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Broadband TV

White Paper

The Battle for Broadband TV: TelcoTV vs. Internet TV

The Clash between Telco TV, Internet TV, and the Traditional TV and Film Industries

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1 Introduction

The Internet has become a disruptive force in delivering entertainment, just as it has become disruptive force in delivering information, and in the way that products are sold and marketed. Today most Internet entertainment content is based on the PC. Audio entertainment content is typically then transferred to a music player. Video entertainment content is typically (but not always) viewed directly on the PC.

The Napster story, the iTune story, and the effect of the Internet on the music industry are well known. The Internet has enabled a transformation in how people listen to and acquire musical content. Internet downloads are replacing CD purchases. The Internet has provided access to recorded music from independent groups that are not supported by major studios.

The same thing is starting to happen with video and TV content. People can acquire temporary or permanent use rights (rent or buy) to professionally produced video and TV content over the Internet using both streaming and downloading technologies. In addition, the Internet is becoming a way for producers to distribute video and TV content without contracts with major studios, distributors, or networks.

Something new and different is happening with video on the Internet. User generated content has become the latest Internet craze. People upload video clips that they produce themselves to an Internet video site, such as Google's YouTube, which then makes them available to all Internet users.

Some of this user-generated content has been produced using the contributor's camcorder and typically does not have any rights issues associated with it. Other user-generated content is commercial content that has been captured from a TV or a DVD, and uploaded to the Internet. This second class of content has significant rights issues associated with it. In fact, Viacom is suing Google to protect its content from being shown on YouTube.

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2 Broadband TV Strategies

This section discusses TelcoTV strategies, Internet TV strategies, and how the TelcoTV and the Internet TV companies can work together to improve the prospects of both of their businesses.

2.1 TelcoTV Strategies

Large and small telcos (fixed line telephone operators) globally have introduced TelcoTV services in order to:

- Defend against strong competitive cable data and telephony services.
- Add new broadband revenue streams as part of a triple or quadruple play bundling strategy.

Cable competition is particularly strong in the U.S. where the cable companies had 55 percent of the broadband data market and 9.5 million telephony customers at the end of 2006. Broadband cable competition is not as strong in Europe or Asia except for a few countries.

Relatively weak cable competition puts the TelcoTV providers in a strong position relative to the cable companies in most countries outside of North America. Many telcos in Europe, in particular, have introduced TelcoTV services in order to add significant new revenue streams to their broadband service portfolios to compete with the cable operators, particularly in the Benelux region, UK and Nordic countries.

2.1.1 Telco Access Technologies and Data Services

TelcoTV is causing the telcos to move to higher speed access technologies. In Europe and Asia upgrading to ADSL-2+ is a common and effective strategy that improves broadband performance to around 15 Mbps. The shorter maximum loop lengths in these regions make ADSL-2+ a good approach.

Some telcos in the U.S. and Europe are deploying VDSL as well for its higher speeds. VDSL is expensive to deploy because it requires putting a remote cabinet close to the customer's premises. Another strategy is to replace copper with fiber. Fiber has the ability to support much higher speeds than copper based technologies and has a longer reach. Fiber services typically provide at least 100 Mbps to the subscriber. The problem is that it is very expensive to deploy fiber, even more expensive than deploying VDSL.

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However, there is a difference between the capabilities of the access technology and the broadband speeds offered to the subscriber. There are two data services that are being offered by telcos globally:

- Offering a guaranteed data service that is significantly less than the speed of the underlying access technology while dedicating bandwidth to the video service.
- Providing the full bandwidth of the underlying access technology and using some of this data bandwidth for the video service.

The broadband TelcoTV providers want to maximize the amount of bandwidth that they allocate to the video service to support HDTV and minimize the bandwidth they allocate to the data services to the level they need to be competitive.

2.1.2 TV services

Nearly all of the TelcoTV services include a basic subscription to a certain number of broadcast TV channels. There are generally more channels in these basic packages in North America than in Europe and Asia.

In some cases the telco does not offer its own broadcast channels, and relies on digital terrestrial over the air broadcasts for that purpose. BT and Telecom Italia are examples of this strategy.

Virtually all of the telcos that include broadcast channels as part of their TelcoTV offerings also offer premium channels. The number of these premium channels varies, but generally the North American telcos offer more than the telcos in Asia and Europe.

There are significant differences in how telcos structure these premium offerings. They tend to be more flexible than the hierarchical approaches that cable companies typically offer. Most cable offerings require the subscriber to purchase all of the lower level packages to get the channels in a higher-level package.

