

**THE STATE OF IPTV 2006:  
THE ADVENT OF PERSONALIZED  
PROGRAMMING**



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## EXECUTIVE SUMMARY

Since the widespread adoption of the Internet in the 1990s, there have been many predictions that consumers would soon be watching “television” on their computers. Video content has become part of many websites, but has Internet Protocol Television (IPTV) arrived as the next generation video platform? Today, a number of diverse providers are offering a wide variety of IPTV formats that allow consumers to customize their video programming and empower a variety of content providers to directly access new audiences unavailable to them on traditional television.

This New Millennium Research Council (NMRC) white paper seeks to further explore key issues and questions about this emerging new video service, focusing on how online programming can change the “television” experience for consumers and content providers. The paper examines IPTV’s innovative applications and explores how the technology is perceived by many to be emerging from a niche market. The role of IPTV as both a competitor to traditional television and an unprecedented gateway for consumers to access information and content providers to spread their messages is incorporated throughout the report.

There is no commonly-held definition of IPTV. For some, IPTV represents an alternative video distribution mechanism which includes stored content, live programming, and on-demand video provided over an Internet connection through computers or set top boxes (STBs). For others, IPTV is associated with the new video services offered by telecommunications companies over their broadband networks. For still others, IPTV refers mainly to content development, where non-traditional providers can create their own programming and publish it on websites. These “producers” are not providing video network services directly to consumers, but rather entering the programming market from a perspective made possible only by IPTV technologies. These are all variations of a service that many experts believe is changing the notion of video programming for both consumers and content providers and very soon will make the dream of “online TV” a reality.

Recent market research demonstrated that a small but growing majority of consumers are aware of IPTV and would be willing to try it. Such interest has led industry watchers, such as Insight Research Corporation and Deloitte, to envisage a thriving IPTV industry in the near future. Market analyses predict robust growth in the IPTV sector, some forecasting revenues of \$55 billion by 2010. Online video interest in general is also growing. A February 2006 survey by the Online Publishers Association found that 24% of American Internet users watch online video at least once per week. The projected rate of IPTV growth is partially driven by technological innovations like the iPod that are creating an on-demand culture coupled with lower costs for the production of high quality video.

To illustrate the diversity and potential of the IPTV industry, NMRC chose to profile two companies that are currently offering IPTV – Communication Technologies, Inc. (COMTek) and ITVN. These two companies are among the vanguard of IPTV providers,

each offering slightly different versions of IPTV. These case studies examine the development of each company's IPTV service offerings, the innovations available to their customers, and how the IPTV services are changing the way consumers and producers behave in the video market.

Challenges do exist for the IPTV field. Regulatory hurdles, including local franchise rules for some IPTV providers and content/digital rights management issues still must be addressed. There are also concerns that online content will not compare favorably with traditional television in the near term and thus consumers will not be interested. However, many of the technical hurdles that prevented IPTV from emerging earlier have been addressed. Networks now have sufficient capacity to deliver video and in-home devices such as set top boxes and computers, which can present the programming in easy-to-use formats. By leaping over traditional video transport systems, IPTV avoids many of the regulatory and technical pitfalls that exist in traditional television. Experts identify this attribute as a key reason for IPTV's growth and its ability to create major change in the video marketplace.

Recent developments in the IPTV field lead many experts to believe that more widespread acceptance of IPTV is growing, and certain obstacles to adoption are being addressed. While IPTV is not yet considered a major competitor to traditional television, market watchers believe that the innovations of IPTV distinctly set the technology apart from the old models. As a result, market analysts believe that consumers and content providers are beginning to think very differently about where to buy and produce video services. The NRMC has sought to bring these perspectives together and take a fresh look at an industry and a technology that industry watchers believe could be "the next big thing."

## **Methodology**

The NMRC utilized public and proprietary search tools to conduct research on IPTV services, market status, providers, and technology. Information and data were obtained from interviews as well as news articles, technical reports, white papers and other secondary sources. This report is not intended to serve as a compendium of new primary source research; rather it is a compilation of available information to spur further discussion and evolution of IPTV.

## IPTV TECHNOLOGY AND SERVICES

### *Defining Terms and Services*

Internet Protocol Television (IPTV) is an all encompassing term that covers many different forms of video programming and services. It can be transmitted over broadband networks and accessed by consumers through a number of different devices. For that reason, IPTV services often can be difficult to define. Technically, IPTV is the delivery of video content, both multi-channel and on demand programming, on a closed system using Internet protocol over a broadband connection to a television environment.<sup>1</sup> IPTV can also refer to content that is stored, streamed live, or some combination of the two. IPTV services can enhance the viewing experience for consumers by adding features not available with regular television like instant statistics, digital video recording and time shifting, and web browsing. Features can vary greatly from provider to provider. In the future, IPTV services likely will integrate other telecommunications offerings such as call waiting, caller id, and email.

