

# VIDEO STREAMING....

- Expanded uses for your Television

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# TOPIC TO BE DISCUSSED

- Why would you want stream data to your TV?
- Directly connecting to TV or DVD/sound system
- Streaming "boxes" and "sticks"
- Services and channels
- The future of streaming
- Time permitting: How to show your digital photos on your TV

# WHAT IS STREAMING?

- A method of transmitting or **receiving video and audio material** over a computer network as a steady, **continuous flow**, allowing playback to proceed while subsequent data is being received
- The alternative is to download and store the entire media file **before** playback
- Streaming requires a robust Internet connection to avoid playback "pauses" (6+ Mbps for 1080p)

# ARE YOU STREAMING YET?

- 40% of US households w/ TV & broadband have a subscription streaming service
- 36% household increase in one year
- Subscription services:
  - Netflix (36%) - Average home watching 100+ min./day
  - Amazon Prime (13%)
  - Hulu Plus (6.5%)
- 40% decline in TV ratings (2014- 3rd & 4th Qtr) suspected due to streaming services

# IS YOUR TV "CONNECTED"?

- Who has a directly connected TV or receiver?
- Who has a separate Streaming box or stick?
- Who has a "digital antenna"?

# WHY CONNECT?

- You can use your TV to:
  - Stream movies or shows (Netflix, Hulu Plus, Amazon Video)
  - Watch programs not available via cable/satellite
  - Play video & photo slideshows (YouTube, Flickr)
  - Web browsing, play games, etc., etc.
- Play music through your sound system (Pandora, iTunes, etc.)
- "Cut the cable" to reduce TV entertainment expenses

# APPS, WIDGETS, CHANNELS...

Streaming media names:

- Televisions: "**Widgets**"
- Computer, mobile devices: "**Apps**"
- Streaming devices: "**Channels**"

# NEW TV'S & BLU-RAY PLAYERS

Many new devices have built-In WiFi capability with Smart Apps:

Netflix	Pandora	Hulu Plus
HBO Go	Skype	Spotify
Facebook	Amazon Video	Etc., Etc.



# ANOTHER OPTION AVAILABLE

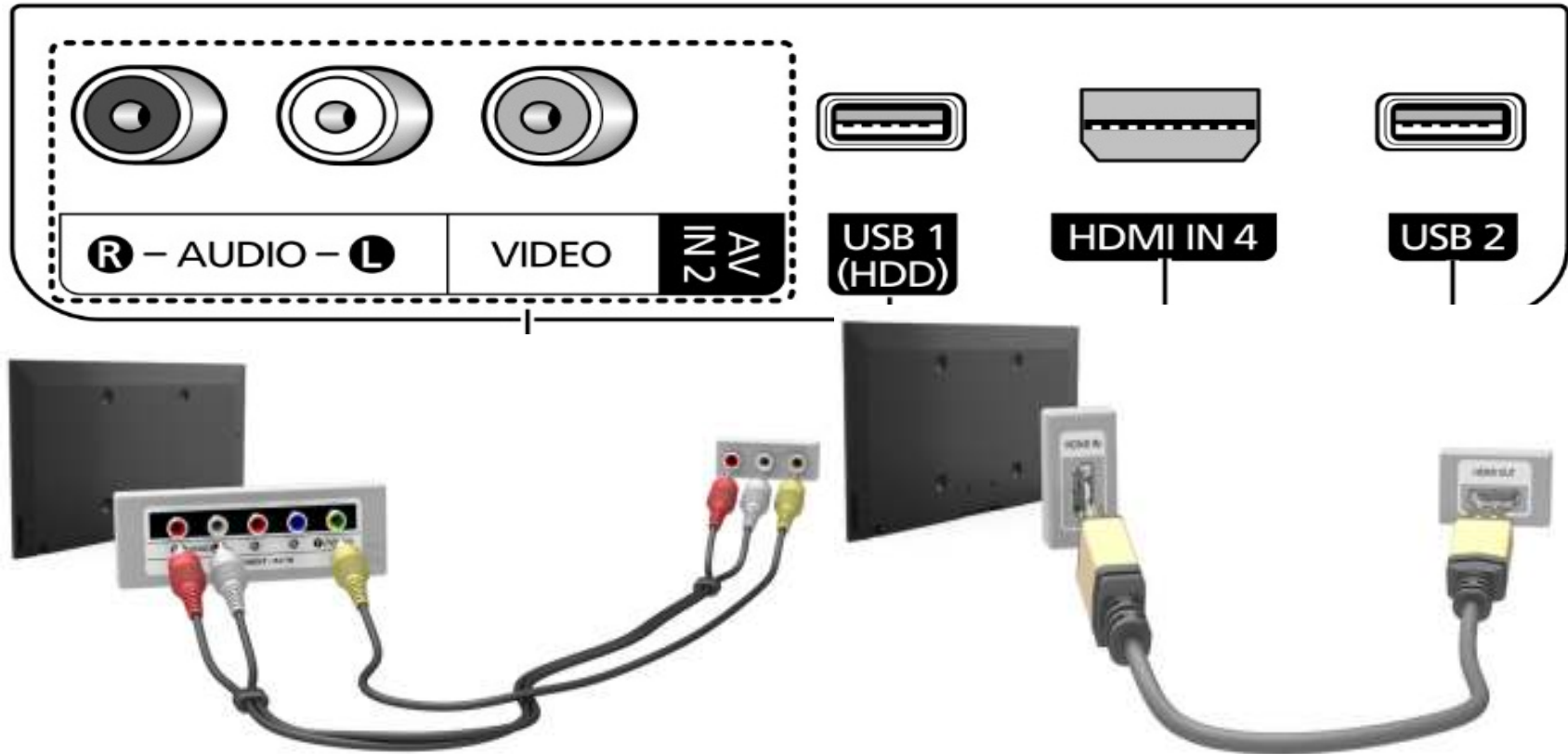
- Install separate streaming box or stick:
  - One of the easiest, least expensive ways to add Internet capability to a TV that doesn't WiFi capability
  - Streaming devices have more features (channels)
  - Streaming devices are faster and easier to use

