

My TV for Seniors



COVERS
what, how, and
where to watch
for less

An AARP TV
for Grownups
publication

que®

AARP
Real Possibilities

Michael Miller

FREE SAMPLE CHAPTER

SHARE WITH OTHERS



My TV for Seniors



Michael Miller

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My TV for Seniors

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About the Author

Michael Miller is a popular and prolific writer of more than 200 non-fiction books, known for his ability to explain complex topics to everyday readers. He writes about a variety of topics, including technology, business, and music. His best-selling books for Que include *My Facebook for Seniors*, *My Social Media for Seniors*, *My Internet for Seniors*, *My Smart Home for Seniors*, *My iPad for Seniors*, *My Samsung Galaxy S7 for Seniors*, *My Windows 10 Computer for Seniors*, *Easy Computer Basics*, and *Computer Basics: Absolute Beginner's Guide*. Worldwide, his books have sold more than 1.5 million copies.

Find out more at the author's website: www.millerwriter.com

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Dedication

To my father, who always brought home the latest and greatest televisions from his TV and appliance store when I was a kid.

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In this chapter, you learn how to cut the cable and satellite cord and view your favorite programs with a streaming media player.

- Understanding Internet Streaming Video
- Watching Amazon Fire TV
- Watching Apple TV
- Watching Google Chromecast
- Watching Roku
- Comparing Streaming Media Players
- Optimizing Streaming Media Playback

6

Getting Streaming Media Devices

Cable and satellite TV are so *yesterday*. Today there's a new way to watch your favorite programming, called *streaming video*, and you get it over the Internet—via a small stick or set-top box called a *streaming media player*.

With a streaming media player and an Internet connection, you have access to practically any channel, network, or program available on cable, satellite, or antenna TV. It's the perfect way to “cut the cord” and reduce or eliminate your monthly cable or satellite bill!

Understanding Internet Streaming Video

As you've learned, local television stations broadcast their programming via radio waves over the air. Cable systems transmit their hundreds of stations over a coaxial or fiber optic cable to your home. And satellite systems transmit their programming by bouncing it off a satellite orbiting tens of thousands of miles in space.

Streaming video services, however, use the Internet to deliver their programming. By connecting a streaming media player to the Internet and your TV, you gain access to hundreds of streaming services—in full HD. Many of these streaming services are free; others require a monthly subscription.

Welcome to the World of Streaming Video

Streaming video, sometimes called IPTV (that's short for *Internet Protocol television*), sends video programming over the Internet as a stream of digital data. When you choose to watch a streaming program, playback starts almost immediately and continues until the program is done; there are no files to download or store on a computer or hard drive. The streaming playback can be paused, stopped, fast forwarded, and rewound, same as you would do with a program on a DVD or Blu-ray disc. You control what you watch; it just happens to come to you via the same connection that brings your other Internet content.

The technical wizardry behind all this is similar to that behind your cable or satellite company's on-demand video. All the programming offered by a given streaming video service is stored in digital data files somewhere in the great big Internet cloud. When you select to watch a given program, it is streamed from the video service's servers across the Internet to the Internet modem in your home. From there the signal goes to your Wi-Fi router and is transmitted wirelessly to your Smart TV or the streaming media player connected to your TV. The media player plays the selected program and you view it on your TV, controlling playback with your media player's remote control. It's that sophisticated and that simple.

Discovering Streaming Media Players

A streaming media player is a standalone device that connects to your TV, typically via HDMI. Some media players are small set-top boxes; these connect to your TV's HDMI input via an HDMI cable. Others are in so-called "stick" format; they look like USB memory sticks and connect directly to your TV's HDMI input.

HDMI

HDMI stands for *high-definition media interface*, and it enables the transmittal of uncompressed audio and video data between devices. HDMI is the standard used to connect most consumer electronics devices today.



A typical set-top streaming media player, the Roku Express+. (Photo courtesy Roku, www.roku.com.)



A typical stick-type streaming media player, the Amazon Fire TV Stick.

Either type of streaming media player—set-up box or stick—needs to connect to a power source and to the Internet. For power, just plug the unit's power cable into a wall socket. For the internet, all have built-in Wi-Fi capability so they can connect via your home wireless network; a select few also have Ethernet ports so they can connect via a wired connection, too.



The connections on the rear of a typical streaming media player, the Roku Express. (Photo courtesy Roku, www.roku.com.)

Streaming media players are available from four major suppliers: Amazon, Apple, Google, and Roku. These companies offer a variety of models in different form factors, with different capabilities, at various price points. The lowest-priced streaming media players today sell for under \$30 USD; the highest-priced ones get closer to \$200 USD. I'll go into the pros and cons and pricing later.

In addition to these freestanding streaming media players, streaming media playback is built into many of today's so-called "Smart" TVs. Some of these Smart TVs have their own proprietary menus and operation; others offer the same look and feel as the freestanding players—in particular, the Amazon and Roku systems.

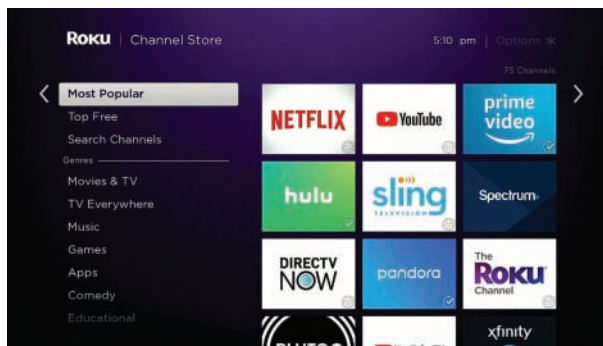
Streaming on the Go

You can also view streaming video from smartphones, tablets, and computers. Learn more in Chapter 12, "Watching Streaming TV on Your Phone, Tablet, or Computer."

How Streaming Media Players Work

All streaming media players and smart TVs offering streaming content work in pretty much the same fashion. You start by connecting the player to your TV, typically via HDMI. Then you connect the player to a power source and to your wireless home network. This is typically made easy by a step-by-step setup routine; just follow the onscreen instructions and you'll be done in a few minutes.

You then have to select which streaming services you want to view on the streaming media player. Individual streaming services are available as "apps" in that device's app store. (Roku calls these services "channels," and its app store a Channel Store.) Select which apps/services you want to access, and tiles for those apps appear on the device's home screen.



Browsing for new apps in Roku's Channel Store.

To watch a specific streaming service, select that service's tile on your player's home screen. The app for that service launches, and you can browse or search for

something to watch on that service. Click to select a specific episode or movie, and playback starts on your TV screen.

You can use your player's remote control (or, in some cases, the player's smartphone app) to control playback. Press the Pause button to pause playback; press Play to resume playback. Press the Fast Forward (or right arrow) button to skip forward through a program; press the Rewind (or left arrow) button to skip backward to rewatch a program. Viewing progress is typically noted via an on-screen "scrubber" or slider control. In many cases, you can press the Enter or Info button to view more information about the current program.



The remote control unit for Amazon's Fire TV players.

What's Available on Streaming Video

Just about every channel available on cable or satellite is available on streaming video. There are even streaming services that offer access to your local over-the-air (OTA) broadcast channels!

Most cable networks offer streaming apps that play on most streaming media devices. Many networks are available as part of streaming services that offer multiple channels in a single interface. And many network shows, old and new, are available as individual programs on one or more streaming services, such as Hulu and Netflix.

Many streaming services also offer first-run and older movies. Newer movies might cost money to view; older movies might be offered for free or included as part of a general subscription price.