Regardless of the specific type of offerings from individual IPTV providers, online video is readily available to all consumers with access to broadband. The ease of producing and transmitting IPTV has led experts to predict a sea change in the consumer relationship with video programming. IPTV empowers the consumer by offering customization of the video experience like never before. Perhaps the larger and still underutilized benefit of IPTV is the expanded opportunities for new and existing content providers. IPTV enables production and distribution of video at much lower costs, opening the doors for potentially millions of new programs and “channels.”

IPTV is more than the simple offering of stored content or video on demand. While these services do utilize IP technology, they typically do not distribute their offerings to a traditional television environment and do not incorporate any other features, such as interactivity.<sup>2</sup> IPTV does not use radio frequency signals which are the basis of cable television services and some telco TV.<sup>3</sup> IPTV is also not the same as streaming video, which is static cached content located on website. One of the differences that sets IPTV apart from traditional Internet streaming is control of IPTV content over a closed system where the provider directs the path of content delivery from the head office or server, where content is stored.<sup>4</sup> Streaming is solely a stored content medium. IPTV is a “bandwidth-saving, cost-saving switch service that allows...more services over the same pipe.”<sup>5</sup> It enables the provider to control the path over which it is sent which means that eventually other applications can be added to the service such as caller ID and web

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<sup>1</sup> Amy Harris and Greg Ireland, “Enabling IPTV: What Carriers Need to Know to Succeed,” IDC White Paper, May 2005.

<sup>2</sup> Ibid, 2005.

<sup>3</sup> Karen Brown, “Telcos Mix Copper, Fiber in IPTV Diet; Ops Leverage Existing Plant, Seek Bandwidth Band-Aids,” Multichannel News, March 20, 2006.

<sup>4</sup> Geoff Daily, “IPTV and Streaming: Distinguishing the Differences,” [www.streamingmedia.com](http://www.streamingmedia.com), May 11, 2005. [www.streamingmedia.com/article.asp?id=9070](http://www.streamingmedia.com/article.asp?id=9070)

<sup>5</sup> Geoff Daily, “IPTV and Streaming: Distinguishing the Differences,” [www.streamingmedia.com](http://www.streamingmedia.com), May 11, 2005.

browsing. Streaming video lacks the bandwidth control that ensures a quality picture and interactivity.

It is the delivery of the signal that sets IPTV apart from these other service categories. IPTV uses packet switching to deliver its video services over a broadband connection.<sup>6</sup> Content is converted to a digital signal, compressed, and transformed into packets of data. The data packets are then broken up and sent over the Internet to the requesting user where the information is reassembled.<sup>7</sup> This reassembly occurs at the consumer end via either a computer or a set top box (STB) which converts the data back into a television signal. The benefits of packet based switch technology which makes IPTV possible are that it enables networks to transport data over limited bandwidth connections by sending the packets through different nodes to a destination where they are then put back together. Bandwidth availability is key for the provisioning of IPTV services.

For the average consumer, all that is required for a basic IPTV service is a broadband Internet connection, such as digital subscriber line (DSL) or cable modem, and a personal computer (PC). Some IPTV service providers require a set top box in order to convert the data back into a television signal, which then can be viewed on a traditional television. Depending on the service, software may also be required for an IPTV service offered through a PC.

### ***IPTV Today***

Over the past few years there has been a steady growth in website video content, both streaming and stored. For example, Major League Baseball and Youtube.com today offer various forms of IPTV content. Major League Baseball began by initially offering audio feeds from games around the country, but in late 2002 its website began streaming video for a select number of games.<sup>8</sup> By 2004, MLB.com had a full schedule of live game broadcasts. The cost of a streaming radio for the season is \$14.95 and a video season package costs \$79.95.<sup>9</sup> In addition to today's live games, MLB.com has archived video from historical games that fans can watch on demand at any time. There were 1.3 million video subscribers in 2005 and MLB.com reported a significant increase in subscriptions to date in 2006.<sup>10</sup> A new feature recently introduced on MLB.com called "Mosaic" allows viewers to watch six games simultaneously on their computer. Other sports, such as the NCAA men's basketball tournament, are also making live video available.<sup>11</sup>

While MLB.com has steadily grown its online video service, YouTube.com is a new website primarily filled with amateur content. Anyone with a digital video camera and a high speed Internet connection can post videos. At first glance, it would seem that this service would only appeal to a niche market and would not attract many viewers. Showing the growing interest in IPTV services, 6 million visitors a day tune in to watch

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<sup>6</sup> Matt Stump, "Internet Protocol TV At a Glance," Multichannel News, March 20, 2006.

<sup>7</sup> Ibid, 2006.

<sup>8</sup> Richard Sandomir, "Baseball's Website is Big Business," New York Times, April 2, 2006; Eric Benderhoff, "Baseball Streaming a Winner in Online Game," Chicago Tribune, April 24, 2006.

