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PRESENTS

# Watch the web

**MEDIA CENTER  
GUIDE 2011**

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# WATCH THE WEB: MEDIA CENTER GUIDE 2011

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# Introduction

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## Welcome to Internet Television



Television has been around for decades. Once upon a time, it was revolutionary. Today, it's considered by many to be a necessity rather than a luxury. That makes it easy to assume there's little more to be said about the story of television, but that's simply not the case. Like many mature, commonly adopted technologies, television is evolving to take advantage of new technology, and this means changes in how it can be used.



For most of its life, television has been associated strictly with the hardware itself. A cable brought shows to your television and only your television, so there wasn't much choice in terms of how you could consume what you received. Eventually video recorders made it possible to tape shows and watch them later, but it's only within the last decade that it's been possible for consumers to disassociate television from the hardware entirely.

Today, television is a service. There is certainly an argument to be made about whether the word television is no longer particularly useful as a means of describing how many people now consume shows and movies, but that's beyond the scope of this guide.

Whatever terms you'd like to use, there's no denying that much of what was once accessible only through your television service on your television can now be accessed through multiple services on multiple devices.

This means that you can cut the cord with your traditional cable or satellite service – but before you do, you should know what you're getting into. [Internet television](#) exists, but to call it mature would be disingenuous. You should know what to expect before making the leap – and I'll help you prepare.

## You Don't Have to Pay. Much.



The first argument most proponents of Internet television will make is about cost. With cable services typically running between \$40 and \$100 a month (on top of what you pay for Internet) it's easy to see why. Quality cable or satellite service isn't cheap. Internet television isn't always free either, however. Sure, you don't have to pay anything extra on your Internet bill to access television online, but that doesn't mean you'll be able to obtain all the content that you want without incurring costs.

Even a [Netflix](#) subscription costs money, but for many users, the costs may not end here. You'll also have to consider the potential cost of the new or upgraded hardware required to make watching content online a pleasurable experience. It's also likely that, for hardcore boob-tube junkies, a subscription to any single service won't be enough. Lump in a few digital movie rentals and suddenly the cost of online television is on par with basic cable.

However, that's not an entirely fair comparison. You may have ended up paying for some of that content anyway, simply because you *wanted* to watch it on a PC, or it



24 hr pass - \$3.99

wasn't available from your service. In addition to this, you'll have more choice over your bill. It's becoming unfortunately common for cable and satellite services to place their customers into contracts. Netflix, on the other hand, isn't asking for a two-year commitment.

Still, the point is that getting your TV fix online isn't always free. There may be some costs, but you can mitigate them if you know how.

## Hardware and Software – A Match Made In Thailand, or Singapore, or Korea...

Often, when preparing to make the switch to Internet television, it's easy to focus on just the hardware or software part of the transition. Sometimes big names like Netflix flash on radar screens, while other buyers might be focusing their efforts on the choice between a Roku and a [Boxee Box](#).



Focusing on one or the other is easy, but also not particularly useful. Users looking for the full Internet television experience – one that does not make sacrifices in terms of quality or selection – will need to consider both when making the switch. Inadequate hardware can make the experience poor because of choppy performance when watching HD content or other issues, such as a lack of quality audio support. Poor software, on the other hand, can reduce both quality and selection. Attempting to live simply off YouTube and the free TV episodes posted online by major networks is only feasible for casual viewers.

In this guide I will touch on both the hardware and software aspects of the conversion. But before we delve into making purchases, let's take a thorough look at what the transition from a traditional cable or satellite service to Internet television means to you.



# Chapter 1: Making the Transition

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## Cutting the Cable Cord

There's a lot to consider when making the transition from a cable or [satellite](#) service to Internet TV, and one of the most important considerations is the content you'll have access to. Before severing from your traditional provider you need to think about how you'll gain access to the entertainment you enjoy the most. There are no more channels – just a vast online ocean of content that often must be trawled through to find the best.



## The Free Content Menu

Free! Access to free content is probably what garnered your attention in the first place, so let's talk about free shows first.

There's a great deal of free entertainment available online, much of which is provided by the producers of the shows themselves. ABC, CBS, Fox and NBC all provide access to recently broadcasted shows, and many premium cable channels like Comedy Central and SyFy also have a significant online presence. Using players in a web browser, you can watch shows for free, although you'll still have to deal with the occasional commercial interruption.

Not that this list applies mostly to America. Those living in other countries will experience varying degrees of access to content, so do your homework. Obviously, the upside is the price. You don't have to pay anything extra to access these shows, so you can watch until your heart's content without adding additional charges to your bank account. You may not even need to sacrifice quality, because many sites offer HD versions of their shows that in some cases – if you have sufficient [bandwidth](#) – have better picture quality than what you would receive from



a cable or satellite service.