Streaming video services also offer a significant amount of original programming. Netflix, for example, offers both original series, such as *Fuller House*, *House of Cards*, *Stranger Things*, and *Unbreakable Kimmy Schmidt*, and original movies, including the Coen Brothers' *The Ballad of Buster Scruggs*, *The Little Prince*, and *To All the Boys I've Loved Before*. Amazon Prime Video, Hulu, and other streaming services are equally invested in original programming of all types.

How much does all this cost? Many streaming video services are free of charge, supported by their advertisers. Other services have a low monthly subscription fee, anywhere from a few dollars per month to \$15 USD or so. More inclusive services that stream multiple channels of live TV and cable programming can cost up to \$80 USD or so a month. So the amount you spend depends on which streaming services you watch and subscribe to. (That's in addition to the purchase price of the streaming media player and your monthly Internet service, of course.)

>>>Go Further

WHAT'S PLAYING AND WHERE

When you want to find a particular program on streaming video, you can search through dozens of individual services. Or you can take advantage of the universal search available with some streaming media players. For example, Roku offers a search function that searches across all the streaming apps you have installed to discover which apps are playing the program you want.

There are also several websites that serve as universal program guides for a variety of popular streaming services. The most popular of these include

- Can I Stream It? (www.canistream.it)
- GoWatchIt (www.gowatchit.com)
- JustWatch (www.justwatch.com)
- Reelgood (www.reelgood.com)

All these sites work in pretty much the same fashion. Enter the name of the program you're searching for, and these sites tell you on what services you can find what you're looking for. (If the program is available, that is; not every TV show or movie is currently playing on streaming video.)

Watching Amazon Fire TV

You might know Amazon as a giant online retailer, but it's also a manufacturer of many different high-tech devices. Among the company's most popular tech products are its line of Fire TV streaming media players.

Amazon's Fire TV players are available in both stick and set-top boxes. All players come with voice-activated remotes that let you operate the players and select programming with simple voice commands. These Fire TV devices also are compatible with Amazon's Alexa voice assistant, so if you have an Amazon Echo smart speaker you can instruct it to control your Fire TV device, too.

Another unique feature to Fire TV is that your Fire TV device is automatically connected to your Amazon account. This makes it easy to order paid streaming programming from Amazon; Amazon's programming, not surprisingly, is prominently featured on screens throughout the Fire TV service.

Comparing Models

As of early 2019, Amazon offers three Fire TV models—two sticks and a cube-like set-top box. The basic Fire TV Stick is 1080p HD only and sells for \$39.99 USD. A step up, the Fire TV Stick 4K adds 4K Ultra HD resolution, HDR, and Dolby Atmos sound for ten dollars more (\$49.99 USD). The Fire TV Cube has the same specs as the Fire TV Stick 4K but also includes an Ethernet port for wired Internet connections; it sells for \$119.99 USD.



The Amazon Fire TV Stick 4K and remote control. (Photo courtesy Amazon, www.amazon.com.)



The Amazon Fire TV Cube. (Photo courtesy Amazon, www.amazon.com.)

Table 6.1 compares the Fire TV models; learn more at www.amazon.com/FireTV.

Table 6.1. Comparing Amazon Fire TV Models

	Fire TV Stick	Fire TV Stick 4K	Fire TV Cube
Format	Stick	Stick	Set-top box
Voice-controlled remote with Alexa	Yes	Yes	Yes
1080p HD	Yes	Yes	Yes
4K Ultra HD with HDR	No	Yes	Yes
Dolby Atmos sound	No	Yes	Yes
Wi-Fi	Yes	Yes	Yes
Ethernet connection built in	No	No	Yes
Price (USD)	\$39.99	\$49.99	\$119.99

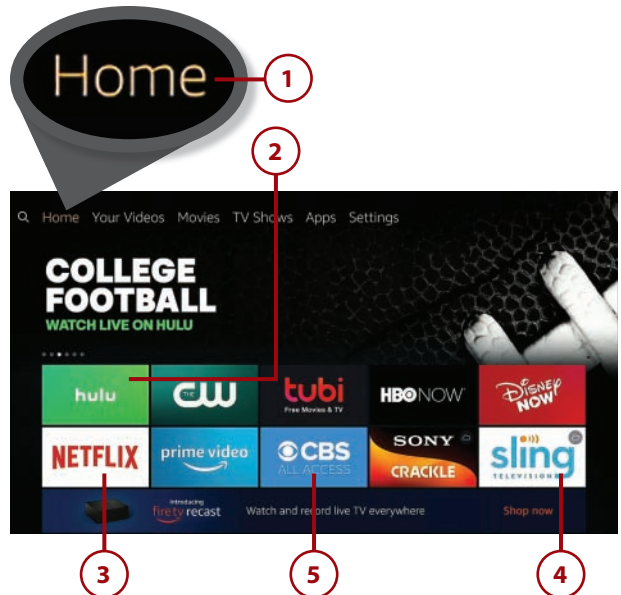
Amazon Fire TV Edition TVs

Several television manufacturers offer Smart TVs with the Fire TV interface and service built-in. These so-called Fire TV Edition sets come in a variety of sizes and functionality, and they work just like freestanding Fire TV devices.

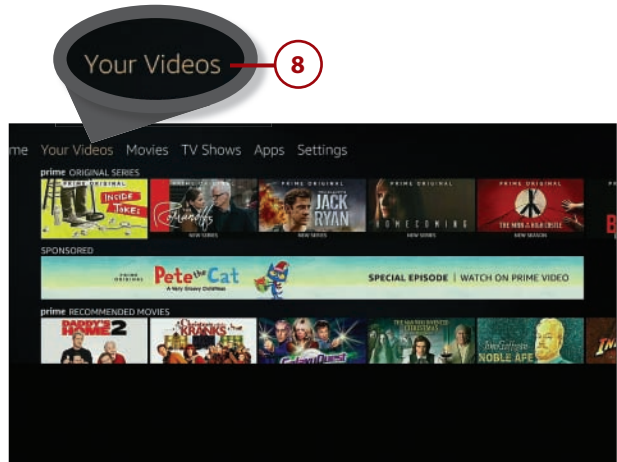
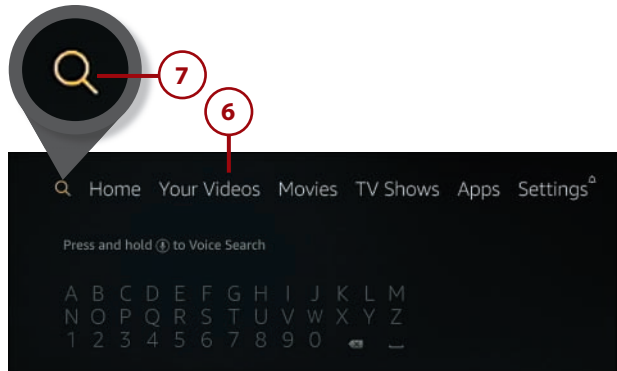
Using Fire TV

You can operate Fire TV from its supplied remote or via voice commands (from the remote control or a connected Amazon Echo device).

- 1 Select a tab at the top of the screen to go to that content. Select Home to view the Home screen.
- 2 Press the down arrow button on the remote to go to the first row of app tiles. This row displays your most recently viewed apps.
- 3 Press the down arrow button again to go to the bottom row of app tiles. This row displays all the apps you've added to your Fire TV.
- 4 Press the right and left arrow buttons to scroll right and left through all the installed apps.
- 5 Press the Enter button on the remote to open a selected app.

