The year before, movie distributors experienced a level of success never before seen, as US box office grew to new heights not seen in over 40 years.

Nearly 500 movies are released annually, typically with 6-8 opening each weekend, creating severe competition for the movie-going public.

The high volume of movies, the increased importance of later windows, and the financial pressure on multiplex owners is resulting in movies spending far less time in theaters than in years past.

The cost of shelf space in the movie industry is so high that there is little room for modest hits. In this winner-take-all industry, a studio either has a hit or a bomb. Of these 500 commercial films, 200 are released each year as major studio releases. The cost of gaining share for any one of them is so expensive that small films rarely return the investment - and it's getting worse.

**Figure 2: Distribution of Box Office Receipts, 2003**



On average, only one new film can be a hit each week. That means that hundreds of major studio releases will fall short of hit status. Most movies, after an initial two to four weeks in the multiplex, are quickly replaced by newer releases as studios abandon marketing efforts on previous releases, shifting to support the new releases.

An average major studio Hollywood film costs between \$50-75 million to make. It costs between \$30-50 million to market. Most major studio films that make less than \$100 million dollars within a year from release are seen as failures, and that includes most of them.

An increasing number of films, like *Pearl Harbor* (2001) and *The Matrix Reloaded* (2003), have to make well over \$200 million to break even. At that level of risk, though, the payoff can be enormous. As shown in Figure 2, only six titles made more the \$200 million at the box office in 2003. For example, *Titanic* (1999) wiped out the memory of many expensive bombs.

From a studio's point of view, it's better to swing for the fences than try to get singles and stolen bases, even if you strike out most of the time. The ideal is getting global distribution dominance, as *Titanic* did, to drive the after-markets. These have a magnifying effect on the few big winners, making them all the more critical to a studio's fortunes.

Theatrical exposure, no matter on the subsequent projection medium, is a major method of enhancing the value of the ancillary markets (e.g., home video, cable, and free TV). Ancillary windows all benefit directly from word-of-mouth advertising and ad campaigns created by the theatrical release. Thus, any increase in the value of ancillary rights decreases the reliance on theatrical exhibition as a source of revenue. A successful theatrical release has proven time and again to be extremely valuable for exhibitors, distributors and producers alike.

It is predicted that in the next ten years, international revenue should close the gap on domestic revenue, partly because the boom in the domestic market can't last forever and DVD will have saturated the US market. By 2012, DVD growth is expected to continue internationally.

- 2.2 Hotel, Airline Window.** Three months after theatrical release, a movie is made available to the airline and hotel industries. This small, but highly captive audience, is given the opportunity to purchase a title on a pay-per-view basis. The cost for a title in this window is anywhere from \$4 to \$5 for a set of headphones on an airplane, to \$10 per hotel room for a full 24 hour viewing period.

Movies are distributed to hundreds of airlines and thousands of hotels and chains throughout the world. A studio will typically pre-sell its theatrical output of titles to sub-distributors to handle these sales.

- 2.3 Home Video Window.** This is the most important window financially to a studio. It is also one of the fastest growing. Home Video is a \$26 billion industry that barely existed 20 years ago. It generates over 50% of Hollywood's revenue, far in excess of the \$9.2 billion studios generated at the box office during 2003.

Home Video begins approximately 4 to 6 months after premiere. The less successful a title, the sooner it is released to home video. Average days it takes for a movie to reach Home Video has steadily shortened since 1996, declining from 180 days in 1996 to 155 days in 2003.

The Home Video window typically has an exclusive period at its start, free from the coming competition of Video-on-Demand (VOD), Pay TV (e.g., HBO) or other newer forms of distribution. The result is a studio's ability to maximize revenue and profit from sales and rentals, without cannibalizing future windows. As theatrical windows have shrunk, this window has expanded. Studios are creating marketing events for the launch of a title into the home video market that are getting closer in magnitude to that of a theatrical release.

Three main trends are driving the Home Video Markets.

- 2.3.1 DVD Equipment Growth.** Nearly 60 million US households had a DVD player at the beginning of 2004, up 50% from a year earlier. An additional 21 million units are expected to be sold during 2004,

up 20%. At his rate, it will exceed the sales of color TVs - the historical sales CE leader.

