



Advisory Report

# Emerging Software Makes PC-to-TV Viewing of Internet Video a Little Easier



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## ■ Summary

Watching online video has blasted off in consumer popularity, but the best method to watch Internet video on a television is still on the launching pad. The household's PC remains arguably the most robust device to access digital content on a living room TV due to its fast processing power and compatibility with multiple types of media formats ranging from streaming Flash video to iTunes movie downloads. This report will discuss new software that makes this PC-to-TV experience more enjoyable.

Disappointingly, neither Microsoft nor Apple has yet seduced the market with their devices and software related to bridging the gap of watching PC-based content on a TV, such as Windows Media Center and Apple TV. Some of the blame is attributed to the complexity of managing a PC as a makeshift set-top box (STB). No household wants first to worry if their anti-virus software or Microsoft Windows Update is current before watching TV content.

Despite the PC's shortcomings, the budding selection of Internet-to-TV devices has not taken the digital market by storm. Devices such as the Roku Video Player are only offering a small portion of online video content compared to what is accessible through a PC. New hope for the PC-to-TV entertainment hub solution is beginning to take shape. Unique software applications that act as video media portals are becoming available for quick access to a large array of online video content with a few clicks of a PC-connected TV remote control (e.g., the Windows Media Center Remote Control).

The new applications analyzed in this report are in demand because TV remote surfing through a Web browser is a nightmare compared to a cable operator's channel guide. YouTube XL, Boxee, Hulu Desktop, and Zinc are media software attempting to offer consumers the best of both worlds. These have been created to offer a large swath of popular Internet video and at the same time address the navigation headaches of using a PC to find and play online video content.

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Current Perspective

**Emerging Software  
Makes PC-to-TV  
Viewing of  
Internet Video  
a Little Easier**

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Today's digital home market conditions present an improved climate for moving the concept of using a PC to link a television to popular Internet video content into a potential mainstream trend. In 2009, consumers have greater access to faster broadband speeds, less expensive PCs, and cheaper HD televisions as well as a growing mass of online video ranging from Apple iTunes to Google's YouTube. Not only are funny user-generated videos on the Web, but there is also an expanding assortment of primetime TV shows and newly released movies. Gaining access to this great content on a living room TV can be achieved by directly wiring a PC to a TV through input cables such as S-Video, VGA, DVI, or HDMI, or with the aid of a convertor box/adaptor, thereby turning the TV into a glorified computer monitor ideal for online video watching.

Free software applications are starting to surface that make a PC-connected TV remote a more effective tool for quickly searching and playing several varieties of Internet video. This report analyzes some of the latest software available (Hulu Desktop, You Tube XL, Boxee, Zinc) to turn the PC into a living room TV's entertainment hub. These pieces of free media software provide part of the solution to a widespread Internet video user problem: "If I can watch it on my computer, why can't I also flick to it on my big screen television?"

	Computer Software Requirements	Primary Content Library	Minimum Download Speed Required	Video Quality
<b>Hulu Desktop</b>	OS: Mac OS X v10.4 or later; Windows XP or later; Flash 9.0.124	Assortment of current TV shows owned by News Corp. and NBC Universal	2 Mbps for SD video; 3.5 Mbps for HD video	Up to 720p
<b>You Tube XL</b>	OS: Mac OS X 10.3 or later; Windows 2000 or later	YouTube video library	500 kbps	Up to 720p
	Web Browser: Firefox 1.1+, Internet Explorer 5.0+, or Safari 1.0+ Flash Player 7.0+			
<b>Boxee</b>	OS: Mac OSX v10.4 or later; Ubuntu Linux	Access to local drive media files; aggregator for multiple video, photo, and music sites: Netflix, MTV, Pandora, Flickr, and others	Unknown	Up to 1080p
<b>ZeeVee Zinc</b>	OS: Mac OSx v10.5; Windows XP or later	Aggregator for multiple video sites: Netflix, Hulu, YouTube, Amazon, CNN Crackle, and others	Unknown	Up to 720p

**Hulu Desktop**

The oddly named video Web site, Hulu, offers free streaming access to popular TV shows the day after they premier on live broadcast television. In March 2008, Hulu's owners, News Corp. and NBC Universal, began to offer their TV programming free with a few commer-

## Report:

**Emerging Software  
Makes PC-to-TV  
Viewing of  
Internet Video  
a Little Easier**

Digital Home - U.S.

cially mixed in. Virally, the word has gotten out about Hulu and TV audiences are catching up with their favorite TV shows on their PC. The selection of video content on Hulu will soon become enriched via a new equity partnership with the Walt Disney Company. Disney plans to make available to Hulu users its digital library of TV shows from many of its subsidiaries, including the ABC TV Network.