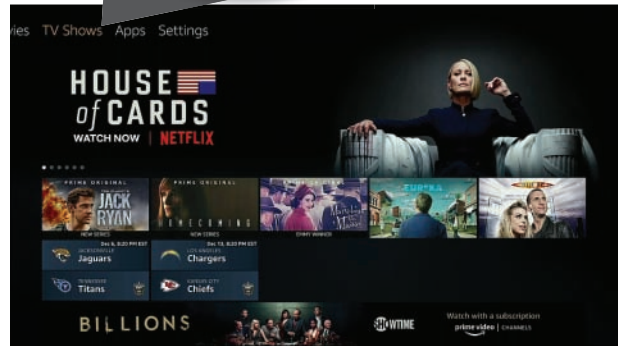


- 6 With the row of tabs selected, press the right and left arrow buttons on your remote to select other tabs.
- 7 Select the Search icon to search for shows and movies across all your installed apps.
- 8 Select Your Videos to display content you've watched on Amazon Prime and other services, as well as recommended TV shows and movies from Amazon Prime Video.
- 9 Select Movies to view movies available on Amazon Prime Video.



- 10 Select TV Shows to view television series (including original series) available on Amazon Prime Video.
- 11 Select Apps to select new apps/streaming services to install on your Fire TV device and to manage those apps you've previously installed.
- 12 Select Settings to configure your device's settings.

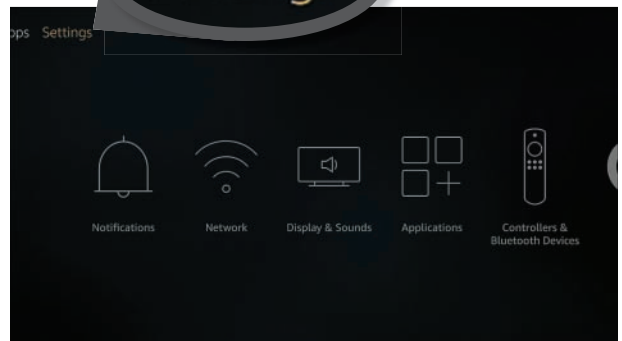
10 TV Shows



11 Apps



12 Settings



>>> *Go Further*

HOW TO WATCH YOUTUBE ON FIRE TV

Because Amazon and Google (which owns YouTube) are competitors, no Google content is available in Amazon's app store. This means there's no YouTube app for Fire TV. However, you can still watch YouTube on a Fire TV device, via Fire TV's web browser, called Silk.

You first need to download the Silk app for Fire TV (it's on the Apps tab, or just search for it). Then launch Silk, navigate to the YouTube site (www.youtube.com), and create a bookmark for it. If you search for YouTube on Fire TV, you'll find some apps that are pre-made bookmarks that do this for you.

The YouTube bookmark looks like any other app tile on Fire TV. To watch YouTube, just navigate to and select that tile. YouTube is automatically launched within the Silk browser and looks and works like any other streaming service on your device.

Watching Apple TV

Apple was one of the first companies to offer a streaming media player, in the form of its Apple TV device. Apple TV is a smallish set-top box that connects to your TV via HDMI. It works pretty much like competing streaming media players, but it has a definite Apple feel to it.

Some of this Apple feel is seen in the unit's remote control, which lets you operate the unit by pressing physical buttons or issuing voice commands. The voice control is provided via Apple's Siri intelligent assistant.

Another unique feature of Apple TV is the way it interfaces with other Apple products. You can stream photos, music, or videos you've stored on your Apple iPhone, iPad, or Mac computer to your Apple TV using Apple's Airplay functionality. It's easy.

Using AirPlay

Learn more about using AirPlay to stream content to an Apple TV in Chapter 12.

Apple TV is also unique in offering access to the iTunes Store. This makes it easy to rent or purchase movies for streaming that aren't available from other streaming services.

iTunes Store

Learn more about streaming video from the iTunes Store in Chapter 9, “Watching Paid and Rented Programs.”

Comparing Apple TV Models

As of early 2019, Apple offers two Apple TV models, both set-top boxes. The basic Apple TV box is 1080p HD and offers both Wi-Fi and Ethernet connectivity; it sells for \$149 USD. The higher-priced Apple TV 4K unit adds 4K Ultra HD, HDR, and Dolby Atmos sound for \$179 USD. There’s also a version of the 4K unit with additional built-in storage; this sells for \$199 USD.



The Apple TV set-top box.

These prices make Apple TV the most expensive streaming media players out there. But if you have other Apple devices and want to share content among them all, the higher price might be worth it.

Table 6.2 details the differences between the two Apple TV units. Learn more at www.apple.com/tv/.

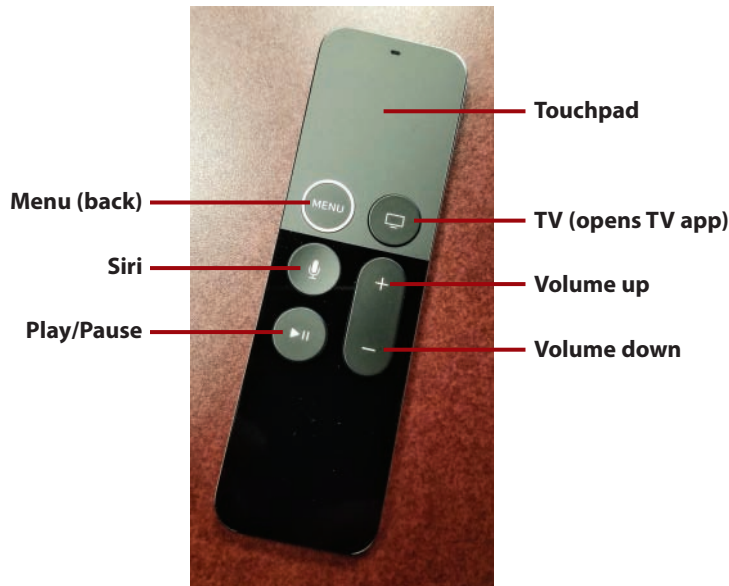
Table 6.2 Comparing Apple TV Models

	Apple TV	Apple TV 4K
Voice-controlled remote with Siri	Yes	Yes
1080p HD	Yes	Yes
4K Ultra HD with HDR	No	Yes
Dolby Atmos sound	No	Yes
Built-in storage	32GB	32GB, 64GB
Wi-Fi	Yes	Yes
Ethernet connection	Yes	Yes
Price (USD)	\$149	\$179 (32GB), \$199 (64GB)

Using Apple TV

When you first connect and turn on your Apple TV box, it leads you through an on-screen setup process. This includes connecting the device to your existing Apple account, so it can share content with your other connected Apple devices.

The Apple TV remote differs a bit from the remotes from the other streaming players. Instead of physical buttons, the top part of the remote has a kind of touch pad. Swipe your finger up or down to scroll or move the onscreen focus up or down; swipe left or right to scroll or move the onscreen focus left or right. You also can press on the top, bottom, left, or right edge to move the focus in that direction. Press in the middle of the touch pad to make a selection; this is essentially the “enter” key.



The Apple TV remote.