DVD rapid growth is due to the steep decline in home electronics price points. In 2003, the average DVD player retailed for only \$136. This is a decline of about 80% from its cost at launch in 1997. DVD achieved 55% of all US households at the start of 2004, with penetration expected to reach 81% by 2006.

At the same time, the VCR is going the way of 8-track players and dinosaurs. VCR penetration declined last year for the first time since its introduction as homes opted to replace broken/aging VCRs with DVD players. By year-end 2005, VCRs are expected to decline by 10 million households, a decrease of 11%.

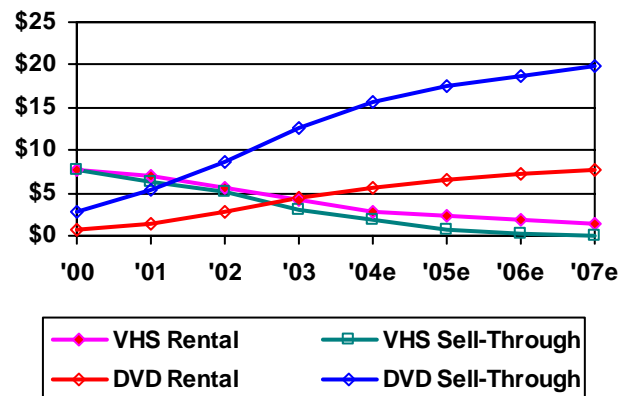
**2.3.2 DVD Revenue Surpasses VHS.** DVD revenue generated \$17.1 billion in 2003, a 48% increase over the previous year. It surpassed VHS in 2002 and is on track to increase to \$21.3 billion in 2004, up 24%.

Its growth is expected to continue as the cost of DVD declines and more retailers, such as WALMART, TARGET and BEST BUY, increase their DVD rental and sell-through activity.

**2.3.3 Sell-through Revenue Rapidly Growing.** The trend in Home Video from rental to purchase has leveled rental revenue at \$8.5 billion annually, with little to no growth projected. With the advent of the DVD player, consumers have readily shifted their purchase and viewership patterns in favor of buying.

Digital technology delivers a high quality, theater-like experience in the home. It provides consumers far more enhancements, such as widescreen and standard screen formats, multi-language audio tracks, multiple camera angle options, six channel home theater Dolby Digital 5.1 audio, and interactive television (ITV).

**Figure 4: Home Video Revenue by Segment (in billions)**



DVD generated \$12.7 billion in sell-through sales in 2003 (Figure 4), which exceeded the combined total revenue of VHS sales, DVD rentals, and VHS rentals. Average number of days it has taken a movie to move from Home Video to Pay-per-view has stayed steady at 47 days since 1996, indicating that studios and video retailers want to protect their windows, trying to maintain title profitability in every window.

Piracy is an increasing threat to the movie industry. Once upon a time, piracy involved just grainy camcorder copy shot from the audience. With the ease and quality of copying digitally, piracy has turned into a global industry.

Studios are combating piracy with digital watermarking and world-wide same-day premiere dates (*The Matrix Reloaded* (2003)). By attempting to slow piracy and respond with technology advances, studios are radically transforming the operational complexities for media and entertainment companies.

- 2.4 Video-on-Demand/Pay-per-view Window.** About 10 months after theatrical premiere, studios release titles to cable and satellite operators, such as Comcast and DirecTV, for selling directly to consumers on Pay-per-view (PPV) and Video-on-Demand (VOD).

Pay-per-view is a service offered by cable and satellite providers offering customers a selection of movies and specialty programming ranging from box office hits to wrestling. It provides for the customer to select and pay for a single program as it is viewed. Video-on-Demand, however, is only offered by cable. It allows the end-user to at any time select movies to view from a large selection of titles stored on a remote server. Its advantage over VOD is that it provides VCR functionality, (stop, pause, etc.), allowing users to control the "play back" of the server from remote control.

The revenue from VOD/PPV was only one tenth of the Home Video market. The growth of digital set-top boxes has improved cable's ability to deliver on demand content to subscribers. Yankee Group projects VOD capability to grow from 12.5 million subscribers in 2003 to 31.9 million in 2006.

Since the advent of PPV, studios have firmly held against improving this window in order to protect its higher revenue Home Video business.