Shows ▾

Watch Full Episodes ▾

Schedule



On the other hand, “many” is not “all.” There are some sites that don’t offer great picture quality for the shows they have online. Selection can also be a problem, because the episodes available rarely stay online forever. They’re usually offered only for a limited time, and you’ll often have to wait a week after the original air date of an episode to watch it. That will be a bummer for people who like to keep up to date with their favorite shows.

Of course, I’ve so far only touched on the legal ways to obtain free content. If you’re willing to go beyond legal access, you’ll be able to obtain all sorts of content. Although the efforts of copyright owners across the globe to stomp out free sharing of movies and shows have had some impact, there’s still a huge variety of sites that make it easy for people to share whatever they have on their [hard drives](#).

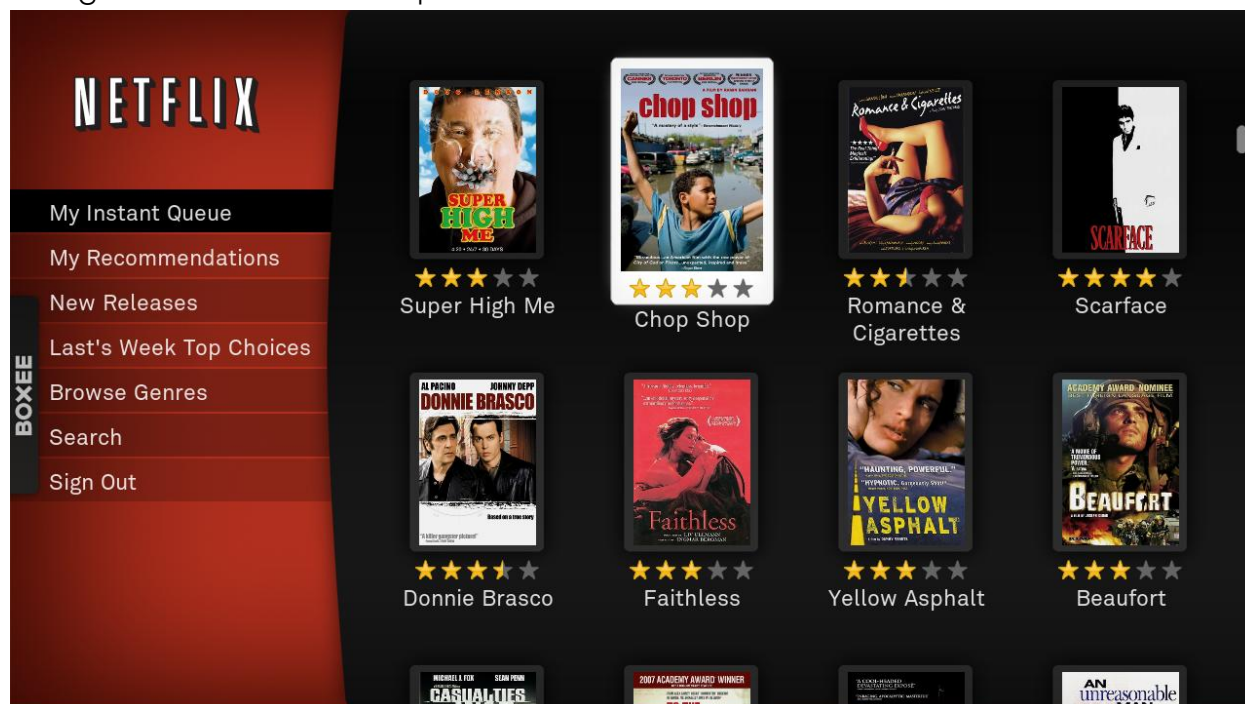
If you’re not already, you’ll want to become familiar with the concept of a [torrent](#). This is a peer-to-peer file sharing system in which everyone who’s part of the torrent can both download and share the content in question – so after (or while) you’re downloading a movie, the torrent program will use your computer to share it with others as well. This decentralized method of sharing has become popular because it’s hard for authorities to stop. There’s no central server to go after – just a diffuse network of users.

You should recognize that there is some risk with obtaining content illegally. Although the efforts of copyright holders to stop file sharing have had limited success, people have been successfully sued for this, and will be successfully sued in the future. Although unlikely, the possibility of being caught is a reality.

## Paid Content Options

Although there's a lot of free content online, it's probably not enough to satisfy the most avid fans of television. If you'd like access to high-quality, current content without running the risk of being visited by corporate lawyers you're going to have to lay down some cash. Fortunately, it doesn't have to be much.

There are numerous services available, but they tend to fall into two broad categories. Those are subscription services and on-demand services.



Netflix is the dominant service in this area, but it's been joined recently by [Hulu Plus](#), and there will certainly be others to come. With a subscription service you pay a fee every month and in exchange you receive unlimited access to the content provided. Of the two major players in this game right now – Netflix and Hulu Plus – the former tends to focus on movies and a wide variety of shows while Hulu Plus tries to focus on recent television content.