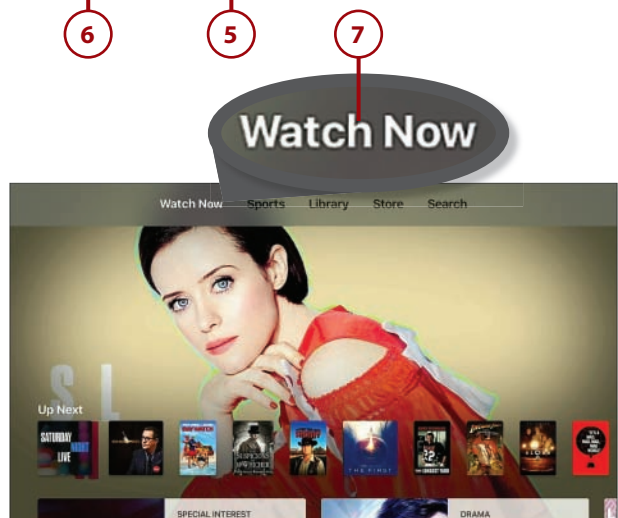
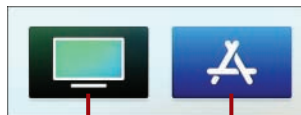
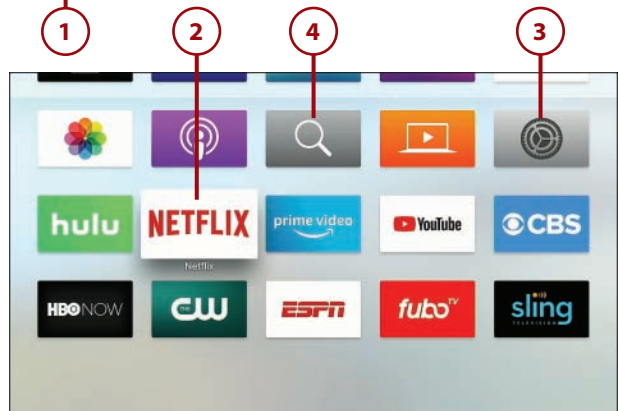
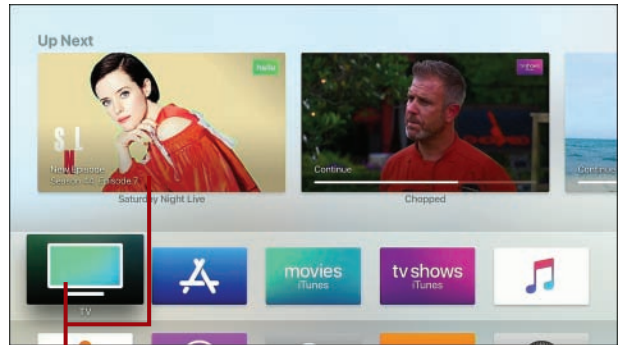
The bottom part of the remote has physical buttons. The Menu button essentially functions as a “back” button to move to the previous screen. The TV button opens the TV app. (More on that later.) The Microphone button opens Siri for voice commands. The Play/Pause button does what you would expect; the + (up) and – (down) buttons raise and lower the volume.

It's Not All Good

Apple TV Remote

The Apple TV remote definitely looks, feels, and works differently than standard remote controls. The touch pad takes a bit of getting used to, and it might be especially difficult to operate if you have any physical challenges. Personally, I found it not entirely intuitive and somewhat challenging to use. The remote alone might make Apple TV a poor choice for some users; it's awkward enough to be a deal breaker for me.

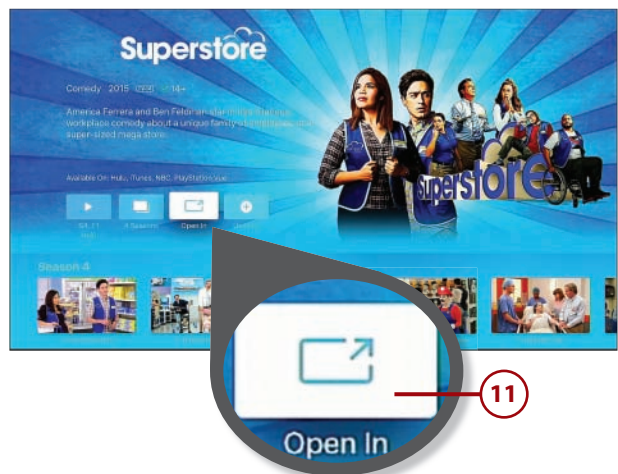
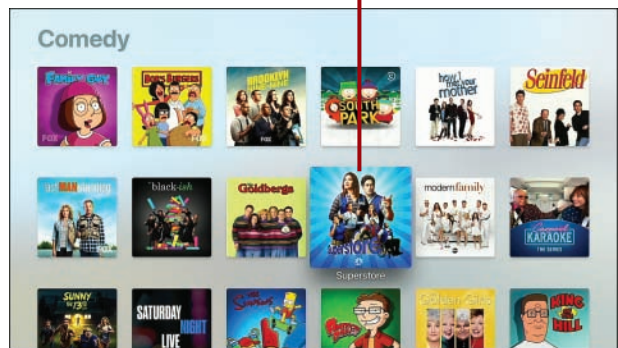
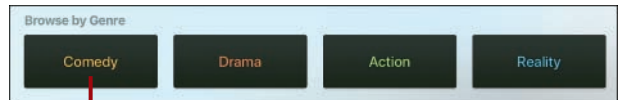
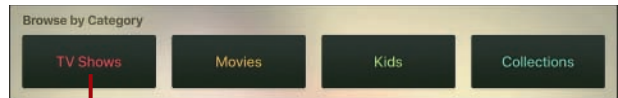
- 1 Featured programming appears at the top of the home screen. The first row of tiles beneath that is called your Top Shelf, five tiles for Apple TV's most-used features. From left to right you find tiles for TV, the App Store (to install new apps for additional services), Movies for purchase in the iTunes Store, TV Shows for purchase in the iTunes Store, and Music from iTunes. Swipe the touchpad left or right to select a tile.
- 2 Scroll down to view your installed apps for streaming services. Select a tile to open that app/service.
- 3 Select the Settings tile to configure Apple TV settings.
- 4 Select the Search tile to search for content across your apps and in the App Store.
- 5 Select the App Store tile to search for and install apps for additional streaming services.
- 6 Select the TV tile to open the TV app.
- 7 The TV app consolidates content from across all the streaming apps you've installed. Select the Watch Now tab to view selected content by genre—Sports, News, TV Shows, Movies, and the like.



- 8 Scroll down to the Browse by Category section to view programming in selected categories—TV Shows, Movies, Kids, and Collections.
- 9 Within a category, scroll down to browse by genre. Select a genre to view related content.
- 10 You see all TV shows or movies within that genre. Select a tile to view that particular program or movie.
- 11 Apple TV shows what streaming services offer this particular movie or TV show. Select Open In to select your desired streaming service and begin playback.

Voice Commands

You also can use the Apple TV voice remote to launch apps. Press the Microphone button on the remote and tell Siri to “open *appname*,” where *appname* is the name of the specific app you want to use.” For example, to launch Netflix, say “Open Netflix.”



Watching Google Chromecast

Google Chromecast is unlike the other streaming media players discussed here. What makes Chromecast different is that it doesn't have its own native interface or home screen or anything like that. It doesn't even come with a remote control.

Instead, Chromecast lets you to broadcast (“cast”) content from your phone to your TV. You open the streaming service or app on your phone that you want to watch, select the Chromecast icon in that app, and then what's on your phone is cast to your TV, via the Chromecast device.

Screen Casting

Saying that Chromecast “casts” content from your phone to your TV is a little misleading in this instance. After you select a program on your phone, it streams directly over the Internet to the Chromecast device. You control playback with your phone, but the actual streaming goes direct to the Chromecast, not through your phone. (Learn more about casting in Chapter 12.)

Chromecast works with Android and Apple smartphones and tablets. You also can cast content from any computer running the Google Chrome web browser.

Comparing Chromecast Models

As of early 2019, Google offered two Chromecast models. The basic Chromecast offers 1080p HD resolution and sells for \$35 USD. The Chromecast Ultra adds 4K Ultra HD with HDR, as well as an Ethernet connector, for \$69 USD.



Google Chromecast. (Photo courtesy Google, www.google.com.)

Both Chromecast models are technically *dongles*; they're not sticks per se, but disc-shaped devices that connect directly to (and hang off of) your TV's HDMI input. They are *not* set-top devices.