<sup>9</sup> MLB.tv subscription page," [www.mlb.com](http://www.mlb.com)

<sup>10</sup> Benderhoff, 2006.

<sup>11</sup> Sandomir, 2006.

an amazing variety of video programs, from power tool drag races to the recent championship boxing match between Oscar De La Hoya and Ricardo Mayorga.<sup>12</sup> The success of YouTube.com has attracted the attention of large Internet content corporations such as Google and Yahoo, which have now launched their own video sites.<sup>13</sup> Traditional television and cable networks have also joined the IPTV revolution. ABC has been selling episodes of its hit shows “Lost” and “Desperate Housewives” which can be viewed on a computer or an Apple iPod or for \$1.99 per episode.<sup>14</sup>

These examples are evidence that the market for IPTV offering specialized content is growing. Consumers appear to be interested in using IPTV services to access a variety of programming not offered by traditional TV. Content providers, from sports leagues to everyday people, are taking advantage of the low cost capabilities to create new programming. IPTV technologies can today enable entities as diverse as AARP and Home Depot to create video content on their websites that serve as commercials or how-to guides. As technology advances and more online content becomes available through private production, experts believe consumer demand for IPTV could increase dramatically. Interest from additional content providers such as government agencies and non-profit organizations can also be expected, as the new medium provides cost effective and efficient methods for delivering video to target audiences, according to industry watchers.

### ***IPTV Industry Growth***

A range of industry analysts have studied trends in the IPTV market and made projections about the growth of the industry. According to a study by Insight Research Corporation the Internet video market “is expected to grow at a compound annual rate of nearly 32% over the next five years.”<sup>15</sup> Deloitte TMT reported that digital convergence of services and products could generate revenue of approximately \$55 billion for IPTV through 2010.<sup>16</sup> The Multimedia Research Group predicted the number of IPTV subscribers to reach 36.8 million in 2009<sup>17</sup>. Research and Markets identified a potential eightfold increase of new IPTV subscriptions to 36.9 million.<sup>18</sup> In its most recent report, Infonetics predicts that the IPTV subscriptions will increase more than 40 times in North America.<sup>19</sup> These numbers must be considered in the context of the many different types of IPTV. While these projections cover online video, IPTV provided by telecommunications companies, and other forms, it is clear that market experts see tremendous potential for IPTV growth in the near term.

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<sup>12</sup> Sara Kehaulani Goo, “Five Months After Its Debut, YouTube is a Star; Online Video Site Could Hlpe Create Old-Media Celebs, Too,” Washington Post, May 1, 2006.

<sup>13</sup> Ibid, 2006.

<sup>14</sup> “Video on the Go; Welcome to TV Any Time You Want It,” Chicago Tribune, November 2, 2005.

<sup>15</sup> “IPTV, Streaming Movie and Music Revenue Set to Explore, Says Insight Research,” PR Newswire, April 21, 2006.

<sup>16</sup> “The Trillion Dollar Challenge, Principles for Profitable Convergence,” Deloitte Technology, Media & Telecommunications.

<sup>17</sup> IPTV Subscribers to Increase 8-Fold by 2009,” Television AM, April 14, 2006.

<sup>18</sup> “DSL Subscribers Worldwide to More Than Double by 2009,” Television AM, April 18, 2006.

<sup>19</sup> “IPTV Equipment Sales hit \$400M in 2005; Will Top \$6B in 2009, says Infonetics,” May 9, 2006.

[http://lw.pennnet.com/articles/article\\_display.cfm?article\\_id=254600](http://lw.pennnet.com/articles/article_display.cfm?article_id=254600)

Industry watchers see most of the new revenue and growth in IPTV initially driven by stored content providers such as Akimbo and Interactive Television Networks. These types of companies provide access to stored content through set top boxes for monthly fees, with certain channels or packages available for higher prices. Currently STBs represent 42% of all IPTV equipment revenue.<sup>20</sup>

IPTV growth has also been spurred by innovations in other media technologies which are changing consumer attitudes. Apple and the now ubiquitous iPod have created an on-demand culture built around music and “podcasts” where the user can access data and video at any time. The newer iPods have the capability to play back recorded video on television sets through special docking hardware.<sup>21</sup> TiVo and digital video recorders (DVRs) have also augmented this demand among television viewers. Consumers are looking to take more control of their viewing habits and have been warming to the technology. In the U.S., total DVR penetration is at 6.5%, with 17% of DirecTV subscribers using the feature.<sup>22</sup> The increased demand has created a growing market for stored content providers. In spring 2006, AOL and Warner Bros. joined together to create In2TV, a free broadband network that users can access with their computers in order to watch any of 6,500 movies or old television shows such as Kung Fu, Falcon Crest, and Wonder Woman.<sup>23</sup>

The on-demand market is also being advanced by inventions like Sling Media’s SlingBox and Honest Technology’s MY-IPTV Anywhere. Both are “place-shifting” technologies that allow users to watch their home cable television service anywhere on a computer that is logged onto the Internet.<sup>24</sup> Television sets are now being manufactured with technology that will enable them to be wired directly to computers and the Internet. These next generation sets are being built with computer components like video cards which will further merge the PC and TV worlds.