The advantage of these services is the amount of content you can access for the price. In the United States, Netflix is \$7.99 per month for an online-only subscription; Hulu Plus is also priced at \$7.99. For that, you receive access to Internet television on a wide variety of devices with no limit on the amount that you can watch. It's just like a cable or satellite service, only cheaper – you fork over the dough, and then you don't have to worry about paying for anything for the rest of the month. However, although both Netflix and Hulu Plus contain a huge library of content, it's not unlimited. You're only going to have access to certain shows, and obviously if they don't provide what you're looking for, you're going to have go elsewhere. That's no different from cable or satellite, but at least with those services you know you'll receive everything on a channel, and that's not always true for online content.



That's where the on-demand services come in. There are a lot of these available including Amazon.com, iTunes, [Xbox Live](#), and sometimes the websites of the content producers themselves. The idea of on-demand content is simple – you buy or rent only what you actually want to watch when you want to watch it.

This could work out to be cost effective if the pricing was low, but often it's not. HD movie rentals on Xbox Live, for example, are usually \$4 to \$6 USD (Microsoft actually prices them in its "Microsoft Points" currency). This makes on-demand content difficult to justify as your sole means of access to shows and movies, but it's a good supplement for a subscription service.

## The Disadvantage of Internet Television

Making the switch to Internet television isn't all roses and butterflies. While you can save a lot of money, there are some pitfalls that you'll need to be aware of before you take the plunge.



The first thing you'll need to be aware of is the simple fact that the shows you want to watch may not always be available in the best format, or in the most timely manner. As stated earlier, most network sites offer shows a week after the original was aired, but it's entirely up to them when they want to put the show online and when they want to take it back down. If you love watching shows as soon as they air or you find missing an episode frustrating, online sources may cause you some heartache.

Sports are another problem. While there are some services that offer streaming of live events, they're few and far between and frequently illegal.

Another problem you might encounter is the bandwidth your Internet connection makes available. There are literally billions of people around the world that don't have access to broadband or only have access to a connection with a speed of 5 Mbps. Although this should be obvious, I'll say it anyway – if you don't have broadband, forget about this plan now. If you have broadband but have limited speed, you can still enjoy Internet television, but you're going to have to deal with image quality that may not be as good as what you've come to enjoy from cable or satellite.



Speaking of bandwidth, there's another potential problem related to Internet service – data caps. It's becoming increasingly common for Internet service providers to impose some sort of data cap on their services. Usually it's a very high cap, somewhere in the neighborhood of 150 to 250 gigabytes or more, but it is possible to blow through a cap that high if you're addicted to watching or downloading high-definition content without much compression. This can result in additional fees from your ISP or temporary termination of service. Although this scenario isn't terribly likely, it is possible and should be kept in mind.

## Chapter 2: Choosing an Off-The-Shelf Media Center

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### Why Buy a Media Center

When Internet television first became available – largely through illegal downloads of shows and movies – there weren't many options for viewing it. Most of the content was available only as video files that could be played back on PCs. This, along with the [video capture](#) cards that recorded the content in the first place, resulted in the birth of the home theater PC.

Today the market is different. While HTPCs still exist – and we'll talk about building or buying one in the next chapter – there is also a wide variety of off-the-shelf media centers available. Internet television is still a small market compared to the more traditional cable and satellite services, but it's growing, and companies are lining up to take advantage of that growth. Let's take a look at what's currently available.

### Apple TV

Apple's media center is a small, rounded box that looks a lot like a Mac Mini. Unlike many of the options on this list, the Mac Mini is powered by an ARM A4 processor – the same in Apple's iPhone 4. This makes the Apple TV a small, power efficient and quiet device, but it also puts it at a hardware disadvantage. Unlike many competitors, the Apple TV only supports 720p video playback at up to 30 frames per second.



As one might expect, integration with the iTunes store is central to the [Apple TV](#) experience. This makes the device excellent for users who like access to on-demand

content or buy a lot of digital media through iTunes. The device also supports Netflix and offers access to live MLB and NBA games. At \$99, it's a fair price – but overall this device is only the best choice for current fans of iTunes.

### Boxee Box

D-Link's [Boxee Box](#) is a powerful media center that markets itself on the basis of its powerful hardware and open platform. Inside this device you'll find an Intel powered platform that is capable of outputting 1080p without breaking a sweat.



The software support is impressive as well. Netflix and Vudu are supported, as is a wide variety of services via Boxee apps. For example, I was surprised to find that Starcraft commentator Day[9] had his own Boxee app, making it easy to watch his broadcasts. As if that weren't enough, you'll also find a web browser that can play online video straight from a website. You'll have to pay \$199 for this media center, so it's a bit pricey. There also seems to be some bugs left in it– I had to deal with a few crashes when I used it. Still, this choice will appeal to power users who want access to a wide range of content at 1080p.



### Xbox 360

Microsoft's [gaming console](#) might have been originally developed for flashy 3D graphics, but the company always had plans to make it a media center, and over time has reinforced that with new features. Today, the Xbox 360 supports Netflix and Hulu Plus and also provides access to on-demand content and digital downloads via its [Zune](#) store.