In early June 2009, Hulu Desktop Beta became publicly available, addressing a weakness of Hulu: being confined to a Web browser and the two-foot PC experience of sitting in front of a desktop or laptop. Through Hulu Desktop, digital home users can empower their PC remote control to navigate through Hulu's digital library effortlessly (and in a manner similar to searching channels in cable STBs' navigation guide) for "lean-back viewing." Hulu Desktop's search features allow users to explore content by alphabetical order, by network or studio, or by Hulu channel.

Unlike Netflix offering a host of Internet-to-TV devices access to its streaming service, Hulu has not collaborated with devices such as Xbox 360 or Roku Video Player to offer direct TV access minus the PC. In February 2008, Hulu made a stink about Boxee, the free software application, accessing Hulu content over its online video aggregator site and denied Boxee access to Hulu content. For now, it seems Hulu Desktop is the company's sole solution for a living room TV to have convenient access to Hulu's popular content such as Fox's "Family Guy" and NBC's "The Office." Hulu Desktop only provides access to Hulu content and it does not allow probing to other video Internet sources or offer playback of personal digital files such as photos and home movies. Hulu's drive to innovate is stifled for fear it does not upset its content owners and their long-time relationships with advertisers and pay TV providers such as DIRECTV. It appears the deep ties of Hulu's owners to the traditional pay TV business model cause them to feel access to premium online video should stay a secondary source to cable TV services and not become the replacement. Hulu is a noble experiment that is showing signs of success, but it does not seem to engage fully in the battle of attracting mainstream consumers away from traditional TV.

**YouTube XL**

Google's YouTube is the most used online video Web site in the world and it wants to leverage its popularity into revenue dollars. A necessary step to meet this goal is to make the service more attractive to advertisers and premium content owners. In early June 2009, YouTube released a new application to get them closer, called YouTube XL and designed to make its massive library of online video clips more TV viewer-friendly. Similar to the new Hulu Desktop software, YouTube XL provides an easy-to-navigate interface for PC-to-TV users to click through YouTube content with a remote control for a 10-foot experience. Access to this application is made easy by typing the "www.youtube.com/xl" URL into any of today's frequently used Web browsers, including Internet Explorer and Firefox on a PC (or other devices such as the Nintendo Wii that support the Opera Web browser). The content accessible on YouTube XL is limited to YouTube material, and unfortunately YouTube has struggled to attract premium video providers to its platform. For example, YouTube lost the bid for access to the majority of Disney-owned content to Hulu. Large content owners are apprehensive about partnering with YouTube because of the challenge of adapting YouTube's "all for free" current model into either an advertising or pay-per-view model (see Hulu Adds Disney to Its Family of Online TV Programming as a New Part-Owner, May 04, 2009).

YouTube XL is a clean, big-button version of the YouTube website that is designed specifically for use with a TV remote for quick up/down and left/right navigation to popular YouTube videos. An interesting feature of YouTube XL is it can be controlled through an Android-based cell phone over the Gmote Android application. However, the drawback

## Report:

**Emerging Software  
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Viewing of  
Internet Video  
a Little Easier**

Digital Home - U.S.

to YouTube XL being stripped down is that it is hard to narrow down a search query to specific video, especially from its newer premium content partners such as ESPN and ABC Network. XL does not put YouTube in a better position to offer premium video content, because it will only appeal to diehard YouTube users that already have their PC hooked up to their television set. YouTube continues to struggle at transforming itself from a free site dominated with user-generated content to a moneymaking video portal that earns revenue from premium content through ads or pay-per-view.