- 2.5 Pay TV Window.** After 12 months, titles are provided to Pay TV suppliers, such as HBO and Showtime, to air on their subscription services. While theatrical windows have shrunk, Pay TV windows have not crept earlier. Studios generate about \$3 billion annually from this window. HBO retails for about \$12 per month above the cost of Basic.

Studios pre-sell their content exclusively to HBO, Showtime, or Starz with long-term deals, generating revenue based on each title's box office success. Contracts typically provide two distinct windows. The first is the first-run window, which runs about 18 months starting a year after theatrical release. Upon conclusion, titles leave the Pay TV for a broadcast and cable network window. The second run in the Pay TV window starts about 4-5 years after theatrical release and runs for about two years.

Pay TV distributors have increasingly had to overcome the high number of previous windows that consumers have had to view the same title. Growing to over half a dozen windows available prior to Pay TV, the value of a title has steadily diminished during recent years.

Pay TV distributors are forced to intensely manage inventory with sophisticated software solutions in order to maximize the number of plays, repeats, and scheduling. Inventory and scheduling are made further difficult by the number of multiplexing screens and time zone feeds. For example, Starz uplinks nearly 40 different screens of service.

**2.6 Broadcast and Cable Network Window.** Thirty months after release, broadcast and basic cable networks are offered titles for airing. The first broadcast and cable window lasts one and a half to two years. At the conclusion of this window, a title typically returns to Pay TV for its second exclusive window, returning afterward to broadcast and basic cable for a second syndication window. At this time, a movie is often referred to as a library title.

The consolidation of the media industry has increased the vertical integration of studios with both broadcast and cable networks. Most studios are now vertically integrated with a general entertainment cable network, e.g., 20th CENTURY FOX (FOX, FX), PARAMOUNT (CBS), DISNEY/TOUCHSTONE (ABC), UNIVERSAL (NBC, USA), WARNER BROS. (THE WB, TBS, TNT).

Studios have pre-existing output deals for their studio product far in advance of movie releases and most are vertically integrated with a general entertainment cable network. Studios' deals with Pay TV, broadcast, and cable networks are detailed in Figure 4.

**Figure 4: Studio Output Deals, 2004**

Studio	Pay TV	Broadcast/Cable	Studio Owner
Disney/Touchstone	[TK]	ABC	Disney
20 <sup>th</sup> Century Fox	[TK]	Fox / FX	NewsCorp
Paramount	Showtime	CBS	Viacom
Universal	Starz	NBC/USA Network	NBC/Universal
Warner Bros.	HBO	WB / TBS, TNT	Time Warner
Dreamworks	HBO	ABC / TNT, TBS	Dreamworks
Sony/Col./TriStar	HBO	none	Sony
Revolution	[TK]	Fox / FX	Revolution
MGM	Showtime	none	MGM

SONY owns neither a broadcast network nor a general entertainment cable net, and has no obvious vertically integrated distribution of content. As a result, SONY is highly aggressive in terms of selling its content to broadcast and cable on an individual title or bundled basis.

### 3. Technology Impacting Content and Rights Management

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Content owners faced increasing complexity caused by the arrival of consumer digital technology. Asset management, inventory tracking, and sales of programming rights and options are daunting for content owners and distributors.

In a digital environment, an enterprise-wide management system is essential for content owners to maintain with accurate asset information. Operational challenges abound. Content owners and distributors are seeking to “future-proof” their libraries against technological changes by seeking the highest technology available today. Sales departments and asset managers must keep pace with the availability of these enhancements since each is a new sales opportunity.

The technological enhancements include:

**3.1 High Definition (HDTV).** The introduction of digital into television has provided the opportunity for HDTV to become one of the hottest consumer electronics purchases and topics of conversation for the industry and consumers. HDTV has more than double the horizontal and vertical resolution scan lines, and over six times more pixels than current television. Programmers, broadcasters and distributors are all currently challenged to maintain and distribute multiple assets in multiple formats, both High Definition and Standard Definition.

**3.2 Broadcast Standards.** There are two broadcast standard formats for distributors and content owners: NTSC and ATSC. NTSC, named after the National Television Systems Committee, is the broadcast television transmission standard for analog, color television used today in North America. The format is 525 lines in a 4.5-MHz bandwidth. All TV sets sold in North America are NTSC compatible.