Hardware power has never been the 360's problem. Instead, the device was held back by the loud system fans required to cool the hardware. The latest version of the 360 has largely solved this problem, however. If judged on hardware alone, the Xbox 360 is probably the

best media center on the market today.

Price, however, is still an issue. The Xbox 360 without a hard drive is \$199, while the model with a 250GB hard drive is \$299. In addition to that, you'll have to buy an Xbox Live subscription to access any online content, and that will cost at least \$50 a year if you purchase a full year's subscription at once.

### Playstation 3

Like Redmond's console, the Playstation 3 is built not only to play games but also to act as a [multimedia center](#). It offers a wide range of features including support for subscription services like Netflix and a limited amount of on-demand content.



The inclusion of a [Blu-Ray player](#) is likely to be a selling point for some buyers. The fact that you're going with Internet television doesn't mean you have to embrace it to the exclusion of all other media, and Blu-Ray is clearly becoming the next physical media standard. Blu-Ray players are not particularly expensive, but the features on the PS3 are solid, so this feature is going to be important to buyers who would have purchased a Blu-Ray player anyway.

Sony's biggest problem is its online service, which is free but also quite far behind Xbox Live. The \$300 pricetag and recent Sony security issues are also knocks against the PS3.

### Roku



Roku is a range of media players available from the company of the same name. They range from a low-end standard definition player, which can usually be had for peanuts (\$60-80) to players that offer full 1080p playback that can be had for just \$100.

Although quite small, there are a lot of



features packed into each Roku device. Support of online TV services is a prime selling point, so Roku players generally support Netflix and Hulu Plus as well as content from other sources like [Vimeo](#) and Amazon.

The boxes most buyers will be interested in are the Roku HD, XD and XD | S. The HD is only capable of 720p content, while the XD models offer 1080p, and the S model also offers component output, a USB port and dual-band [wireless](#) support. Since there's not that much of a price difference between the different models, I suggest going for the XD | S. It's an excellent choice for buyers who want a simple, straightforward but powerful media center.

## Wii

The [Wii](#), unlike the other game consoles, wasn't built to take advantage of the HD revolution. Although it can output to HDTVs just fine, it doesn't render content natively at 720p or 1080p. Instead, video is simply up-scaled. This results in visual quality that's noticeably inferior to the Xbox 360 and PS3.



In addition to this, the Wii has limited support for online subscription services. Netflix is available, and the Wii can be used to display some movie file formats, but overall there's less here than you'll find on the other consoles.

However, the Wii does make up for these shortcomings somewhat with its small footprint and quiet operation. While the Wii might not be the best choice for a serious home theater system, it'd be acceptable for a game room or living room TV.

## Western Digital WDTV



A media center is a somewhat odd product for hard drive manufacturer Western Digital, but it's actually a quite popular option, usually ranking behind Roku on Amazon's media center sales list. Although WDTV does offer online connectivity with big names like Netflix and YouTube, it's better described for a network media player – generally speaking, you'll be sending your content to

the WDTV from either networked PCs or an attached drive.

That means you'll be missing direct access to a lot of Internet television services, but the WDTV makes up for it with hardware. This device is capable of 1080p playback, yet it's just 4.9 inches wide and costs only \$89.99. If you believe that you're the kind of person who'd rather download content to your PC than purchasing a subscription or streaming content from sites, WDTV is an excellent choice for sending that content from your PC to your home theater.

## Google TV

The recently released [Google TV](#) made a big splash during its press release but hasn't seen that much media coverage since. That's likely because it isn't a revolutionary service, although it does have some unique features.

Google TV is, basically, Android on your television. It offers the Chrome browser with full support for Flash. With these tools you'll be able to stream a wide variety of content – but not all. For various reasons, some networks have blocked Google TV from streaming content. Lame move? Yep, and it's one that significantly devalues Google TV as a media center. But you can still get Netflix.



Despite the Google TV name, this product isn't designed to work best with the Internet alone. Many of its features are meant to support standard cable or satellite television. Factor in the cost – over \$200 for the Logitech Revue – and it's clear this solution has some way to go before it's competitive with less expensive options.

## HDTVs and Blu-Ray Players



Although buying a media center is important, it may not be necessary depending on your needs. A wide variety of HDTVs and Blu-Ray players come with Internet connectivity built in, and if you're not a heavy consumer of content, this might be enough.

Obviously support will vary from one device to the next, but most devices with Internet connectivity support Netflix and many support services like Hulu Plus and Vudu. Some even

include [Pandora](#), [Facebook](#) or a full-blown web browser.

If you were thinking of buying a new HDTV or Blu-Ray player anyway, keep this option in mind. It may turn out that you don't require a media center at all to satisfy your needs.