Nearly all TelcoTV services permit viewers to purchase content on demand. They may view recent films, older films, as well as TV programs. This content may be offered on a pay per view basis, or may be included in subscription on demand service, where a set of content may be viewed without limit for a fixed monthly fee. Some telcos also offer free on demand content, which may be, used as a loss leader to get people to use the on demand services or may be ad supported.

TelcoTV providers are also starting to offer network PVR (Personal Video Recorder) services that permit subscribers to view previously screened TV programs. Some of these services permit the user to see programs from say, the previous week, and select and watch them. A simpler form of this service permits the view to start a program that is already under way.

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2.2 Internet TV Strategies

There are a large and growing number of companies that are providing TV or video content over the Internet. The low cost of entry plus the large population of broadband Internet users makes the idea of starting an Internet TV service attractive. Past successes such as Amazon, eBay, Yahoo!, and Google have shown that the rewards can be substantial.

So far, user contributed videos; especially to the YouTube site has been particularly popular. Many young people spend several hours each day searching, selecting, and watching YouTube videos.

This section discusses all of the other forms of Internet TV services. It breaks these services down into three categories:

- User Generated Video Sharing
- Video Search
- Content Aggregation

The first two categories provide different methods of accessing user-generated content. Some of this content is finding its way to TelcoTV services. The last category is organized on a more professional basis and will provide some good opportunities for TelcoTV service providers.

2.3 Integrating TelcoTV and Internet TV

The TV and especially the emerging HDTV standard, is currently available from some cable, and satellite broadcasters, TelcoTV, and over the air broadcast services, provides a much better viewing experience than the PC. It has a much larger screen than the PC, and its location in the home and its packaging make it the better entertainment device. It is also more appropriate for a social environment where family and friends can watch the programs together.

The PC will be an increasingly important platform for watching TV and videos. It will work well for an individual, especially if it has a good sound system. The PC will be used for watching TV while people are at work or are using their computer at home. The PC will be particularly attractive to single young people. It is likely that these people will move to an HDTV set as they get older and have families.

The TelcoTV services have been created and optimized to serve the TV and are rapidly evolving to support the HDTV. These services are being offered today to support multiple TVs and even multiple HDTVs without interfering with the broadband data service. These TelcoTV services provide a quality of experience that meets or exceeds that from digital cable or satellite services without slowing downloads on the broadband Internet data service.

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On the other hand a TelcoTV services is a closed, "walled garden" managed environment that offer a set of content that the telco gathers. Unlike the Internet, these services are not open and do not permit content producers to offer content independently. The content producer can get its products onto the TelcoTV service only if the telco offering the service accepts it.

The Internet is an open environment and user generated content has become the norm. Anybody, professional or amateur, can publish his or her videos over the Internet. This makes the Internet a much more creative environment than the TelcoTV service. The challenge for the TelcoTV service providers is to make the best and most interesting content from the Internet available on their TelcoTV services.

The challenges for the Internet TV services are technical in nature. Given the limited bandwidth of most broadband Internet services, it is difficult or even impossible for the Internet TV to support multiple TVs, or to support HDTV without affecting download speeds to the PC.

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3 Business Case and Forecast

3.1 TelcoTV Business Case

This section discusses the business case for TelcoTV services from the perspective of the Telco. It discusses the differences in the business cases for ADSL, VDSL, and Fiber to the Premise (FTTP) services. The primary conclusion from this analysis is that a TelcoTV service is an important component of a telco's broadband service offering. In particular, a strong TelcoTV service is required to generate a strong positive return on investment from the significant investments required to deploy VDSL or FTTP broadband networks.

In general the five-year return for a triple play VDSL or fiber services is better than for an ADSL service. That is, over a five-year period, a service provider with a successful VDSL or fiber triple play service will have a stronger return than an ADSL triple play service. On the other hand, deploying VDSL or fiber to support only a data service will produce worse returns than an ADSL data service. A VDSL data service return is lower than an ADSL data service, but is still positive. A fiber data service in North America will produce a loss over five years, will be breakeven in Europe, and produce a small positive return in Asia. The regional differences are a function of housing density. There are more high-rise housing units in Europe and especially in Asia than in North America.