The ATSC (Advanced Television Systems Committee) television standard was adopted as the Advanced TV broadcasting standard by the FCC Advisory Committee on Advanced Television Service in 1995. It covers the standard for HDTV (High Definition TV) with 18 different varieties. Figure 5 details options within the ATSC format.

**Figure 5: ATSC Format Options and Complexity**

Parameter	Options
Vertical lines	Range of 480, 720, or 1080 lines per screen
Horizontal Pixels	Range of 640, 704, 1280 or 1920 pixels/screen
Aspect Ratio	Option of 16:9 (widescreen) or 4:3 (today)
Picture Rate	Interlacing vs. Progressive Frames per second, option of 24, 30, or 60 FPS

**3.3 Multi-language Audio Tracks.** Domestically, most content is delivered in two languages. English is delivered on the primary audio channel, with Spanish available on the Second Audio Programming (SAP) channel. Content rights holders have the ability to store additional language tracks for sale globally. Further, multi-country satellite distributors whose signals cover overlapping countries, such as in Europe, are able to carry as many as eight different language feeds per channel.

**3.4 Dolby Digital 5.1.** Dolby Digital 5.1 delivers six channels of surround sound. It has five discrete full-range channels—left, center, right, left surround, and right surround—plus a sixth channel for powerful low-frequency effects (LFE) that are felt more than heard in movie theaters.

Home-Theater-in-a-Box systems have become popular with the advent of DVD. Dolby Digital 5.1 is available on all Pay TV channels, as well as many broadcast and cable nets. It can be delivered in a broadcast signal, in both standard and high definition.

**3.5 Digital Closed Captioning.** Closed captioning has become available for digital television sets, such as high-definition television (HDTV) sets, manufactured after July 1, 2002. Digital captioning provides greater flexibility by enabling the viewer to control the caption display, including font style, text size and color, and background color.

Captions are created from the transcript of a program and stored digitally on content. Captioning allows viewers who are deaf or hard of hearing to follow the dialogue and the action of a program simultaneously. A specially designed computer software program encodes captioning information and combines it with the audio and video to create a new master tape or digital file of the program.

**3.6 Interactive Television (ITV).** ITV is data for enhanced programming and is embedded digitally. It has features familiar to DVD, with information such as show cast lists, biographies, film histories, box office results, shoot locations, trivia, contests, stock reports and sports scores utilized via the remote control.

**3.7 Digital Watermarking.** Digital watermarking is a rapidly evolving field. Its applications provide capabilities and useful benefits to consumers, infrastructure providers, and content owners. These applications support and enhance all forms of digital media, such as asset management, copy protection, authentication, classification, and monitoring.

**3.8 Squeeze credits.** At the conclusion of some broadcasts, credits are squeezed to provide additional promotional and sales opportunities. Squeezing is programmed digitally and integrated into the programming stream. Data is content specific and must be integrated with each individual piece of content.

## 4. Evolving Distribution Landscape

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With the advent of digital, new methods of distribution are now available that have the potential to usurp existing distribution platforms and windows. Programming rights owners are tracking these developments very closely. Many content owners are investing in alternative distribution technologies in order to maintain the value of their assets, windows, and rights.

**4.1 Internet Distribution.** The Internet is growing in use and popularity as a viable alternative to satellite and cable for delivering video directly to consumers.

Last year, 7.8 billion Internet video streams were accessed, an increase of 104% over 2002. Of these, 78% were viewed at broadband rates. One third of the streams were music videos, while 28% were news oriented, and 17% sports-related videos.

Consumers are increasingly utilizing the Internet for video based on three critical factors:

- 1) Bandwidth has grown twenty-fold via broadband DSL and cable modems
- 2) Increased processing power is now available in home PCs
- 3) PC storage capacity at home has vastly increased, and at substantially lower cost

The result is that programming can now be downloaded, viewed, and stored on home PC in TV broadcast quality or higher. Remember Napster? The Napsterization of video is here.

**4.2 Platform Distribution.** Only two decades ago, a studio's dominant revenue came from theatrical box office. Today, product is being delivered to customers in multiple ways, such as VOD, PPV, basic and pay cable, satellite, Internet, websites, wireless, syndication, broadcast networks, cable, each paying top dollar for high quality programming.

Media and entertainment is still a hit business. New channels and distribution platforms launch constantly. With every new outlet, content owners are creating shorter windows, higher revenue expectations, and shorter periods of time in order to reach objectives. Improved asset management, inventory control, and company-wide software are now being given far greater importance at leading companies.