### ***IPTV Comparisons to Other Video Services***

IPTV, traditional cable, satellite, and new telco television offerings are similar in that they bring video content and programming to the end user. All can be live, linear, or have on-demand capabilities and are capable of delivering high definition programming. Each one can deliver the television viewing experience to the home consumer.

While these different platforms offer some similar forms of video content to the consumer, the methods of delivery are quite different. IPTV uses Internet Protocol to deliver its content rather than radio frequency converted to digital. IPTV requires a computer (and potentially software) or a STB that can convert the IP data back into video. Cable TV systems transmit signals over a coated coaxial cable which prevents interference from other radio frequencies. Satellite networks such as DirecTV send

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<sup>20</sup> Ibid, 2006.

<sup>21</sup> Walter Mossberg, “Watching iPod Videos on Your TV,” Wall Street Journal, May 10, 2006.

<sup>22</sup> Bob House, Keith Coe, “How to Succeed at IPTV,” Telephony, April 24, 2006.

<sup>23</sup> <http://television.aol.com/in2tv>

<sup>24</sup> [www.slingmedia.com/about](http://www.slingmedia.com/about); [www.honestech.com/main/menu1\\_1e.asp](http://www.honestech.com/main/menu1_1e.asp)

signals from their orbiting satellites which must be received by a dish at the consumer's home.

Unlike traditional video delivery methods, IPTV incorporates a number of interactive capabilities. Watching television over broadcast, satellite, or cable networks is a one-way experience. While the consumer may be able to order a movie and record programming, there are few options for the viewer to interact with the program or find out more information while watching. IPTV allows the consumer to manipulate the video content in a number of ways, including interacting in a live setting and retrieving information from the Internet on the program's topic. For example, an online video cooking show can not only have high quality program of the food preparation, the IPTV interface can simultaneously allow the user to download and print the recipes, find stores nearby that offer the necessary ingredients, and buy a cookbook.

***IPTV CASE STUDY #1 – COMTek ([www.comtechnologies.com](http://www.comtechnologies.com))***

Communication Technologies, Inc. (COMTek) is a Chantilly, VA based company established in 1990 that provides a diverse range of communications services, managed services, and training to many commercial and government clients around the world. COMTek has now entered the video services market, with an IPTV offering that allows institutional customers to interact and engage with their important constituents through their own custom programming.

COMTek has developed a new IPTV management service called "PowerTV," which is comprised of two distinct offerings: PowerTV Multicast and PowerTV On Demand. Each service provides COMTek customers with the ability to create their own "channels" that distribute video content and integrated features such as email, e-commerce, VoIP and information retrieval via the Web. The Multicast service offers point-to-multipoint linear playback of video content akin to scheduled viewing over traditional television. The On Demand service is a point-to-point hybrid that enables viewers to choose content from playlists and catalogs on the providers' channels.

PowerTV empowers a wide variety of non-traditional content producers, such as commercial sector businesses, educational institutions, government agencies, and non-profit organizations to communicate and interact with targeted audiences. By producing video, whether educational or entertainment, these new entrants to the video market can spread their message effectively without the high costs of traditional television programming or advertising. By incorporating video, users of the PowerTV services can redefine their web presence. Audiences are provided with a more robust suite of information and applications, making the content more appealing.

In one of the first uses of the PowerTV application, COMTek partnered with the Earth Day Network to conduct an interactive video classroom. Sixteen thousand (16,000) schoolrooms across the U.S. discussed global warming with nine scientific and religious leaders.

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COMTek envisages seven specific applications for PowerTV:

- First responder solutions – distributing real time multi-source video and interactive communications to enhance public safety service during emergencies.
- Community broadcasting – web based interactive channels for local municipalities.
- Distance learning – interactive video, voice, and data interfaces linking instructors with students in a variety of locations
- Telemedicine – enabling remote access to specialists and experts and providing high quality video images for diagnosis.
- Video arraignment – reducing the costs and risks of transporting prison inmates by conducting judicial hearings online.
- Special interest intercasting – catering to non-profits, clubs, advocacy groups, and professional organizations for direct video interaction with their constituents.
- Interactive television program broadcasting – traditional video content combined with online features such as web browsing, email, and VoIP.

One of the innovations for the viewers of content produced with COMTek's IPTV service is a "Near On Demand" feature. Deploying several channels at once, the same content can be played at multiple times, allowing a consumer who visits a website to view the programming at a variety of intervals.