Table 6.3 compares the two Chromecast models. Learn more at store.google.com/category/connected_home.

Table 6.3 Comparing Google Chromecast Models

	Chromecast	Chromecast Ultra
Voice-controlled remote	No	No
1080p HD	Yes	Yes
4K Ultra HD with HDR	No	Yes
Dolby Atmos sound	No	No
Wi-Fi	Yes	Yes
Ethernet connection	No	Yes
Price (USD)	\$35	\$69

Using Google Chromecast

You set up and configure your Chromecast device (and connect it to your home Wi-Fi network) from the Google Home app on your mobile device. You control any given streaming service from within that service's app on your phone or tablet, or with voice commands via any Google Home smart speaker or connected device.

Most streaming mobile apps are compatible with Chromecast. The big exception is Amazon Prime Video, which is excluded due to the ongoing Amazon/Google feud. All the other major streaming services, including Hulu, Netflix, and YouTube, cast just fine to any Chromecast device.

>>>Go Further

CASTING AMAZON PRIME VIDEO

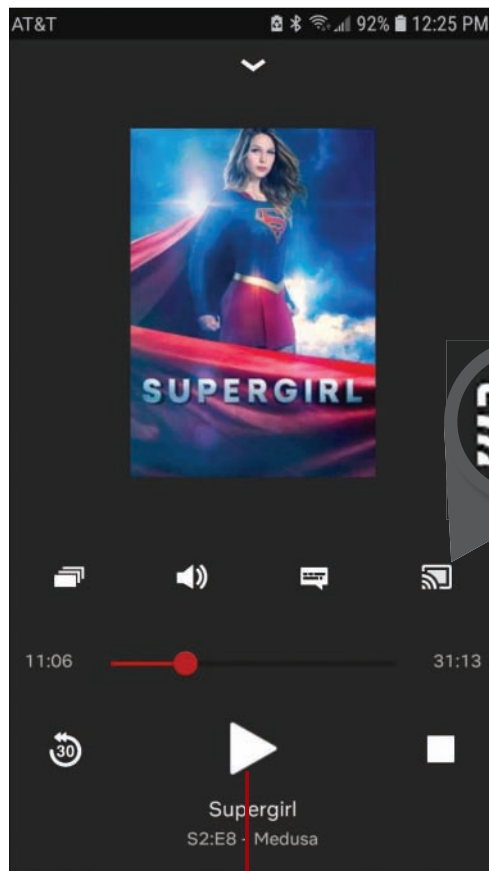
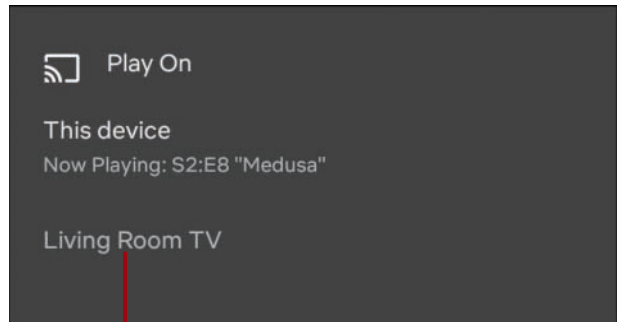
Although the Amazon Prime Video app is not compatible with Chromecast, you can cast Amazon Prime Video content from within the Google Chrome browser on any computer. (But not on a phone or other mobile device, unfortunately.) Chrome is obviously compatible with Chromecast, so anything you do from within Chrome can be cast to your TV.

Just make sure the Chrome browser is installed on your computer, then open Amazon's site in the browser. Click the Customize and Control (three dot) menu in the top right, select Cast, and then select your Chromecast device. Anything currently playing in your computer's browser—such as Amazon Prime Video—is now cast to your Chromecast device and your TV.

- 1 On your mobile phone or other device, open the app for the streaming service you want to watch. For example, to watch Netflix, open your phone's Netflix app.
- 2 Navigate to the TV program or movie you want to watch and tap the Cast button. (In some apps, you might need to select and start watching a video for the Cast button to appear.)



- 3 Select which device you want to cast to.
- 4 The streaming content displays on your TV screen. Use the streaming app on your phone to stop, start, pause, resume, fast forward, and rewind what you're watching.
- 5 Tap the Cast button again in your phone app to stop casting.



Watching Roku

The most popular streaming media players today are those from Roku. Roku offers a variety of models in both stick and set-top form factors, at a variety of price points.

What makes Roku so popular? First, Roku players have been around for more than a decade, so there are many apps and services available. Second, Roku is agnostic in terms of streaming services; unlike Amazon and Google, which compete in both hardware and streaming services (and block each other's services on their own devices), Roku plays nice with everybody and offers just about every streaming service available. Third, Roku devices just work; plug 'em in and start watching, few hassles involved. Finally, Roku offers a nice variety of models at affordable price points, so you can easily find the right unit to fit your needs.

Comparing Roku Models

As of early 2019, Roku offers seven different models in the U.S. market—two sticks and five set-top boxes, ranging in price from \$29.99 to \$99.99 USD. Here's how they break down:

- **Streaming Stick:** This is Roku's lowest-priced stick model, with 1080p HD resolution and a voice-controlled remote. It sells for \$49.99 USD.



Roku Streaming Stick.

- **Streaming Stick+:** Priced at \$10 more than the basic Streaming Stick, the “plus” model adds 4K Ultra HD playback, HDR, and Dolby Atmos sound. It sells for \$59.99 USD.
- **Express:** This is Roku’s lowest-priced set-top box. It offers 1080p HD resolution and sells for \$29.99 USD. (If you don’t need 4K UHD, this is the model to buy.)
- **Express+:** This is the same as the Express, but it has a composite audio/video cable output in addition to HDMI, in case you need to send audio to a separate receiver. It sells for \$35 USD.
- **Premiere:** This set-top box is Roku’s lowest-priced model with 4K Ultra HD, HDR, and Dolby Atmos support. It sells for \$39.99 USD—just \$10 more than the non-4K Roku Express.



Roku Premiere streaming media box and remote. (Photo courtesy Roku, www.roku.com.)

- **Premiere+:** This unit, sold only at Walmart, adds a voice-controlled remote to the basic Premiere unit. It sells for \$49.99 USD.
- **Ultra:** This is Roku’s top-of-the-line unit, adding a headphone output to its voice-controlled remote, as well as an Ethernet connection. It sells for \$99.99 USD.

Table 6.4 compares all of these Roku models. Learn more at www.roku.com.

Table 6.4 Comparing Roku Models

	Streaming Stick	Streaming Stick+	Express	Express+	Premiere	Premiere+ (Walmart only)	Ultra
Format	Stick	Stick	Set-top box	Set-top box	Set-top box	Set-top box	Set-top box
Voice-controlled remote	Yes	Yes	No	No	No	Yes	Yes

	Streaming Stick	Streaming Stick+	Express	Express+	Premiere	Premiere+ (Walmart only)	Ultra
Remote with headphone output	No	No	No	No	No	No	Yes
1080p HD	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4K Ultra HD with HDR	No	Yes	No	No	Yes	Yes	Yes
Dolby Atmos sound	No	Yes	No	No	Yes	Yes	Yes
Wi-Fi	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethernet connection	No	No	No	No	No	No	Yes
Price (USD)	\$49.99	\$59.99	\$29.99	\$35.00	\$39.99	\$49.99	\$99.99

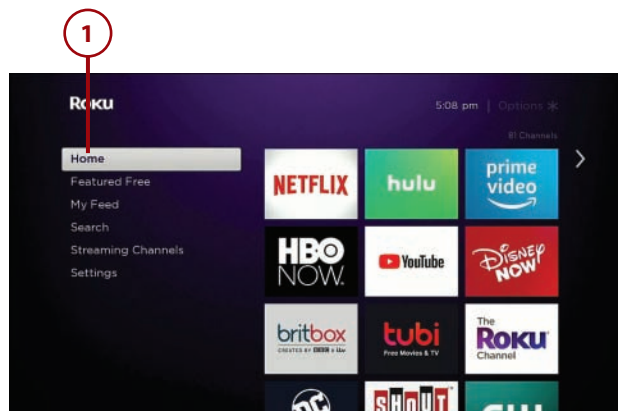
Roku TVs

Several television manufacturers offer smart TVs with the Roku interface and service built-in. These so-called Roku TVs come in a variety of sizes and functionality, and work just like freestanding Roku devices.