3.2 Forecasts

Our forecasts show that North America dominates this entertainment market and accounts for more than 45 percent of total revenue followed by Europe, which accounts for more than 30 percent of total revenue. Asia-Pacific and the Rest Of the World together only account for about 25 percent of total revenue due to lower prices and to a high level of piracy. Pirates use many techniques to get around the digital rights management that is applied to content in digital form. For example, the commercially distributed DVD can be easily copied using widely available software packages. In particular these forecasts show globally that:

- The amount of time spent watching Internet TV will be more than three times the time spent watching TelcoTV. The much larger number of people watching Internet TV drives this, as well as the openness of the Internet and the richness of the content that is available.
- DVD sales and all forms of on line and on demand media access will drive the increases in total entertainment spending globally.
- The increase in on line (Internet based) and on demand (TelcoTV based) media access will result in consistent year-to-year decreases in revenue for both theatrical viewing and DVD rental globally.

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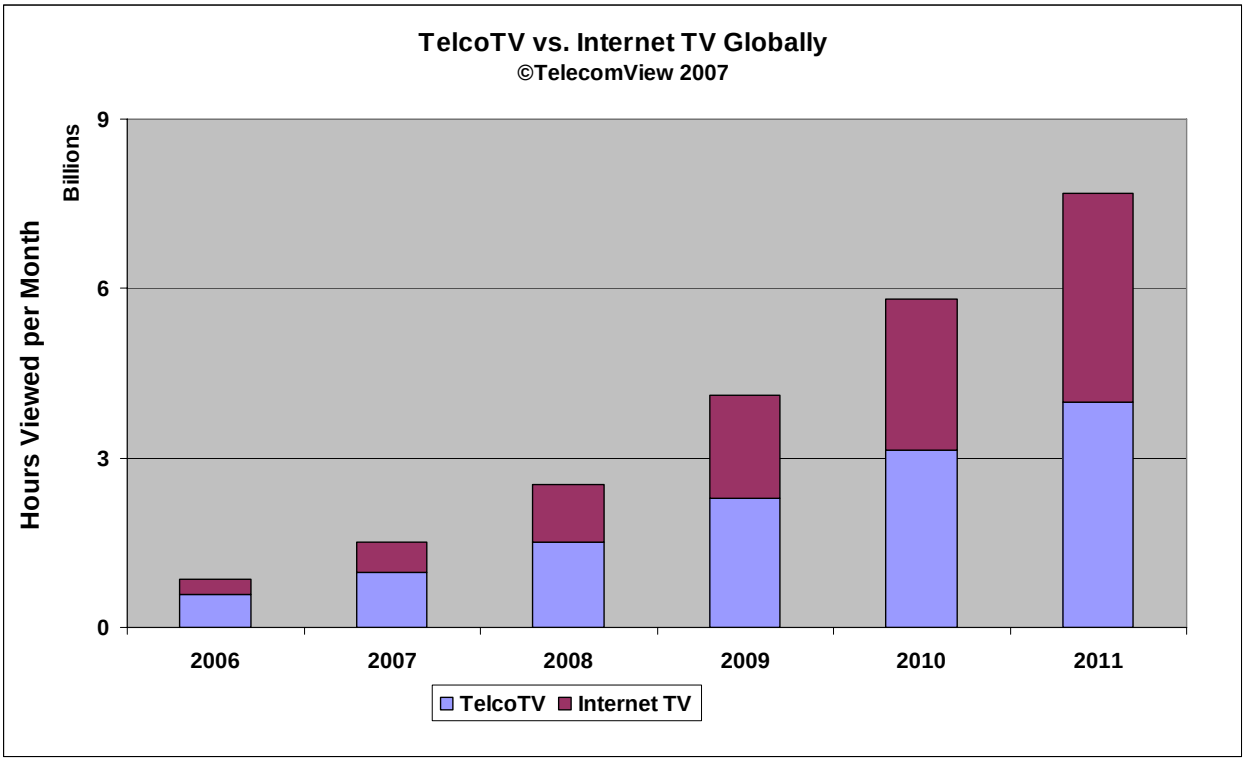
As these trends become evident, we believe that they will create a snowball effect. The film studios and other content producers and distributors will recognize the importance of on line and on demand content and will make these forms of access more attractive. We expect that these media companies will make the release windows favor on line and on demand release and will take advantage of on line merchandising opportunities. These improved release windows will only increase the popularity of on line and on demand services.

As viewers shift toward on line and on demand viewing compared to theatrical viewing and DVD rental, the studios will respond by making the on demand release earlier. In time, this release is likely to become simultaneous with the DVD release. As theatrical viewing decreases in popularity, the window for exclusive viewing in the theaters is likely to shrink as well.