The PowerTV products are distributed over COMTek's global hybrid network that includes fiber, wireless, broadband over powerlines, and satellite. COMTek's service is a back end "IPTV in a box" which simplifies the content production process.

COMTek's IPTV service provides technical management of content through aggregations and distribution, transcoding and correcting raw content for transmission, integration of content into the client's website, and broadcasting the channel over the Internet.

Additionally, the content available on IPTV can be much broader than that on traditional television platforms. Access to cable systems and broadcast networks is tightly controlled; channels have to negotiate with the carrier in order for their programming to be available to viewers. IPTV changes the equation, allowing any content provider to create a channel online and attract viewers. Experts see this opportunity for new content providers as the catalyst for a sea change that alters the television experience.

Aside from traditional television, it is often common to compare IPTV with Internet streaming video. They seem similar and both provide viewers with a video image on a computer screen. However, the two types of video are quite different in technology and transmission. IPTV was designed to deliver high quality content through broadband in either on demand, stored, or live format.

## **THE NEW PLATFORM: IPTV REALIZES ITS POTENTIAL AS A PROGRAMMING VEHICLE**

Given advances in Internet and video production technology and the growth of consumer interest in online video, industry watchers believe there may be a groundswell of interest that is making IPTV a viable programming platform. Using many of the IPTV services currently available, and those on the way, consumers will be able to watch online programming of their choice whenever they want. New content producers are emerging, bypassing the traditional television medium to take their messages directly to consumers.

As IPTV services evolve, many technology and video experts believe the features available to consumers will be unlike anything seen on traditional television, such as changing the camera angle while watching a program or the ability to purchase products through web based browser programs built into the programming.<sup>25</sup> The two-way nature of IPTV gives the services advantages over traditional television networks, according to telecommunications researchers.<sup>26</sup>

As non-traditional groups and organizations begin to produce their own content for distribution to specific markets, IPTV could revolutionize the information and entertainment markets. Government agencies could produce their own consumer oriented shows, such as an IRS program on how to fill out tax forms. While that may not be a very popular show, it could serve as a valuable resource for millions every April. IPTV allows groups to bypass traditional outreach methods and directly access their audience. Additionally, content producers can track their audience and further customize their offerings to meet demand. The interactive capabilities of IPTV provide instant feedback.

### ***IPTV and Consumers***

The large and diverse array of IPTV services offers a number of unique benefits, but a key question is whether consumers will embrace the technology in large numbers. Some of the main consumer concerns regarding IPTV revolve around the basic questions of “how much will it cost?” and “is the picture clear?” A survey by Harris Interactive recently found that more than half of respondents (56%) had heard of IPTV.<sup>27</sup> According to the survey, the biggest IPTV selling points for consumers were cost savings (42%), on-demand capability (33%), and programming content (24%). Almost half of the respondents said they would be interested in adopting the technology, either for use on their computer (19%) or TV (26%).<sup>28</sup>

Another study, conducted by global management consulting company Accenture, examined attitudes towards IPTV in six countries – France, Germany, Italy, Spain,

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<sup>25</sup> “Analysis: IPTV Could Give Incumbent US Telecoms the Lead in Triple Play,” M2 Wireless News, November 18, 2005.

<sup>26</sup> Ed Gubbins, “Fulfilling the Promise of IPTV,” Telephony, May 22, 2006.

<sup>27</sup> “IPTV Poised to Give Cable and Satellite Television a Run for Their Money,” Harris Interactive, February 23, 2006. [www.harrisinteractive.com/news/allnewsbydate.asp?NewsID=1020](http://www.harrisinteractive.com/news/allnewsbydate.asp?NewsID=1020)

<sup>28</sup> Ibid, 2006.

United Kingdom, and United States.<sup>29</sup> Of the six nations, the U.S. had the highest awareness of IPTV, with 72% of respondents indicating they knew about IPTV. In comparison, only 42% of consumers in the United Kingdom are aware of IPTV. That said, awareness of IPTV does not necessarily correspond to an understanding of the technology. Various definitions were used to describe IPTV, including “watching TV on a computer,” “an improved version of cable/satellite TV,” and “surfing the Internet on TV.”<sup>30</sup> This finding reinforces the conclusion that the term IPTV is often misunderstood.

The study also found that awareness of IPTV is directly related to age, with younger respondents indicating a higher level of knowledge about online video services. Approximately 70% of respondents ages 25-34 were aware of IPTV, whereas less than 50% of respondents ages 55-64 were aware of the technology. Age was also a factor when considering the willingness to pay extra for IPTV services. Although 73% of respondents were not very willing or not at all willing to pay extra, younger respondents had a higher acceptance of IPTV costs. 41% of all survey respondents said they would be willing to use IPTV if it were priced lower than existing TV services. Other concerns with IPTV services cited by respondents were the reliability of the Internet connection and quality of service (39%) and possible virus attack on IPTV services (38%).