## Pre-Built HTPCs

In the next chapter we're going to discuss the parts you need to think about when building your own HTPC, but what about pre-built computers for your home theater? These do exist. Indeed, certain products – like the tiny Dell Zino HD – are built specifically to interest users who want a small, compact, powerful home theater computer. It's also quite possible, if you don't mind the size, to convert a standard desktop PC into a HTPC. All you need to do is make sure that the appropriate video and audio connections are available, and if not, order the PC with the appropriate add-on cards.

Functionality-wise, a pre-built HTPC generally won't be any different from one you build yourself, with the exception of some extreme high-end options that come with customer hardware and software, such as the [Velocity Micro CineMagix Grand Theater](#). These high-end solutions cost well over \$1000, however, so they're not practical for most people.

A small pre-built computer isn't a bad idea if you don't want to hassle with building it yourself. You can expect to pay more, and your future upgrade options will be limited, but these tradeoffs may be worth the time you'll save building and setting up the PC.



## Chapter 3: Building a DIY Media Center/HTPC

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The pre-built media center options on the market are excellent. They provide a great deal of functionality, and while you do generally have to make a sacrifice somewhere, some careful choosing will probably get you most of what you're looking for. You can even combine two options rather easily – after all, buying a Roku alongside an Apple TV will still put your upfront cost under \$200.

However, as wonderful as the pre-built options are, there's still reason to buy or build your own home theater PC. A home theater PC is the only device that's going to give you access to virtually all of the content available on the web without involving other devices. An HTPC can also play a wide variety of physical media at the same time, including DVDs, Blu-Rays, and content stored on portable drives. But what parts should you buy when building an HTPC? Good question.

## Processor (CPU)

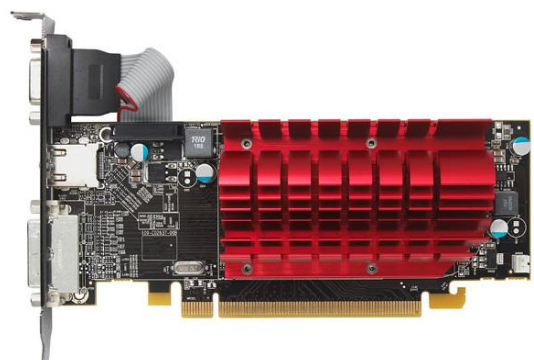


At the heart of every computer is the processor. You absolutely can't do without one of these, and it's heavily involved in many functions commonly asked of an HTPC. Most modern processors have no problem playing HD content. You will want to stay away from anything with a single core, and any Atom or Fusion processor that's running around 1 GHz or just a tad higher.

One route to take is to purchase a low-end CPU with integrated graphics. The new [Fusion](#) E-Series processors, like the E-350, are a good example of this. This solution can play most 1080p video sources without issue, but also uses little power and requires little cooling. This means you can build a small system with only one or two fans. Alternatively, you can purchase a high-end CPU with or without integrated graphics. The newer Intel Core processors are a good example. These require a larger system (generally speaking) but are significantly quicker than an Atom or E-series Fusion. This yields no benefit if you only intend to consume content, but you may also need to [convert video formats](#) from time to time, or import/export video from various devices. If you do not have another computer on which you intend to take care of this, you should invest in a faster processor.

## Video Card

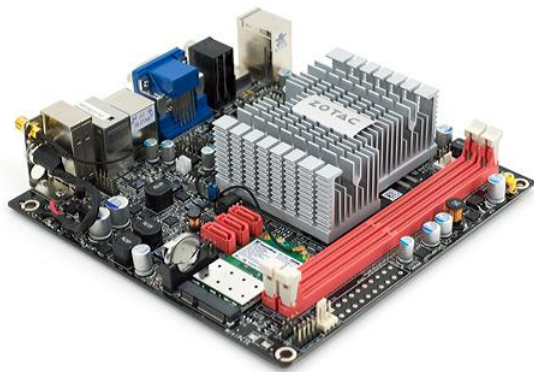
Just a year ago, a [video card](#) was often a necessity when building an HTPC. Today, it's rarely required. Why? Because both Intel and AMD offer processors with integrated graphics that can easily handle 1080p



content. These are the new AMD Fusion processors and Intel second-generation Core processors.

With that said, you may want to pick up a video card if you need additional video output that isn't made available on the motherboard. For example, many low-end Radeon cards offer support for HDMI, DVI and VGA all on one card, or alternatively they might add support for [DisplayPort](#), which isn't often found on motherboards.

## Motherboard



The motherboard of an HTPC usually doesn't have much impact on performance, but it's still important. Why? Because the motherboard determines the connectivity available, and it's also usually the largest component – which means it dictates how compact your HTPC can be.

Generally, you'll want to make sure the motherboard at least has [HDMI](#)-out and 5.1 channel audio. Depending on the equipment you already own, you may want to look for 8.1 audio and additional display outputs as well. A wealth of USB ports is also crucial, since these will be used for most devices connected to the HTPC, such as external hard drives and input devices.