**Boxee**

Boxee is designed with the tech geek in mind as a media portal for immediate access to a large collection of online video content for viewing in the television environment. In February 2009, Boxee got some publicity for being shut off from Hulu content. Many have guessed that Hulu developing its Hulu Desktop software is a preventative measure to respond to Hulu users' desire to watch its content more easily on a TV screen. Boxee acts as an aggregator of many online video Web sites for convenient access from a single location. On top of streaming video content from sites such as Netflix and CBS, Boxee reaches out to photo sharing sites such as Flickr and music streaming Web sites such as Pandora. Boxee is geared to be a TV's full access media hub, with access to a PC's disc drive for playback of CDs and DVDs along with media files on a PC's hard drive including up to 1080p video files. It includes compatibility to the following video codecs: PEG-1, MPEG-2, MPEG-4, MPEG-4 AVC, HuffYUV, Indeo, MJPEG, Real Video, QuickTime, Sorenson, WMV, and Cinepak. It also can access a hard drive's photos and audio files in a variety of formats. A glaring limitation is that Boxee cannot play back digitally protected files (often called DRM) such as iTunes movies.

For now, the big downside to Boxee is that it is shut off from the large majority of PC owners by only being compatible with Mac and Linux operating systems, although a public version of Boxee for Windows is believed to be available in the near future. However, even with Boxee available to all PC owners, it does not carry with it a well-known brand outside the tech community and its overall concept could be too hard for the average consumer to understand. Moreover, like many Internet start-up companies with a free access business model, how it will gain revenue after it gains a sizable user base remains ambiguous..

**ZeeVee Zinc**

The company ZeeVee developed a media browser called Zinc to play Internet video content on a TV screen more easily. Zinc offers a simple user interface with easy access to a wealth of content from a variety of sources, including Netflix, CNN, CollegeHumor, Hulu, and Amazon. The company developed the Zinc software to aid in accessing online video for its Internet-to-TV device called the ZvBox. The device creates an in-home broadcast of the PC through a RF channel. Therefore, instead of connecting a PC to a television, a ZvBox can connect a television to a PC through a coaxial cable home network. ZeeVee's technology "localcasts" a PC display over to multiple HDTVs in the home via a home's existing cable wiring (see ZeeVee Announces ZvBox to "Localcast" PC Content onto Multiple HDTVs, May 06, 2008). The big negative is ZvBox comes with a hefty price tag of \$499. However, ZeeVee's Zinc software is free for PC and Mac users to access online content, so in theory users could forgo the ZvBox and connect their broadband-enabled computer with Zinc directly to the nearby television through a variety of cables such as HDMI and VGA.

Zinc is a partial replacement to the Web browser for consumers interested in surfing Web videos on a living room television, with its best attribute being sorting popular online videos across many Web sites. Like YouTube XL and others, favorite videos can be tagged on Zinc

**Report:**

**Emerging Software  
Makes PC-to-TV  
Viewing of  
Internet Video  
a Little Easier**

Digital Home - U.S.

for quick access to be played again later. A significant drawback to Zinc is that it can be slow to load and the playback of videos is pushed out to the original source's Web page, making the experience occasionally jerky and sluggish. By comparison, Hulu Desktop's playback of its videos appears seamless and faster to load.

**Rating the Software on Overall Value for the TV Viewer**

	User Interface	Search	Content Variety	Premium Content	PC Compatibility
<b>Hulu Desktop</b>	4	3	2	4	4
<b>YouTube XL</b>	2	2	2	1	5
<b>Boxee</b>	3	3	5	4	1
<b>Zinc</b>	3	3	3	3	4

Those consumers brave enough to have their TV content come from their PC will find these four online video software solutions beneficial. By evaluating them with the criteria of the best value for the TV viewer, Hulu Desktop ranks high thanks to its line-up of popular TV shows from NBC and Fox and its user-friendly navigation features to find content efficiently with a remote control. The downside to Hulu Desktop is the software's reach is limited to just programming available through Hulu.com, with a poor selection of movies and no means to access other media files on the PC's hard drive. YouTube XL is a good secondary method to watch strictly YouTube videos with a basic interface that is simple enough to manage 10 feet away on a couch. Unfortunately, YouTube XL's simplicity cuts out many features YouTube users have enjoyed from the standard site, including the ability to rate videos and see other user's comments. In addition, for a TV portal, YouTube XL surprisingly does not highlight its new TV partners such as ESPN. Boxee is a geek favorite for those who are Mac, Apple TV, and Linux PC owners, because it is an open software application able to capture many video portals' content in a single location, including YouTube clips and Netflix streamed movies on top of other media files stored on the PC. The major negative of Boxee is that it currently excludes a huge part of the market, Windows PC users, but a Windows version is promised shortly. As a small start-up, Boxee has been noticed by the big players as a potential threat and it was shut off from direct access to Hulu content by Hulu's owners (i.e., some of Hollywood's elite: News Corp. and NBC Universal). Even though the argument can be made that Boxee helps Hulu gain market reach, it appears Hulu wants end-to-end control of its online content. Another smaller player out there is ZeeVee's Zinc software, which unlike Boxee is available today to Windows PC owners. Zinc is also set up to act as an aggregator of online video content from multiple sources. Zinc's navigation is very easy to use with the TV clicker and it is designed to work with a PC directly connected to the television or from the PC down the hall, with a TV's ZvBox receiving the Zinc content attached to the PC over the home's existing coaxial cable.