An important finding is that among U.S. responders, 37% said the one thing they would do to make television better is to create their own channel to watch programming whenever they wanted. This is one of the key attributes of IPTV and as more online video services become available, consumers could be drawn to the ability to create the programming schedule they seek, outside the traditional television nightly lineup.

With a growing number of American Internet users embracing online video, websites are becoming more compelling and effective means of communications. The Online Publishers Association found that 24% of American Internet users watch online video at least once per week. 58% of people who watch online video use 2-5 different sites consistently. The study found that video content brings people back and makes their website experience more robust.<sup>31</sup>

These studies provide useful insights regarding consumer attitude towards IPTV and may influence how IPTV providers can better provide services that have higher potential for consumer success in the market. Consumers, especially in the U.S., are aware of IPTV, though the various types of IPTV still are confusing. It is a significant finding that almost 50% of consumers would be willing to use IPTV services if it could save them money over cable or satellite. Not surprisingly, those consumers most ready to adopt the new technology are younger consumers, who would even be willing to pay extra for the service. While IPTV providers need to raise awareness of the product, it appears that a market exists.

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<sup>29</sup> “International IPTV Consumer Readiness Study,” Accenture, Spring 2006.  
<https://www.accenture.com/NR/rdonlyres/D2632E25-D570-4488-91A3-6709B9745C7C/0/IPTVsurvey.pdf>

<sup>30</sup> Ibid, 2006.

<sup>31</sup> Online Publishers Association, “From Early Adoption to Common Practice: A Primer on Online Video Viewing” March 2006. [www.online-publishers.org](http://www.online-publishers.org)

***IPTV CASE STUDY #2 – ITVN ([www.itvn.com](http://www.itvn.com))***

Interactive Television Networks Inc., (ITVN) is an Irvine, CA company “engaged in the business of developing, marketing, transmitting, and managing television programming over the Internet to subscribers who own one of [their] set-top boxes.” ITVN provides live and prerecorded video content, video on demand, and audio services.

ITVN developed and manufactures a set top box (STB) for conversion of IP data into video and audio signals. The STB allows subscribers to view programming delivered over the Internet without the need for a computer. Subscribers are only required to have a minimum broadband connection of 500 kilobytes per second (Kbps) through either cable modem or DSL. The customer controls the on screen video program menus via a remote. According to ITVN, the technology allows the company to remotely “modify, replace, and upgrade” the customer’s STB.

A wide variety of programming is offered in both 24/7 linear and on-demand formats. In 2006, ITVN is negotiating to provide channels offering music video, independent films, live TV feeds, video on demand from branded movie networks, and television news programming from major non-English speaking countries.

Currently, ITVN provides the following networks to its subscribers:

- Silver Screen Network – 12 linear movie channels and a 1,500 title video on demand library.
- National Lacrosse League – live games and archived footage, linear channels devoted to individual league teams.
- XTV – subscription-based adult content, with 150 channels, 7 interactive portals featuring on-demand programming and over 20,000 pay-per-view titles.
- ITVN Radio – 1,800 radio stations from over 80 countries.
- ITVN Live TV – 24/7 entertainment channels.

ITVN chiefly markets its products and services directly through its website but also employs radio commercials and co-promotion with partners such as the National Lacrosse League.

The company is exploring distribution through a large retail entity and experts that as its content library grows to include more mainstream programming, the service will become more attractive to consumers. In late 2005, ITVN entered into distribution agreements in Europe and Asia, with marketing programs expected to be there in early 2006.

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In addition to traditional television competitors like broadcast, cable, and satellite networks, ITVN faces competition from other companies such as Movielink, DaveTV, and Akimbo that provide video content over the Internet. ITVN promotes its ability to offer live television with instantaneous content delivery as a unique feature that separates it from other providers.

\* Information obtained from ITVN's 10-KSB, filed April 2006.

### ***Elements of IPTV Deployment***

For IPTV to succeed on a widespread basis, the service need be deployed as an attractive alternative to existing technologies currently available to consumers and new content producers. IPTV providers are focusing on several areas that will have great impact on the success or failure of online video services. Major deployment factors include: transport, signal monitoring, quality of service, scalability, and bundling.<sup>32</sup> Successful navigation of these issues will do much towards assuaging the primary fears about quality and price that customers have about the new IPTV services.

Bandwidth and network capacity are perceived by experts to be key elements in delivering online video programming. Typically, delivery of newer video signals requires transmission speeds of 2 megabits per second (Mbps) for standard definition video and 9 Mbps for high definition.<sup>33</sup> Industry watchers believe providers, when developing IPTV products, must examine the network capabilities available to potential customers, in order to deliver a quality video service. They will also need to look for new technology that will help deliver their service over the ever shrinking space on the pipes.