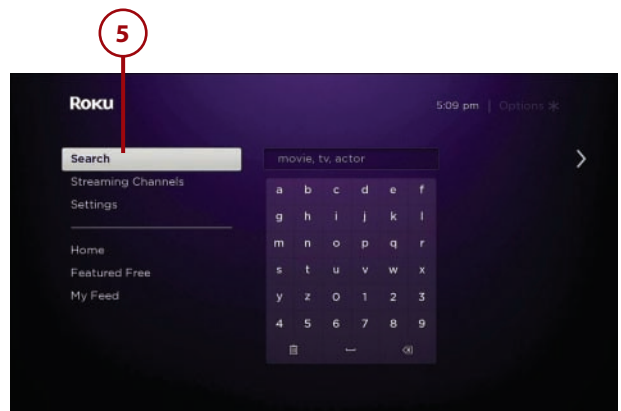
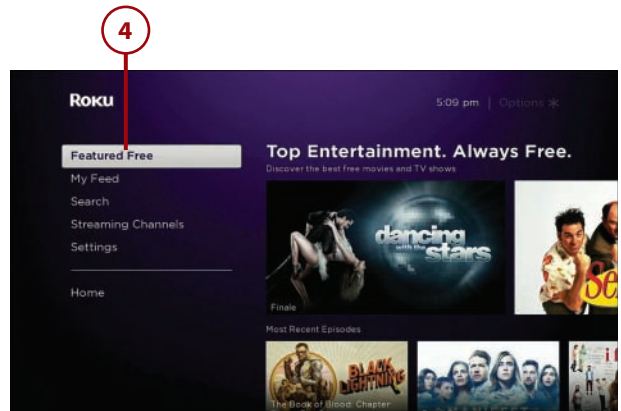
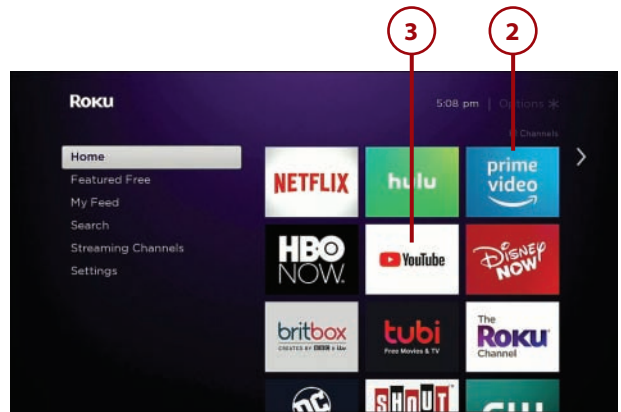
Using Roku

All Roku devices—including Roku TVs—have the same interface. You find apps for your favorite streaming services on an easy-to-navigate Home screen.

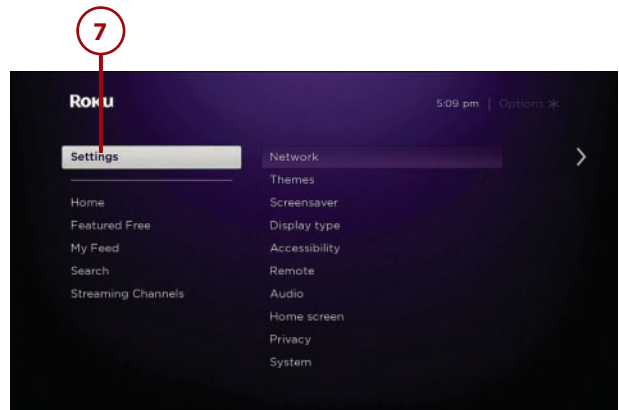
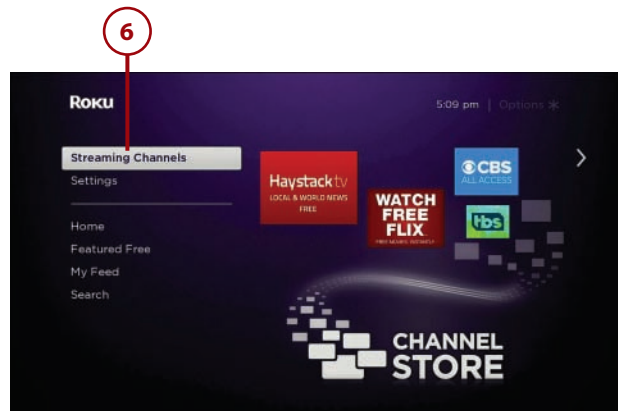
- 1 Select the Home tab or press the Home button on the Roku remote to display the Home screen. Use the up and down arrow buttons on the remote to scroll through the available tabs.



- 2 Press the right or left arrow buttons to scroll left and right through the tiles, or press the up or down arrows to scroll up or down through the tiles.
- 3 To launch an app, select the tile and press the OK button on the remote.
- 4 Select the Featured Free tab to view selected programming available for free.
- 5 Select the Search tab to search for programs across all the services available on Roku.



- 6 Select the Streaming Channels tab to add new apps/services to your Roku device.
- 7 Select the Settings tab to configure various settings for your Roku device.



>>>Go Further

NVIDIA SHIELD

There's one more streaming media player worth noting. The Nvidia Shield (\$179-\$299 USD) is a combination streaming media player and game console. It offers access to hundreds of streaming media apps and even more online games.

The Nvidia Shield is probably more optimized for gaming than media streaming (it comes with a game controller as well as a standard remote control), but it's good at that, too—even though it's the priciest streaming player out there. It offers 4K Ultra HD with HDR, Dolby Atmos surround, and voice control with Google Assistant. It's also a lot faster than competing streaming players because of its gaming roots. Content offerings are similar to Roku, meaning just about every streaming service is available.

As noted, however, the Shield's gaming functionality is probably unnecessary for those of us who just want to watch streaming videos. Still, it's a high-end streaming player that might be worth your consideration if you want the latest and the greatest—and do a lot of gaming. Learn more at www.nvidia.com/shield/.

Comparing Streaming Media Players

So, which of the four major streaming media players is right for you: Amazon Fire TV, Apple TV, Google Chromecast, or Roku? They all work in a similar fashion but have their own unique pros and cons. It's likely that any one of these four devices will do the job for you, but there are things that might sway you toward one or the other.

Comparing Features

Table 6.5 compares the important features for the major streaming media players.