Size and price tend to be inversely related. There are some very nice, small motherboards available (the format is called mini-ITX) but these motherboards are generally over \$100. If you don't mind a bigger system, you can often buy a micro-ATX or standard ATX motherboard with similar features for between \$50 and \$80.

## Enclosure

The case that you pick for a new HTPC is quite important. It determines the external dimensions of your system and the cooling, which also relates to the noise the system generates.

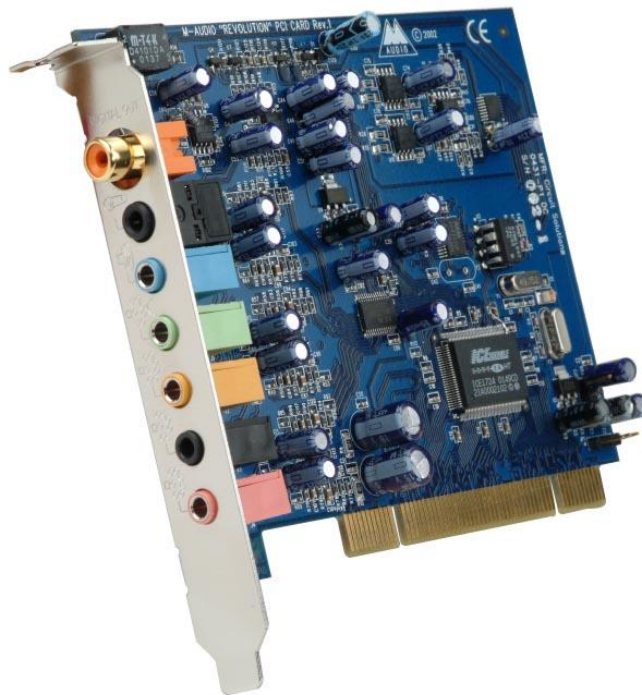
At first glance you might be tempted by cases that have large, obvious cooling vents. Don't be. Although you do want sufficient cooling, large vents let out noise just as they let in air. You don't want to have to pump up the volume just to drown out the whirr of your system fans.

Instead, look for cases with mounts for 120mm fans. Big fans can generate the same air flow as small fans at a lower speed, and that results in less noise. You may also want to look out for slim cases that mimic the size of a receiver or large Blu-Ray player, as these blend in more easily with a home theater setup.



You should also consider cases with special features, such as LCD displays that can provide information about what you're currently watching, system volume, and more. Basic cases with these displays are affordable, in the \$100 to \$200 range. Some cases over \$300 even offer LCD touch screens that can act as a system display.

## Sound Cards



Of all the components in a modern computer, sound cards are one of the least well understood. There's a definite lack of good coverage regarding their effectiveness, and that makes buying one difficult.

Many motherboards offer 5.1 or 8.1 surround sound, and if you have a mid-range sound setup, this may prove sufficient. However, a [sound card](#) can provide a noticeable difference, even to people who don't consider themselves audiophiles.



My advice is to try your HTPC without a sound card first, then buy one if you feel the sound isn't up to par. They're easy to install, so doing so after your initial build isn't a great inconvenience.

## Input Devices

Although the internal components in your HTPC are important, you also need a way to control them. The standard keyboard and mouse is not, as you might expect, always the best solution.



One option is to go with a miniature keyboard device that's specifically built for HTPCs. These come in various sizes, but the common theme is a combination of a small keyboard and a mouse navigation system on one device. These devices usually aren't expensive, either.

Another option is to go with a small stand-alone wireless keyboard and a specialty mouse input, such as an "air mouse" that uses sensors to allow for mouse control even when the mouse isn't on a surface (this is basically the same as the WiiMote used to control Nintendo's console).

## Software

You'll make many decisions when building an HTPC, but the most frustrating may well end up being the software.

The operating system is fairly straightforward – it should be Windows, unless you absolutely can't budget for the operating system, in which case you can get by with Linux. The main issue I have with Linux is driver support, which continues to be poor in comparison to Windows. This is why I do not recommend it as a first choice,

particularly for users who are not already experienced with Linux.



Windows 7 has Media Center built in (as long as you didn't buy Windows 7 Starter) and is a reasonably good solution for basic media center functionality. It can be used to play a wide variety of content on your PC and network, the interface is quick, and it is designed to work well with not only keyboard/mouse but also the simple up/down/left/right navigation functionality found on most TV remotes.



An [alternative](#) that I quite like is the Boxee software, created by the same people who made Boxee Box but available for installation on PC, Mac or Linux. This provides a great HTPC friendly interface that gives you access to both online content, including subscription services, and locally hosted content. It works quite well with almost any input solution and best of all, [it's entirely free](#).

Another popular free option is [MediaPortal](#), an open-source media center project. Like Boxee, MediaPortal is software that launches and takes over your screen to provide an interface friendly with most any form of input. It includes support for playing a wide variety of both online and locally hosted content. What you won't find, however, is native support for subscription services like Netflix or access to on-

demand content (there are plugins that might address these issues, but they're user-created and may not work on your PC).