Figure 3-1 shows the viewing hours per month for both TelcoTV and Internet TV services. It shows TelcoTV clearly ahead of Internet TV in 2006 by a factor of two and neck-to-neck in 2011. This chart shows viewing hours. The number of Internet TV viewers is much larger than the number of TelcoTV viewers, but TelcoTV viewers watch spend much more time watching the service than the Internet TV viewers. That makes up the difference/ As will be shown in the following sections there are significant differences by region.

Figure 3-1: TelcoTV vs. Internet TV Viewing Hours per Month Globally



Source: TelecomView 2007

The forecast shows that there will be strong growth in the viewing of Internet TV content. There will be many more broadband subscribers than TelcoTV subscribers over the forecast period, and nearly every broadband user is likely to watch some Internet TV programming. In fact, the forecast projects that the average number hours those broadband users will watch Internet TV will grow over the period of the forecast.

TelcoTV services will be available to only a subset of broadband users, which will result in a smaller number of viewers than Internet TV. On the other hand, these TelcoTV viewers will watch TV for many more hours per month than the Internet TV services.

Advertisers are likely to invest more heavily in TV advertising that appears on TelcoTV services than Internet TV services. The traditional TV advertising models used in TelcoTV services are well understood and well proved. Consequently, it seems likely that TelcoTV will be a more attractive advertising media than Internet TV over the forecast period on a per viewer basis.

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4 Winning the Battle for Broadband TV

The current TV-based video service providers, especially the cable and TelcoTV companies, will strongly defend their position. Their business depends on their continued success in this market. They also provide the broadband data services that the Internet TV companies use to deliver their Internet TV services. The way that the telcos and cable companies define these broadband data offerings will significantly affect the ability of the Internet TV companies to provide services to the TV, which gives the broadband companies a significant advantage.

The forecast shows that it is likely that on line services will become increasingly important through 2011. It shows that the on line services will grow from 8 percent of total theatrical revenue in 2006 to 20 percent in 2011.

This forecast shows both theatrical and DVD rentals decreasing over the forecast period. While DVD sales will continue to grow, it is likely that these sales will shift increasingly to Internet retailers. In fact, there appear to be strong merchandising opportunities tying in DVD sales with video on demand viewing.

4.1 TelcoTV Strategies

The TelcoTV service providers have a strong strategic position, bringing video content to the TV, relative to the Internet TV companies. These telcos have optimized their networks to provide a high quality service, including HD service, to multiple TVs within the home. The TelcoTV digital TV experience and especially the TelcoTV HD experience are much better than is available on the PC from Internet TV providers today.

The TelcoTV providers should be able to provide their content to a range of different devices that include mobile handsets and PCs. Offering content to mobile handsets is natural because most of the larger telcos also offer Mobile TV services. A PC offering is also natural as part of the telcos' broadband offering. The future is likely to be one where the user has flexibility where he or she views a piece of content.

4.2 Internet TV Strategies

The Internet TV providers should continue to develop their strength – the distribution of a very broad set of content to the full set of PC users on the Internet. They should also find ways to bring their content to the TV and to the mobile handset. The telcos may act as the gateways to these screens, especially the mobile handset, so the Internet TV providers should look for ways to work with them.

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6 Appendix I: Companies in this Report

The following companies were consulted or profiled for this report.

Table 6-1: Companies Consulted for this Report

Name	Type	TelcoTV Operator	Telecom Systems	Internet TV Provider	User Generated	Internet Download	Content Distributor	Internet TV	Consultant
Apple iStore	Music and video download service					X			
AT&T	broadband operator in U.S.	X							
Belgacom	broadband operator in Belgium	X							
BitTorrent	Internet peer to peer video				X				
Blinkx	Internet video search			X					
Blip.tv	Internet advertising supported			X					
BNS, Ltd.	Hong Kong TelcoTV consultancy								X
BT	broadband operator in the UK	X							
Chunghwa Telecom	broadband operator in Taiwan	X							
CInemaNow	Internet movie download service					X			
ECI	Telecom systems company		X						
FastWeb	broadband operator in Italy	X							
Fora.tv	Internet video provider			X					
France Telecom	broadband operator in France	X							
Free	broadband operator in France	X							
Gotuit Media	Video search						X		
Joost	Internet TV							X	
KDDI	broadband operator in Japan	X							
Manitoba Telecom	broadband operator in Canada	X							
MovieBeam	Internet movie download service					X			
MovieLink	Internet movie download service					X			
NarrowStep	Internet TV							X	
NeoIndex	Internet movie download service			X					
Netflix	Internet movie download service					X			
Neuf Cegetel	broadband operator in France	X							