Consumers are learning new behavior and technologies. Business must stay ahead of the changes or drown in a sea of complexity.

**4.3 DVD Distribution of TV Programming.** As the explosion of DVD continues, distribution methods are changing. Broadcast television shows, once sold into off-network and cable syndication after network airing, have created a new and lucrative window for themselves with DVD sell-through and rental.

Shows, such as HBO's *The Sopranos* and *Sex and The City* and Fox's *The Simpsons*, have been released on DVD, with an entire season packaged on one or two disks. Special edition DVDs, with interactive elements, behind the scenes and previously unseen clips, are proving the strength of home video and DVD technology.

Asset and rights management now means tracking and inventory controls far beyond the final editing of a program. Different digital elements are being delivered and sold into different windows, providing different competitive advantages to DVD, VOD, or the Internet.

**4.4 Interactive Television.** Interactive television is enhanced with consumer-involved video and data services that complement the broadcast, cable or satellite television experience. Certain shows, most notably live, sporting events, and cable news networks, offer real-time polling and statistical updates on screen and on corresponding websites.

Interactive television is still in its formative years as consumers and operators alike remain confused about the advantages of such services. ITV products, such as DVRs and VOD are here today, while others, such as t-commerce, are a few years away from commercial deployment.

ITV advertising and promotions spending was \$133 million in 2002, \$156 million in 2003, and is projected to grow at an annual rate of 17.4%, to \$296 in 2007.

## 5. What to Watch For

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The positive impact of digital is the high quality and variety of content that are now able to be delivered into the home. This trend will continue. Media companies, distributors, and content holders are currently determining strategies for the future.

Issues that need to be watched in the future include:

- **Continued Changes in Consumer Behavior.** With continued advances in digital technology, increased efficiency in distributing video over the Internet, and the maturing of a population raised on media-rich computing, the issue of how behavior changes will impact the content use has yet to be determined.
- **Greater Consumer Desire for Portability.** Technology and cost reductions should allow video to become as portable as music and radio. Content holders will seek to maximize revenue as this consumer trend takes hold.
- **Wireless.** The development of wireless technologies, such as WiFi and Bluetooth, has not yet reached its full impact on content owners, but it is expected to be a significant trend in the future.
- **Long-term DVD Usage.** DVD is the prime driver of Home Video. The trend toward increased sell-through will continue to impact Home Video. This will be a closely watched dynamic for content holders. Further, as video downloading becomes more widespread, its impact on DVD will be critical to the industry.
- **Increased Need for Enterprise-wide Asset Management Systems.** Windows and distribution options will continue to increase, causing greater complexity in the industry.
- **Continued Consolidation and Vertical Integration.** Studios will continue to control greater volumes of content over a higher number of windows as consolidation accelerates within the media industry.
- **Impact of Digital Video Recorders (DVR).** Concern is mounting among advertisers and ad-supported broadcast/cable networks over the impact of DVRs. If viewers diminish and ad rates decline, content owners will be perhaps negatively impacted as their customers are unable to continue paying high prices. The value of the same content in non-ad supported window might increase.

## **RSG Systems**

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## Glossary

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**Affiliate** - A cable system, cable MSO, and DBS provider which distribute programming services to consumers.

**Affiliate Sales** – A department of a channel which has the responsibility to gain carriage on cable and DBS distributors, to promote the channel, coordinate marketing, and answer questions.

**Basic Service** - The primary cable service that provides improved reception and increased availability of local and distant broadcasting signals, public service broadcasting, local origination signals, basic service satellite signals and alphanumeric information.

**Broadband** - Telecommunication that provides multiple channels of data over a single medium (fiber, wireless). Broadband technology can support a wide range of frequencies and is used to transmit data, voice, and video over long distances.

**Cable Channel** – A programming service offered via cable, direct broadcast satellite, C-Band, Ku-Band and other forms of multichannel video distribution. Also referred to as a network, service, or channel.

**Cable Modem** - An external modem designed to transmit high speed data over cable TV lines. A cable modem can be used to quickly access the Web, using cable's much greater bandwidth than telephone lines.