## Chapter 4: Troubleshooting Common Problems

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Switching to Internet TV isn't an experience that's guaranteed to be problem free. Indeed, while it's usually worthwhile for the potential savings, the switch can be problematic for some. There are common issues that can impact your experience, and unfortunately some less common ones, as well.

Let's address a few of the big issues you might run into, so that we can head off these problems because they're overly frustrating.

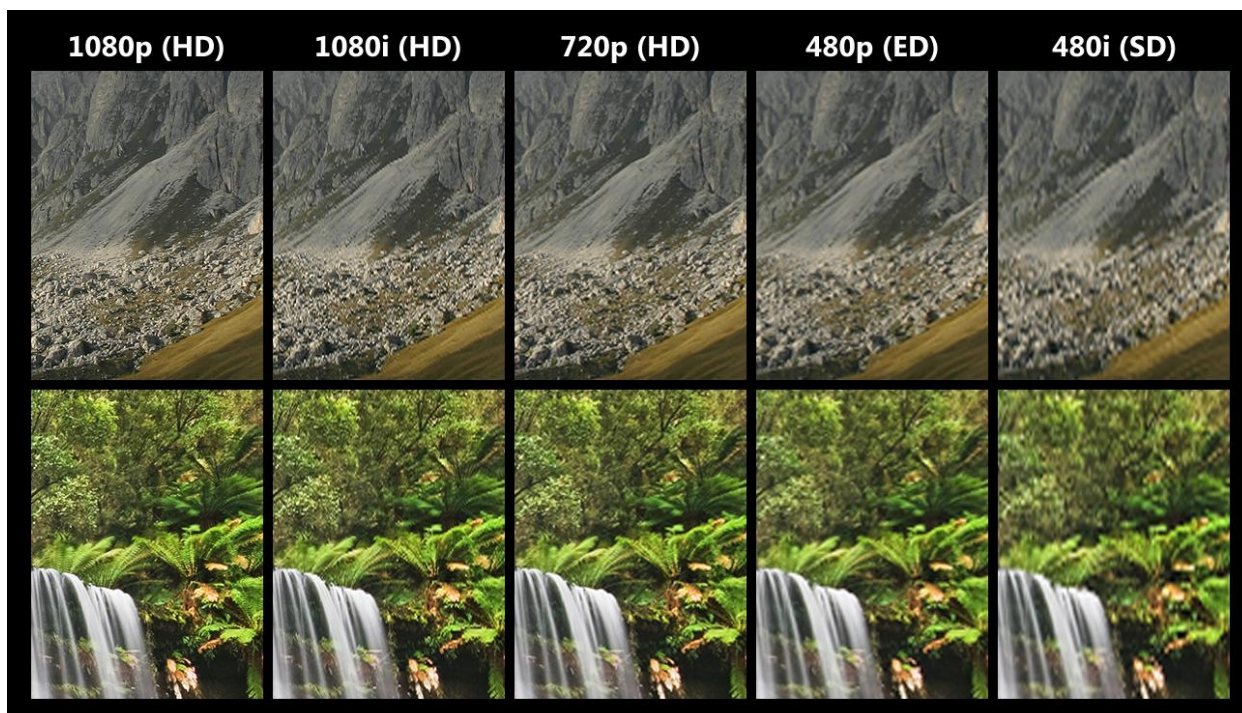
### Dealing with Limited Bandwidth



As I explained in the first chapter, bandwidth can be an issue with Internet television. Although some people are fortunate enough to have excellent broadband, most people throughout the world have to make do with lackluster connections, either because of availability or affordability.

Limited bandwidth can be a huge problem, as it will interrupt streaming content and slow downloads. So what can you do to improve your situation?

When it comes to streaming content, your best bet is to downgrade the resolution of what you're watching. If you're watching at 1080p, for example, you should try 720p instead. This is usually a good trade-off between quality and bandwidth, as 720p renders roughly half the pixels as 1080p, but the difference in image quality is often difficult for the human eye to see at the distance from your TV at which you'd normally sit (5 feet back or further, depending on display size).



Another option is to reduce frame rate, if possible. Although content is sometimes displayed at 30 or 60 frames per second, most people can't tell the difference between them. Reducing to 30 frames per second – or even 24 frames per second, if possible – reduces the bandwidth required.

If you're downloading content, try to download during off-peak hours, such as overnight or the early morning. These are usually the times when there is the least Internet traffic and your ISP will offer the quickest speeds. Leaving your computer on to download while you're away will increase your electric bill slightly, but will make downloading a large file tolerable.

Reducing the quality of the media you're downloading is again a reasonable compromise. A 720p movie file is going to be significantly smaller in size than a 1080p file, so go for the lower resolution if bandwidth is an issue.