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Name	Type	TelcoTV Operator	Telecom Systems	Internet TV Provider	User Generated	Internet Download	Content Distributor	Internet TV	Consultant
NTT	broadband operator in Japan	X							
PCCW	broadband operator in Hong Kong	X							
Sasktel	broadband operator in Canada	X							
SureWest	broadband operator in the U.S.	X							
Telefonica	broadband operator in Spain	X							
Telekom Austria	broadband operator in Austria	X							
Verizon	broadband operator in the U.S.	X							
Versatel	broadband operator in the Netherlands	X							
Walmart	Internet movie download service					X			
YouTube	Internet video service				X				

Source: TelecomView

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7 Appendix II: Glossary

The following terms and organizations have been referred to in the text.

Acronym	Definition
AAA	Authentication, Authorization and Accounting
ABC	American Broadcasting Company
API	Application Program Interface
ADSL	Asymmetric Digital Subscriber Line
ARPU	Average Revenue per User (Usually monthly)
ATCA	Advanced Telecom Computing Architecture
ATIS	Alliance for Telecommunications Industry Solutions
ATV	Asia Television Limited
Billion	1,000,000,000 (1,000 Million)
BT	British Telecom
CAPEX	Capital Expenditure
CNBC	Consumer News and Business Channel
CNN	Cable News Network
CNO	Cable Network Operator (See also MSO)
CO	Central Office
CPE	Customer Premise Equipment
CPGA	Cost per gross add
CSCF	Call Session Control Function
DOCSIS	Data Over Cable Service Interface Specification
DS3	NA transmission standard for wideband communications
DSL	Digital Subscriber Line
DVD	Digital Video Disk
EBU	European Broadcasting Union
ESPN	Entertainment and Sports Programming Network
ETSI	European Telecommunications Standards Institute
EU	European Union
FA	Football Association
FCC	Federal Communications Commission
FNO	Fixed Network Operator
FTTH	Fiber to the Home
FTTP	Fiber to the Premise
GHz	Giga Hertz
HBO	Home Box Office
HD	High Definition
HDTV	High Definition Television
Hz	Hertz
IETF	Internet Engineering Task Force
IMS	IP Multimedia Subsystem
INO	Integrated Network Operator

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Acronym	Definition
IP	Internet Protocol
IP v 6	IP version 6
IP/MPLS	IP/ Multi Protocol Label Switching
IPDC	Internet Protocol Data Casting
IPTV	Internet Protocol Television
ISP	Internet Service Provider
ITN	Independent Television News
ITU	International Telecommunications Union
kbps	Kilo bits per second
KDDI	Japanese Mobile Operator
kHz	Kilo Hertz
km	Kilometer
kW	Kilowatt
LG	Lucky Goldstar
LLU	Local Loop Unbundling
Mbps	Mega bits per second
MHz	Mega Hertz
Million	1,000,000
MPAA	Motion Picture Association of America
MPEG	Moving Picture Experts Group
MSNBC	Microsoft NBC network
MSO	Multimedia Services Operator (See also CNO)
MTV	Music Television
NGN	Next Generation Networks
NPV	Net Present Value
NRA	National Regulatory Authority
NTT	Nippon Telegraph and Telephone Corporation
OPEX	Operating Expenditure
OSA	Open System Architecture
PATS	Publicly Available Telephone Service
PBX	Private Branch Exchange
PCCW	Pacific Century CyberWorks Limited
PDA	Personal Digital Assistant
PRD	Product Requirements Definition
PSTN	Public Switched Telephone Network
PTT	See PoC
PVR	Personal Video Recorder
QoS	Quality of Service
QVGA	Quarter Video Graphics Array
RAI	Radiotelevisione Italiani
RTE	Radio Telefís Éireann
SCCAN	Seamless Converged Communication Across Networks
SD	Standard Definition
SIP	Session Initiation Protocol
SK Telecom	Korean mobile operator
SMS	Short Message Service

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Acronym	Definition
SS7	Signaling System 7
Telco	Telephone company (incumbent or competitive)
TelcoTV	TV service offered by a telco offer a broadband service
TIM	Telecom Italia Mobile
TISPAN	See ETSI
TV	Television
UK	United Kingdom
US	United States
VCR	Video Cassette Recorder
VDSL	Very High Speed Digital Subscriber Line
VoD	Video on Demand
VoIP	Voice over Internet Protocol
WACC	Weighted Average Cost of Capital
WAN	Wide Area Network
ZDF	Zweites Deutsches Fernsehen

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