Table 6.5 Comparing Streaming Media Players

	Amazon Fire TV	Apple TV	Google Chromecast	Roku
Stick format	Yes	No	Yes	Yes
Set-top box	Yes	Yes	No	Yes
Voice-activated remote	Yes	Yes	No	Yes (some models)
Amazon Alexa voice control	Yes	No	No	No
Google Assistant voice control	No	No	Yes	Yes
1080p HD	Yes	Yes	Yes	Yes

	Amazon Fire TV	Apple TV	Google Chromecast	Roku
4K Ultra HD and HDR	Yes (Fire TV Stick 4K, Fire TV Cube only)	Yes (4K model only)	Yes (Chromecast Ultra only)	Yes (Premiere, Premiere+, Streaming Stick+, Ultra only)
Dolby Atmos sound	Yes (Fire TV Stick 4K, Fire TV Cube only)	Yes	No	Yes (Streaming Stick+, Premiere, Premiere+, and Ultra only)
Wi-Fi connection	Yes	Yes	Yes	Yes
Ethernet connection	Fire TV Cube only	Yes	Chromecast Ultra only	Roku Ultra only
Smartphone app	Yes	Yes	Yes	Yes
App store for new apps	Yes	Yes	Yes	Yes
Amazon Prime Video and store	Yes	Yes	No*	Yes
Hulu	Yes	Yes	Yes	Yes
iTunes Store	No	Yes	No	No
Netflix	Yes	Yes	Yes	Yes
YouTube	No*	Yes	Yes	Yes
Website	www.amazon.com/firetv	www.apple.com/tv/	store.google.com/category/connected_home	www.roku.com
Price (USD)	\$39.99–\$119.99	\$149–\$199	\$35–\$69	\$29.99–\$99.99

* = No dedicated app available, but can play in the device's web browser.

Making a Choice

In many ways choosing a streaming media player comes down to what services/apps are available on each—which is where we get down to the peculiarities of each streaming system. Yes, Hulu and Netflix are available on all four devices, but they're not the only streaming services you might want to watch.

Knowing that Amazon and Google are bitter competitors, for example, you quickly realize that you won't find apps for Google services, such as YouTube, on Amazon Fire TV devices. Nor, for that matter, will you find Amazon services, such as Amazon Prime Video, on Google Chromecast devices. It's just not gonna happen.

This is why many users choose Roku devices. Roku doesn't have a horse in the content race, and thus makes both Amazon and Google (YouTube) services available on all of its devices. Roku players provide access to just about everything; Amazon and Google devices, not quite so much.

Then there's Apple. The Apple TV player is a fine device, and it provides access to content from both Amazon and Google. However, it's much higher priced than competing devices; you can buy three or four Fire TV or Roku players for the price of one Apple TV box. If you're heavily invested in the Apple infrastructure (that is, you have an iPhone and an iPad and maybe even a Mac computer), then Apple TV fits right in without a lot of manual configuration necessary, and you can share media among all of those devices. But if you're not a heavy Apple user, you get similar functionality from a Fire TV or Roku player at a considerably lower cost.

Finally, consider the quality of the content you want to stream. If you have a brand-spanking-new 4K Ultra HD TV with HDR, you want a player that can stream 4K Ultra HD HDR content. That automatically shifts you into higher-end models from Amazon, Apple, and Roku; lower-cost models are regular old HD only. (The situation is similar if you want Dolby Atmos sound, which is supported only by higher-end Amazon, Apple, and Roku devices.)

>>>Go Further

WHERE TO WATCH CLASSIC TV COMEDIES

Between Internet streaming services, cable and satellite channels, and your local OTA dignets, there are lots of places you can find those classic TV comedies you watched when you were younger. Of course, what you deem as classic might differ from what others in your family view as such. If you're of a certain age, you're looking for those 1950s vintage shows, such as *The Honeymooners* and *I Love Lucy*. If you're a little younger you're looking for 1960s comedies, such as *The Beverly Hillbillies* and *Gilligan's Island*. If you were a child of the 1970s, then it's shows like *The Bob Newhart Show* and *M*A*S*H*. Move into the 1980s (not that long ago, I know), and you're talking classics like *Cheers* and *Taxi*.

Whatever your personal vintage, there are lots of places to find the funniest shows from your youth. Starting in the streaming world, Crackle, Hulu, Netflix, and Shout Factory TV offer a variety of older TV comedies, although you might have to hunt for them. Hulu is probably your best bet here, with shows such as *The Addams Family*, *I Love Lucy* and *The Lucy Show*, *The Bob Newhart Show*, *The Brady Bunch*, *The Dick Van Dyke Show*, *The Mary Tyler Moore Show*, *Mister Ed*, and *The Odd Couple*. You can also pay to stream many classic TV series from Amazon or Google Play (or the iTunes Store, if you have an Apple TV box).

Surprisingly, cable and satellite aren't that great a place for truly classic sitcoms. You'll find a lot of 1990s and more recent comedies, but not much from before then.

There's a much better selection of classic TV comedies on the subchannels of your local broadcast stations. Several dignets, including Antenna TV, Bounce TV, Cozi TV, Decades, Laff, MeTV, and Retro TV, specialize in classic TV programming, with a big emphasis on classic comedies. Antenna TV is a particular favorite, with *Barney Miller*, *Bewitched*, *The Burns and Allen Show*, *Coach*, *Dennis the Menace*, *Family Ties*, *Hazel*, *I Dream of Jeannie*, *The Jack Benny Program*, *McHale's Navy*, *The Partridge Family*, *Three's Company*, and many more. You'll probably need an OTA antenna to receive these channels, unless they're carried as part of your cable package. (They're not to be found via Internet streaming, unfortunately.)

Optimizing Streaming Media Playback

Some people find that streaming video looks every bit as good as—and maybe even better than—what you get from cable or satellite. Other viewers are plagued by fuzzy or pixelated pictures, stuttering playback, or even problems loading individual channels or programs. What can you do to make sure you get the best possible playback from your streaming video services? Here are some tips.

Get a Fast (and Reliable) Internet Connection

Because streaming video streams over the Internet, you want as fast and reliable an Internet connection as possible. An inferior Internet connection results in all sorts of streaming playback problems—and might not even work at all.

Let's look at the worst-case scenario. If, heaven forbid, you have a dial-up Internet connection (some people still do), you might as well not even try to do the streaming thing. A dial-up connection isn't fast enough for the demands of video streaming. It just won't work.

What you want is as fast a broadband connection as you can get and afford. Streaming video is very demanding and takes up a lot of bandwidth; the faster the connection, the more videos you can stream, more reliably.

A fast Internet connection is even more important if you have multiple people watching multiple streaming programs at the same time. Let's say you're watching a streaming show on your living room TV, your spouse is watching a different streaming program in the bedroom, and your kids or grandkids are watching streaming YouTube videos on their phones or tablets. All that data coming down your Internet connection at the same time can slow everything down unless you have a really fast (high-bandwidth) connection.

That means looking at the Internet packages offered by your Internet service provider (ISP) and choosing the one that best fits your viewing habits. You want to look at download (not necessarily upload) speeds, and the faster the better. A package that promises 200 megabytes per second (Mbps) is going to be considerably faster and more reliable than a 50 Mbps plan.

How fast do you need? To watch a single stream in standard definition, you need a 3 Mbps connection. To watch a single stream in HD, you need a 5 Mbps connection. And to watch a single stream in 4K Ultra HD, you need a 25 Mbps connection.

Multiply these numbers if you want to stream multiple programs simultaneously to multiple devices. For example, to watch two HD streams on two devices, you need a 10 Mbps connection (two times 5 Mbps). If you have three people in your house, all watching HD, then you need 15 Mbps. And so forth.

Most ISPs offer a variety of plans at different speed levels. For example, XFINITY in my area offers a Starter plan with 15 Mbps speed for \$29.99 USD per month, a Plus plan at 60 Mbps for \$39.99 USD per month, a Pro plan at 150 Mbps for \$54.99 USD per month, and a Blast! Pro plan with 250 Mbps for \$69.99 USD per month. Other ISPs offer speeds up to 1 gigabyte per second (Gbps)—that's 1,000 Mbps!