## In-Home Network Connectivity

Even if you have an excellent connection to the Internet, you could run into issues if your home network equipment is slowing your connection speeds. Ideally, you'd be able to access the Internet via a direct [Ethernet](#) connection – but that's not always possible. If your house isn't already wired, you'll need to find some way to





run Ethernet cord from the source of your Internet connection to the appropriate location. Depending on the distance, this can be just as or more expensive than buying a wireless router, and that's before the hassle of installation is dealt with.

Wireless is one obvious solution. It's easy, and the newest wireless n standard provides speeds that are sufficient to handle high-definition content with ease. However, you will need to account for obstacles that might block your signal. A poor [WiFi connection](#) is a common reason for lackluster Internet television. Make sure that your computer is reporting strong reception. If it isn't, you'll need to move your device or, if you're using a HTPC, add a wireless antenna extender that can be positioned in a better location.



But what do you do if you can't obtain a strong enough signal with wireless and you don't have the skills or time required to run Ethernet through your walls? [Power-line networking](#) is a great alternative. This technology can use the existing electrical wiring in your home to transfer data, and you don't have to worry about reception. So long as you can spare a power socket near your home theater this will serve you well.

## Improving Image Quality

[Image quality](#) is always an issue. When I had cable service there were clearly times where some form of compression was introducing artifacts into the images being

sent to my HTPC. There's not anything I could do about it, however. I had no control over what my cable network sent me.



That's not quite the case when you're running an Internet media center. If the picture quality isn't what you expected, there are some steps you can take to try and address the issue – beyond the solutions to bandwidth issues that were already discussed above.

One solution is to look for sources with better quality. Not all high-definition content is the same, and I'm not merely referring to the difference between 720p and 1080p. Additional compression is often used to make content easier on a user's bandwidth, but this can also reduce image quality. Look for sources that use as little compression as possible – but be aware that this will increase the file size (in the case of downloads) or the bandwidth required for a smooth stream.

If you're using a home theater PC, you can try improving your image quality through calibration. Windows Media Center provides a calibration utility that will let you adjust your PC's picture so that it properly displays on your HDTV. Some media centers have similar functionality, so check those out as well.

## Conclusion

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### The Summary – What You Need For Internet Television

Let's break it down. What do you need to get the most out of Internet television? First you need a decent Internet connection. You cannot expect to have a satisfactory Internet television experience if you're restricted to a broadband connection of just 1 or 2 Mbps, or if you're on dial-up. It just won't work. Downloads will take forever, and most streaming content won't play steadily.



Then you need a media center. As detailed in chapters three and four, the specifics of this can vary quite a bit depending on what you want, but this should be your first goal. If you buy a media center that's wrong for your needs, you'll probably find yourself unhappy even if you have access to even the best content.

Finally, you need the actual content. Although you can spend a lot of time downloading various movies and shows (if you don't mind the legal risks) I personally suggest that most users look into the subscription services like Netflix and Hulu Plus. No, they're not *free*, but they're very inexpensive. Alternatively, if you really don't want to spend a dime, you can check out the free content available on various websites. There's a lot that can be had for the low, low price of nothing.

Do you have these bases covered? If so, excellent! You should be a great candidate for switching to the Internet as your only source of shows and movies.

### Future-Proofing: Should I Be Concerned?

Obsolescence is a common concern among consumers looking to make an investment into new technology. With the rapid pace of computing in a variety of markets, it's an understandable fear. No one wants their brand new media center to be obsolete within a year.

Fortunately, future-proofing isn't a concern for people making the switch to online television. Why? Because almost everything is standardized, and those standards won't be changing soon. Currently, 1080p is the highest resolution you need be concerned about, and that will be the case for years to come. Although there is a push towards 3D television, the adoption of this as more than a novelty has been extremely slow. It's not something to be concerned about at this juncture.

Is there anything to be worried about? Honestly, no. I'd be wary about buying a media center only capable of 720p at this juncture, but that aside, any media center solution capable of 1080p should last many years.

## **Additional Reading**

I've included a lot of information in this guide, but as always, there's even more that can be of use. Check out the links below – they'll provide you with more information about specific, related topics.

[3 Best Free Sites For Watching TV On The Internet](#)

[3 Handy Keyboard Shortcuts You Need To Program Into Your Media Center Remote](#)

[5 Great Linux Media Center Distributions To Transform Your TV](#)

[6 TV-Ready Media Center Programs You Should Check Out](#)

[7 Excellent Destinations TO Watch TV Shows For Free](#)

[Best Sites To Watch TV On Your Computer Over The Internet](#)

[A Closer Look At JOOST](#)

[Cool Windows Media Center Alternatives](#)

[How To Build A Home Media Server From An Old PC](#)

[How To Turn Your Gaming Console Into A Media Center](#)

[Lifextender: Remove TV Commercials In Windows Media Center](#)

[Two Ways To Never Miss a Television Episode](#)

[Watch Television On Your Desktop With Livestation](#)

[Using Your Linux Computer As A Media Center](#)





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