According to industry experts, signal monitoring is another important function the prospective IPTV provider may need to consider. A Spirent white paper identified three different types of signaling that occur over the network: (i) provider to subscriber - the delivery of content; (ii) subscriber to provider - ordering on-demand programming and changing channels; and (iii) internal signaling to the provider - authorization and authentication functions.<sup>34</sup> Signal monitoring will enable the provider to manage bandwidth issues for the seamless transmission and ease of use that consumers will want.

With public opinion surveys indicating many consumers will wait to see how IPTV performs before buying services, providers are dedicated to providing high quality video in order to attract new users. This will likely be the most important factor in getting early customers to switch over to the new technology. Providers will have to monitor the signals on the network by taking a sample from the video signal's source and destination.<sup>35</sup> In a more simple procedure, an IPTV company can monitor only the destination signal but that method lacks the accuracy of the multiple samples test.

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<sup>32</sup> "Delivering Optimal Quality of Experience (QOE) for IPTV Success," Spirent White Paper, April 2006.

<sup>33</sup> Ibid, 2006; IDC, 2006.

<sup>34</sup> Spirent, 2006.

<sup>35</sup> Ibid, 2006.

Service providers must also understand their network architecture and capacity. As the number of users increases, the efficiency of IPTV service could be affected. It is especially important that providers test their systems in order to know how it will operate with heavy usage for specific events like the Super Bowl, which will attract many users.<sup>36</sup> This information and testing will also aid in determining which types of equipment will be needed to provide quality service. This is an advantage that IPTV providers will have over cable providers, according to reports. Newer providers can use and implement the latest technological advances in hardware and software because they are not hindered by “legacy” networks that were built with older technology and equipment.<sup>37</sup>

### ***Content***

For all IPTV providers, whether they operate stand-alone networks with multiple channels or are small organizations seeking to use video to promote a single message, the need for access to quality content is paramount. Obtaining content may be easy for some larger providers such as Movielink, a broadband movie service which is a joint venture of various movie studios that broadcasts movies from its own library.<sup>38</sup> Accordingly, the media industry has seen an increasing amount of outlets offering online video of their traditional television programming, some for a fee and others for free. This is where the emerging IPTV industry is seemingly at a disadvantage. Traditional television providers have greater access to content, especially high definition programming. This is due to longstanding relationships with customers and content providers, which provides access to programming.<sup>39</sup> Many also produce and own the content they provide.

There is also a unique degree of competition within the IPTV industry itself between PC TV and set top box providers. Companies offering programming to a PC are considered by some industry watchers to have more consumer-friendly products, but their service offerings are not as robust. Conversely, STB companies, as well as cable operators, are seen as possessing better content but their products are less innovative.<sup>40</sup> IPTV providers overcome this dichotomy by creating their own content and empowering new content producers to enter the market. One of the benefits of the technology is the ease with which content can be produced. For example, DaveTV offers an outlet for content created by individuals. Local producers sign a revenue sharing agreement and become partners with DaveTV in exchange for distribution over the Internet.<sup>41</sup> Advertising is generated by DaveTV, but the producers control the content.

The creation of content is where some in the industry see the greatest area for growth in IPTV. It is possible for any person or organization to create an IPTV program, and with a small amount of additional equipment and services, create entire video channels. IPTV providers imagine a world where every government agency has a video channel, companies that sell anything from cars to hot dogs could produce content that promotes

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<sup>36</sup> Spirent, 2006.

<sup>37</sup> IDC, 2006.

<sup>38</sup> “Movielink – Company Overview,” [www.movielink.com/store/web/about/overview.jsp](http://www.movielink.com/store/web/about/overview.jsp)

<sup>39</sup> IDC, 2006.

<sup>40</sup> Alex Goldfayn, “Prime Time for TV Content,” Chicago Tribune, January 7, 2006.

<sup>41</sup> Dave Gussow, “Power to the People,” St. Petersburg Times, April 2, 2006.

their products, and every neighborhood has a local 24 hour video feed. It is these possibilities that excite many analysts and IPTV providers.

There are already a number of “personalized” programs available. For example, a North Carolina chef named Bill Eason has a 45 minute presentation on how to prepare and serve a whole hog. The video is available on DaveTV, which plans to offer more than 100 channels with such “individualized” programming.<sup>42</sup> Analysts from research firms such as Gartner, Inc. believe this type of programming is going after “the next generation of what television will look like.”<sup>43</sup>

### *Hurdles for IPTV*

There exist several barriers for IPTV before it truly can be embraced by the mass consumer audience and new content providers. First, there is the question of broadband availability. IPTV services depend on customers having access to high-speed Internet services. If the market for IPTV is limited by the number of Americans who have broadband at home, it will be difficult for providers to obtain return on their investment. Concurrently, content providers must be able to reach their intended audiences. If a government agency wants to create an IPTV program about certain programs or benefits, but the intended audience does not have access to broadband, then there is no utility. Continued growth in the broadband market will be necessary in order for IPTV to take root as a viable programming option.