# STREAMING DEVICES

- Roku
- Google Chromecast
- Google Nexis Player
- Apple TV
- Amazon Fire TV
- Video game consoles (XBox, Playstation)
- Etc., etc.



# COMPONENT VIDEO VS. HDMI



Component Video

HDMI Cable

# GOOGLE CHROMECAST



- HDMI dongle
- Needs power from USB (slow startup) or via power cord
- No remote - Must be controlled by smartphone or tablet
- Plays media by casting via enabled mobile device or web app
- Not as many channels as Roku
- No cross-platform search - Pushes Google stuff
- Cheapest option: \$35

# APPLE TV



- Good for connecting iTunes media to TV & sound system
- Includes a remote
- Fewer channels & features than Roku
- AirPlay mirroring can push nearly any iOS app
- Expected major update later this year
- Cost: \$69
- Good choice if you are "all-in" with Apple ecosystem

# AMAZON FIRE TV



- Launches Amazon video content very fast
- Includes a remote
- Voice search that actually works but no universal search
- Best gaming support
- Pushes Amazon content down your throat
- Lags in channel availability
- Cost: Box: \$99, Stick: \$39

# GOOGLE NEXUS PLAYER



- Excellent voice search but only for Google services & YouTube
- Only a few native apps but compatible with Google Cast service
- Android screen mirroring
- Pushes Google Play content
- Cost: \$99

# ROKU



- Most "Channels" (~2000)
- Best search (fast and across many services)
- Includes a remote
- Roku 1 - HDMI or Composite output (no WiFi): \$50
- Roku 2 - HDMI output only plus Headphone jack: \$70
- Roku 3 - HDMI output only plus limited mirroring & lightning fast: \$80
- Roku Stick - HDMI output only plus limited mirroring: \$50
- CNET Editor's Choice Award: Roku 3



# STICK CHANNEL COMPARISON

	CHROMECAST	ROKU	AMAZON FIRE
NETFLIX	YES	YES	YES
AMAZON INSTANT	NO	YES	YES
YOUUBE	YES	YES	YES
HULU PLUS	YES	YES	YES
HBO GO	YES	YES	NO
PANDORA	YES	YES	YES
GOOGLE PLAY	YES	YES	NO