Digital home users are now able to enjoy a better video experience over the PC than what Microsoft has been able to offer through its Windows Media Center software, which lacks access to many of the online video sites consumers have started to embrace. These four software applications are good first attempts at merging together the experience of quick access to long-form programming commonly found on a cable set-top box media guide with the openness of a Web browser to the whole world of Internet video content. More programming becoming freed for access over the Internet will strengthen the importance of these software applications and attract more households to the concept of PC-to-TV-style video entertainment.

**Report:**

**Recommended Actions**

**Emerging Software  
Makes PC-to-TV  
Viewing of  
Internet Video  
a Little Easier**

Digital Home - U.S.

**Recommended Vendor Actions**

- Microsoft’s Windows Media Center has not taken off, because it is very limited in the selection of online video content compared to using a Web browser. Microsoft needs to work with content owners to open up Windows Media Center to more content services that deliver online video. It appears unnecessary and unfair to exclude Media Center extender devices from the new content Windows Media Center received access to through the new deal with Netflix.
- Apple needs to spend its marketing dollars on educating consumers about the benefits of watching newly released movies and TV shows through iTunes and the Apple TV device. Apple has effectively created partnership deals with the major TV and movies studios to offer iTunes users a sizable library of premium content, but mainstream consumers adapting to watching iTunes on the television remain elusive. This could be attributed to the fact iTunes video content is pay-per view, while Hulu’s line of content is free with ads.
- Established pay TV providers such as Time Warner Cable and DIRECTV together hold a significantly large portion of the TV viewing audience; consequently, new online video services are currently posing a mild threat. Long term, these service providers’ STBs need to be more accessible to online content to stay competitive and avoid a rash of digital home users cutting off traditional pay TV services for all their home’s video entertainment coming through the broadband pipe.

**Recommended User Actions**

- Consumers should think twice about terminating a cable TV subscription for an online video-only solution. The need for better access to online video is minimized by the advancements traditional pay TV services are offering today, and online video cannot provide live TV broadcasts such as sporting events. Cable STBs offer good navigation guides with instant access to premium content as well as built-in DVRs and video-on-demand services.
- Even with the rise of new Internet-to-TV devices, the PC is still the best device to access online video content with its freedom to access several pieces of content from multiple Web sites through various media players. PCs are also equipped with massive storage capacity and have many easy-to-use software applications to port video content favorites to other devices.
- The downside to using a PC as the device to deliver content for a TV environment is the constant upkeep of security software and configuration issues required just to watch television.
- Consumers must know the configuration of both their PC and their television’s video input/outputs to wire online video sourced from a PC for display over a television. Ideally, the PC has a high-end video card that supports HDMI cables and the television is HD-compatible with HDMI inputs for the best picture and sound quality. However, if that is not the case, there are other cable formats such S-Video and VGA that can support online video, along with convertor boxes that can switch from one format to another.
- While video media browser software has improved, it is only fixing part of the problem for watching online video on a TV. There remains the headache that occurs when the source of a home’s broadband connection (such as a cable modem) is in one room while the television/PC needing a broadband connection is on the opposite side of the home. Hooking up an Ethernet cable from the Internet source is the most reliable option, and installing a WiFi access point is in most cases an adequate alternative (see The Last Yards: Home Networking

**Report:**

Options for Internet Connectivity to a Television, May 01, 2009).

**Emerging Software  
Makes PC-to-TV  
Viewing of  
Internet Video  
a Little Easier**

- Consumers new to digital home technologies could find it worth the investment to have a professional perform a home networking installation and hook up a complex entertainment system with multiple media devices attached.

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