Industry experts believe many of the technical hurdles to IPTV deployment have been overcome. “Transport is frictionless” according to one IPTV provider and the technology for consumers receiving and viewing video over IP is readily available.<sup>44</sup> Even though the technology has arrived for IPTV to flourish, some industry analysts believe standards will be required for the many different types of equipment and services. Without standards, experts believe, it will be difficult for IPTV systems and their many component parts to interact seamlessly.<sup>45</sup>

In the regulatory arena, there are several issues that affect IPTV deployment and commercial success. For IPTV products offered by telecommunications companies, local franchising rules govern how and when video services can be deployed and marketed. Both Congress and the Federal Communications Commission are considering legislative and regulatory reforms that would alter the franchising process and, according to experts, allow the deployment of telco IPTV to proceed more rapidly.

IPTV providers who offer video content directly online face fewer regulatory barriers. One issue that will be important to these types of IPTV providers is piracy and digital rights management. Copyrighted content will be available over IPTV networks, and analysts believe providers will have to be vigilant to protect both their content producers

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<sup>42</sup> Mark Jewell, “Next Via the Internet: Tailored TV” Associated Press, May 16, 2005.

<sup>43</sup> Ibid, 2005.

<sup>44</sup> “IPTV Startups Step Out,” Red Herring, July 4, 2005.

<sup>45</sup> Jean- Francois Fluery, “IPTV: The Need for Standards,” Thomson Broadband R&D, 2005.  
[http://www.isma.tv/technology/white-papers/Paper-IBC-FleuryJF\\_finalPROTECTED.pdf](http://www.isma.tv/technology/white-papers/Paper-IBC-FleuryJF_finalPROTECTED.pdf)

and customers.<sup>46</sup> While media reports indicate Hollywood movie and television studios are interested in online distribution, there are still fears that content will be viewed illegally and the producers will lose money.<sup>47</sup>

Consumer demand is the largest non-regulatory barrier for IPTV providers. The established market for television, dominated by broadcast, cable, and satellite providers, is very difficult to penetrate. IPTV offers new and innovative services, but many in the industry believe it will likely require “outside the box” marketing to attract viewers. In order for IPTV to become a competitor, consumers must be convinced that online programming is of equal or better quality than traditional television.

Broadcast networks and cable providers are already planning for the early phase of competition that IPTV will offer by offering video content on their websites and deploying new VOD services. Some of IPTV’s attractive features are beginning to be adopted by their competitors.

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<sup>46</sup> Diane DiPrima, “IPTV Brings Opportunities,” VoIP Magazine, May 19, 2006. <http://www.voip-magazine.com/content/view/3257/>

<sup>47</sup> “IPTV Startups Step Out,” Red Herring, July 4, 2005.

## CONCLUSION

IPTV, once a dream wandering amidst streams of choppy online video, is now seen by many experts as a potentially multi-billion dollar industry in the very near term. IPTV, according to industry watchers, can change the way people receive video programming and revolutionize content creation. With the expansion of broadband access and the growth of computing and video production equipment, industry analysts believe IPTV is realizing its potential as a viable programming platform that can compete with cable, satellite and other traditional video mediums.

Consumers can benefit greatly from IPTV services by enjoying greater flexibility in their video “experience” by obtaining the content of their choosing. With on-demand IPTV services, the content comes to the consumer. Interactive applications will empower the viewer to use online video not only as an entertainment option but as a learning tool. IP video can be harnessed and used in many different forms that would aid society. It can provide road maps on screens installed in ambulances, fire trucks, and police cars enabling them to “read” a situation before arriving on the scene. It can aid doctors by sending images across the nation or world and enabling them to discuss the data face to face in real time through a video link.

IPTV is also seen by providers and industry watchers as a gateway for new content providers. IPTV is not simply offering traditional television programming through another device or connection. The low costs of creating content allows just about anyone to produce a “television show.” IPTV providers are already offering content from sports leagues to home cooking shows and more. The video content is making the web experience more robust for consumers, presenting information in compelling formats that greatly interests existing and new audiences. This new programming vehicle, allowing organizations and individuals to transmit their messages to an audience of their choice, could be the “killer application” that experts agree is needed to catapult IPTV to equal footing with traditional television.

Although IPTV is still in the early stages, the growth in the number of providers and users has demonstrated to many experts that the technology is now an important factor in the video marketplace. In the near term, it will be important to watch how IPTV providers offer new services and attract customers. The continued realization of online video’s potential will be of great interest to the millions of Americans who enjoy watching “TV” – even though it might now be on a computer.

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