**CATV** - Originally "community antenna television," now it is understood to be cable television.

**Coax Cable** – Short for coaxial cable, a type of cable that consists of a single center conductor surrounded by insulation (dielectric) and then a grounded shield of braided wire. The shield minimizes electrical and radio frequency interference. Coaxial cabling is the primary type of cabling used by the cable television industry and is also widely used for computer networks.

**Digital closed captioning.** Captions are created from the transcript of a program and are stored digitally on content. Digital closed captioning has become available for digital television sets, such as HDTV sets, manufactured after July 1, 2002. They allow viewers who are deaf or hard of hearing to follow the dialogue and the action of a program simultaneously.

**Digital Watermarking.** Digital watermarking is a rapidly evolving field. Its applications provide capabilities and useful benefits to consumers, infrastructure providers and content owners. These applications support and enhance all forms of digital media, such as asset management, copy protection, authentication, classification, and monitoring.

**DSL:** Digital Subscriber Line - A technology which enables high speed transmission of data over regular copper telephone lines. This delivers high-speed data services to homes and businesses. This gives "always-on" Internet access without tying up the phone line.

**DVR** - Digital Video Recorders (same as PVR).

**Franchise Fee** - A fee cable operators pay to the franchise authorities. It is contained in the franchise agreement and is a percentage of the operator's gross revenue.

**HDTV:** High Definition Television - Television that has more than double the horizontal and vertical resolution scan lines, and over six times more pixels, than current televisions, based on standards of the National Television Standards Committee (NTSC).

**Headend** – The room or building where the cable signals are ultimately received and prepared for distribution to subscribers. It is considered the

heart of a cable system's plant. Headends are typically situated at or near the antenna site receiving programming signals.

**HITS: Headend In The Sky** - A playout and uplink facility which delivers more than 170 digitally compressed video and audio television programming signals to 3,000 plus cable operation sites.

**Interactive Television (ITV).** ITV is enhanced programming and data embedded into digital content, with features familiar on DVDs. It is primarily data with information such as show cast lists, bios, filmographies, box office results, shoot location, trivia, contests, stock reports and sports scores utilized via the remote control.

**IP: Internet Protocol** - Specifies the format of packets and the addressing scheme for one form of computer networking. Most networks combine IP with a higher-level protocol called Transmission Control Protocol (TCP), which establishes a virtual connection between a source and a destination.

**MSO: Multiple (cable) Systems Operator** - A company that operates multiple cable systems.

**NCTC: National Cable Television Cooperative** - A programming and hardware buying cooperative, representing more than 1,000 independent cable operators, their 6,500 individual systems and more than 14 million subscribers nationwide.

**NOC: Network Operations Center** - A large facility that is responsible for the day-to-day operations and maintenance of a channel.

**NTSC: National Television Systems Committee** - The broadcast standard for analog, color television used today in North America. The standard TV format for North American television transmission is named after this standards committee. The format is 525 lines in a 4.5-MHz bandwidth. All TV sets sold in North America are NTSC compatible.

**Personal Video Recorder (PVR)** - Product that tracks viewing habits, records programs and has other interactive features, such as pause, fast forward, and rewind.

**PPV: Pay-per-view** - A service offering customers a selection of movies and specialty programming ranging from box office hits to wrestling. It provides for the customer to select and pay for a single program at a time.

**Premium Service** - A service offering consumers mostly movies, such as HBO, often with original programming. It is available for a monthly fee.

**Retransmission Consent** - Cable television systems must obtain permission from networks and other over-the-air broadcasters before retransmitting signals. Under the 1992 Cable TV Act, a commercial television station is granted the option to elect either retransmission consent or must-carry. Retransmission consent gives the television station the right to negotiate a carriage fee with local cable television operators.

**Transponder** - A device located on a satellite which receives signals uplinked by a programmer and transmits them back to earth on a different frequency. Most satellites carry 24 transponders.

**Uplink** - To transmit to a satellite for relay; also, the dish used to transmit.

**VOD: Video-on-Demand** - Allows the end-user subscriber to at any time select movies to view from a large selection of titles stored on a remote server. Service provides VCR functionality, (stop, pause, etc.) allowing an end-user to control the "play back" of the server from remote control.

**VoIP: Voice-over-Internet Protocol** - A service of voice telephony via the use of packet-switched networks running Internet Protocol (IP) networks rather than traditional circuit switching.