# WHAT TO LOOK FOR...

- A player that has all streaming services you want right out of the box
- A model with component video connection if you have older TV without HDMI input
- A player that supports media formats of content you already own
- An Apple TV player if you have lots of content on iTunes, Mac computer or the Apple iCloud
- Skip pricier model with tons of content if all you really want is Netflix

# CHANNELS & SERVICES

*Many streaming channels & services are available...*

# CHANNELS, CHANNELS, ....

Most popular choices for **free**:



# SOME POPULAR CHANNELS

- **Pandora** - Personalized radio station (**free** or \$5/mo.)
- **Spotify** - Music service (**free** or \$10/yr)
- **PBS** - PBS shows and episodes (**free**)
- **TWC TV** - World news (**free**)
- **Crackle** - Movies & shows (**free** with commercials)
- **TED** - Talks from science to business to global issues (**free**)

# CHANNELS, CHANNELS, ....

If you already subscribe, than at no additional cost:



# SOME POPULAR CHANNELS

- **Netflix** - Movie subscription service (\$8/mo. - \$12/mo.)
- **Amazon Instant Video - Free** movies for subscribers of Amazon Prime (\$99/yr.)
- **Hulu Plus** - TV shows and episodes (\$8/mo.)
- **Rdio** - Personalized radio and FM stations (**free** or \$5/mo.)
- **Vevo** - Music videos (**free** with commercials)

# CHANNELS, CHANNELS, ....

Stream from libraries of seasons & series:





# SOME POPULAR CHANNELS

- **HBO Go** - HBO shows and movies (HBO cable subscription required)
- **MLB.TV, NFL Now, NBA Live and WatchESPN** - Major League sports (**free** or \$20/yr.)
- **Amazon Cloud Player** - Amazon music player (your own music)
- **Vudu** - Movies and TV episodes (rent or buy)

# CHANNELS, CHANNELS, ....

Nourish your hobbies & interests:



# STREAMING LIVE TV

## LIVE TV BUNDLES



<b>Name:</b> Sony PlayStation Vue	Apple <sup>†</sup>	Sling TV
<b>Cost:</b> <b>\$50-\$70</b> monthly *	<b>\$25-\$35</b> *	<b>\$20</b>
<b>Content:</b> Up to 85 broadcast and cable channels like MTV	About 25 channels such as ABC, CBS and Fox	About 20 cable channels; ESPN, AMC and HGTV
<b>Pros:</b> Cloud-based DVR; Regional sports channels	Live broadcast shows; plus on-demand	Live sports; option to pay more for additional channels
<b>Cons:</b> Requires PlayStation console for now; No ABC or ESPN yet	Limited to iOS devices; no NBC, USA Bravo for now	Can't record shows; No broadcast channels in basic package

Sources: The companies; people familiar with Apple and NBC's plans \*Service not yet available †Not yet named

# CUTTING THE CORD

- **Sling** (\$20/mo) - 20 channels; ESPN, AMC, HGTV
- **Hulu** (\$8/mo) - Current TV shows & some old movies
- **HBO Now** (\$15/mo) - HBO programming
- **Netflix** (\$9/mo) - Movies & TV shows
- Digital Antenna (\$30-\$50) - Local broadcast channels

Total Cost: **\$52/mo**

- **CBS** (\$6/mo)
- **NBC** (~\$3/mo)

# THE FUTURE - WEB TV

- Rumor (prediction):
  - Internet streaming will continue to expand rapidly
  - More streaming options (channels and packages)
  - Unbundling of services customized to **your** interests
  - Cable networks fighting to maintain control

THE END....

# SHOWING PHOTOS ON TV

There are at least 5 different ways to project your digital photos onto your large screen television



# 5 WAYS TO SHOW YOUR PHOTOS

1. Create a DVD video slideshow with video editing program such as Premier Elements or iMovie & play with DVD player





# 5 WAYS TO SHOW YOUR PHOTOS

2. Upload photos to USB flash drive & play with TV's media player



# 5 WAYS TO SHOW YOUR PHOTOS

3. Direct connect PC or mobile device and manually play photos



# 5 WAYS TO SHOW YOUR PHOTOS

4. WiFi connect and mirror (or AirPlay) photos



# 5 WAYS TO SHOW YOUR PHOTOS

5. Upload photos to cloud and play using streaming media channel such as Flixr , Plex, iCloud Photos, etc.