It's Not All Good

Your Speeds Might Be Lower

Just because your ISP promises speeds of up to a given number doesn't mean that your actual connection speed will be that fast, at least all the time. Lots of factors, including inefficient equipment and other users on the line in your neighborhood, can negatively affect Internet connection speed. The speed listed by your ISP, then, is a theoretical maximum; your actual speed will probably be lower.

Although the top plans may be overkill for casual viewing, you'll probably find that the most basic plans aren't fast enough. If you experience freezes and long load times and pixelated pictures, it might be time to upgrade your Internet plan. If you're watching mostly HD programming and have two or three people in your home watching simultaneously, I recommend at least a 50 Mbps plan (especially given that you won't always get 50 Mbps speeds).

By the way, while you're figuring out what Internet package is best for your viewing habits, don't forget to include the cost of that Internet service in your entertainment budget. You might save \$100 or more by disconnecting your cable or satellite service, but remember you're adding at least some of that back as part of a speedy Internet plan.

Get a Fast (and Powerful) Wi-Fi Router

Most people connect their streaming media players to the Internet wirelessly, via Wi-Fi. That means you need a decent Wi-Fi router in your home—one that can deliver blazing speed over the longest distance in your home.

Without getting too technical, you want a router that uses the latest Wi-Fi technology and a streaming player that matches. Many lower-priced routers and players use the standard labeled 802.11n, although the newer 802.11ac standard is faster and has a greater range, which you need if you have a large house. You should also look for routers and players that use multiple antennae and a technology called MIMO (stands for multiple input, multiple output); these enable more efficient transmitting of multiple streams. Routers that transmit in both the 2.4 GHz and 5 GHz bands (and streaming players that receive both bands) are also good; you can dedicate the faster 5 GHz band for video streaming and leave the lower 2.4 GHz band for regular household Internet.



Netgear's Nighthawk R7000 router—dual-band, MIMO, 802.11a/b/g/n/dc Wi-Fi for superior video streaming. (Photo courtesy Netgear, www.netgear.com.)

A newer, faster, more expensive router not only has more bandwidth for your streaming video but it also should have a longer range. This is important if you have several streaming devices to feed and if some of them are quite distant from the router.

Supply Your Own Equipment

Most ISPs provide their own Internet modem and Wi-Fi router, often in the form of a combination modem/router called an Internet gateway. You typically pay a monthly rental fee for this equipment, and it's seldom state-of-the-art. You often can get better performance—and lower your monthly bills—by returning the ISP's equipment and buying your own.

Move Your Router—or Your Streaming Player

For the best streaming performance, you need the strongest possible Wi-Fi signal. If your streaming player is on the opposite side of a large house from the Wi-Fi router, chances are the signal you receive might be too weak for reliable playback.

You can improve the strength of the wireless signal that your streaming player receives by moving either your streaming player or the wireless router.

If the signal you receive is very weak (check the network settings on your streaming player), try moving the player and the router closer together. That might mean moving the player (and the TV to which it's connected) or moving the router. Sometimes a few feet closer makes all the difference in the world.

The solution might be for you to move the streaming player a little bit. Different objects—walls, doors, other electronic devices—can interfere with the Wi-Fi signal. Moving the streaming player (or the router) one direction or another, or even higher, may give you a clearer path for the signal.

For that matter, you might need to move anything else that's in between the player and the router that could be interfering with the signal. If the router is in a closed office, open the door—or open the door to any bedroom where the streaming player is located. Move other electronics or wireless devices that are near the router—things like computer monitors, cordless phones, microwave ovens, and the like. You also might want to move your streaming player a little further from your TV—and if you're using a streaming stick, connect an HDMI extender cable so that it doesn't have to connect directly to the back of your television.

Connect via Ethernet for Best Playback

Wireless connections are convenient, but they're not as fast or as reliable as a direct wired connection. If you want the best, most reliable picture from your streaming media player, connect to your router via Ethernet cable, not Wi-Fi, if that's an option with your device. A wired Ethernet connection is rock solid, not prone to the connectivity issues you sometimes get with Wi-Fi.

The problem is that not every streaming media player has an Ethernet connection. Of the current generation of players, only the Amazon Fire TV Cube, Apple TV and Apple TV 4K, Google Chromecast Ultra, and Roku Ultra devices have Ethernet connections. Those are also the most expensive streaming media players, but if you want to connect via Ethernet, they're the ones to look at.



The Ethernet connection on the back of the Roku Ultra player. (Photo courtesy Roku, www.roku.com.)

Choose the Right Streaming Player for Each TV

If you want to stream content from different TVs in your home, you need some sort of streaming player connected to each set. You don't have to use the same model or even brand of player on each TV, however; feel free to mix sticks and boxes as necessary.

In fact, it's probably a good idea to choose different streaming players for different TVs and rooms. Although you might want to decide on a single infrastructure (Amazon or Apple or Google or Roku), just because you get used to using the same menus and options, you can choose appropriate devices from that manufacturer for each room's specific needs. For example, you might want a Roku Ultra box in your living room so that you can connect via Ethernet, play back in 4K Ultra HD, and listen in Dolby Atmos. But a simple Roku Stick might be all your

need on a smaller bedroom TV that has only HD resolution. You don't have to buy the most expensive model for every TV you have.

Buy a TV with Fire TV or Roku Built In

For that matter, if you like Amazon Fire TV or Roku and also need a new TV, consider buying a smart TV that has Fire TV or Roku built-in. These so-called Fire TV Edition televisions and Roku TVs offer the exact same interface and functionality of the separate Fire TV and Roku devices, no separate player necessary. In many cases, a Fire TV Edition set or Roku TV ends up being a considerably lower price than a similar non-smart TV and separate Fire TV or Roku player. (And most Fire TV Edition sets and Roku TVs have Ethernet connectors on the back, so you can connect via faster wired connection if you want.)

Pick the Right Streaming Services for You

One mistake a lot of first-time streamers make is to spring for too many subscription-based streaming services. Yes, most everybody wants Netflix. You also might want standard Hulu, for watching recent TV shows. But do you really need Amazon Prime Video and CBS All Access and DC Universe and HBO Now? They each have their own monthly subscription fees, and those fees start to add up when you subscribe to multiple services. Yes, it's tempting to subscribe to *everything*, but it's unlikely there will be more than one or two shows on any given service to justify the monthly subscription cost. Check your viewing habits and subscribe only to those services you really watch—a lot.

>>>Go Further

STREAMING VIDEO PLAYERS IN CANADA AND THE UK

If you're in Canada, you have the same choice in streaming media players as do those of us in the lower 48. Prices are comparable to those in the United States.

There is a slightly different mix of players available in the United Kingdom. In addition to the standard streaming players from Amazon, Apple, Google, and Roku, there also are streaming sticks and boxes from NOW TV, which are unique to the UK market.

NOW TV manufactures its Smart Stick and Smart Box in conjunction with Roku; in fact, their products greatly resemble similar Roku products. The NOW TV players are unique in that they're closely tied to content from Freeview and Sky, and not much else. There are several different Sky passes available, for example, but no Amazon Prime Video. (Netflix is recently available, however.) NOW TV Smart Sticks start at £14.99; the NOW TV Smart Box starts at £45.99.

What sorts of streaming services are available outside the United States? I discuss this topic in more depth in the following chapters, but suffice to say that due to country-specific licensing restrictions and channels and networks unique to each area, the offerings are both familiar and wildly different. For example, in the UK a Roku streaming player provides access to UK versions of Amazon Prime Video and Netflix (but not Hulu), but also All 4, BBC iPlayer, ITV, STV, and more channels familiar to Brits but foreign to Americans. Wherever you live, make sure you check out your device's app store to see which streaming channels and services are available.

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