

**Sun City Summerlin Computer Club
Seminar**

“Cutting the Cord - 2024”

**TV and Internet Services:
Exploring Your Options**

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06-27-2024

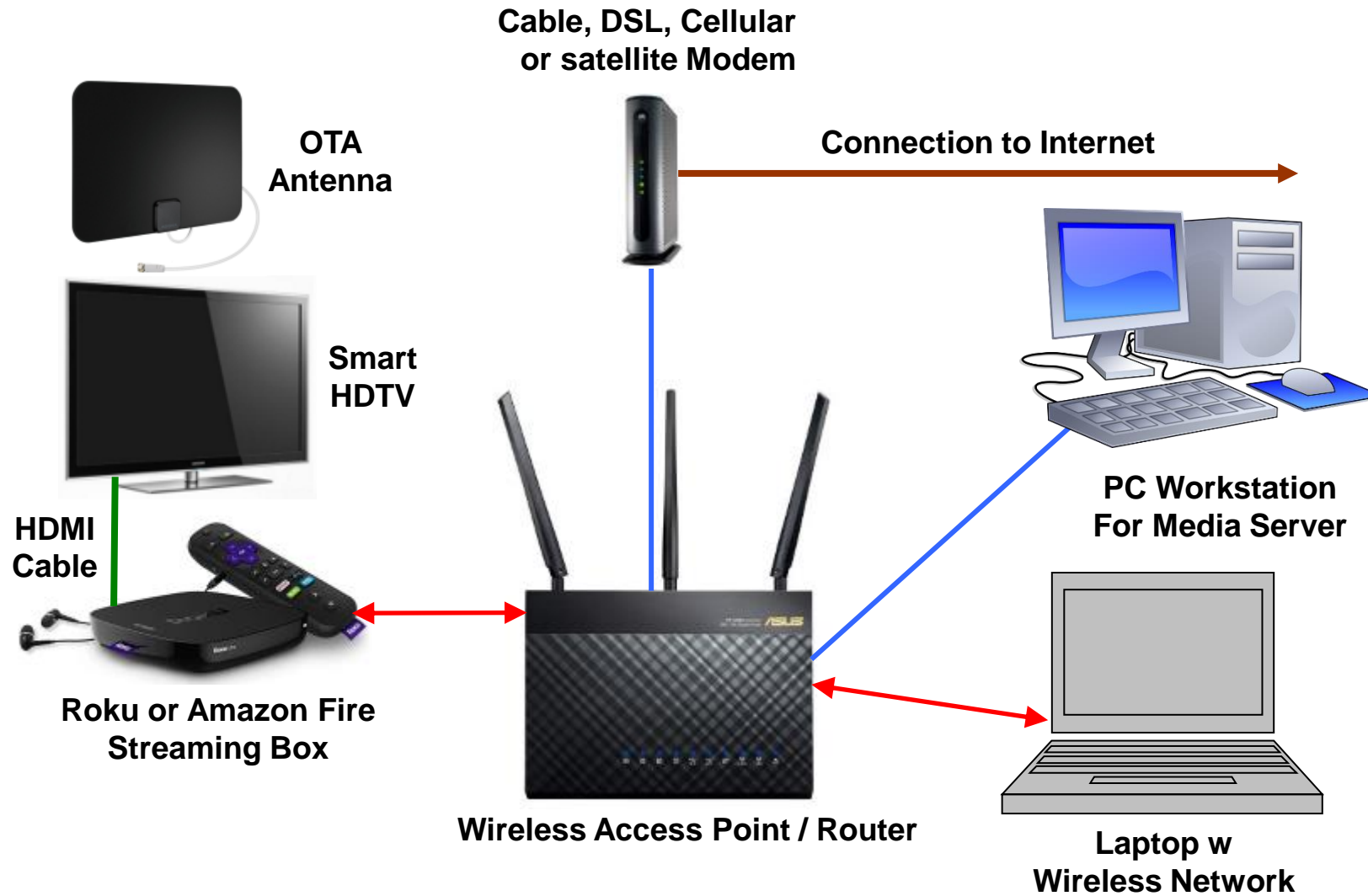
Agenda

- **What is Cutting the Cord?**
- **OTA Antennas**
- **HDTV Content Options**
- **Streaming Services**
- **Internet Services in LV**
- **Digital Television Technology (*For reference*)**

What is “Cutting the Cord”?

- **Being able to get entertainment, news and other TV programming *without* using a cable or satellite TV service.**
 - Instead, you use a **high-speed Internet** connection, possibly combined with over-the-air broadcast TV.
 - May include subscriptions to “video on demand” and broadcast streaming services like Netflix, Peacock, Paramount+, Hulu, Disney TV+ or Amazon Prime, Sling, YouTube TV, Hulu+ or DirecTV Stream.
 - Trade-off is that you may not see programming the day it first airs.
 - Idea is that your total cost is less while keeping access to *most, all or even more* of the programming you enjoy.
- **Possible to also get rid of your CenturyLink or Cox land line phone service.**
 - Cellphone only (if your cell service is solid)
 - Voice over IP services (Vonage, Ooma, Magic Jack)

Typical Cord-Cutting Setup



Over the Air Digital TV Antennas

- Use them to receive local LV area channels – about 60 in all
- Indoor, Attic mount or Outdoor (roof mount)
 - <http://www.bestbuy.com/site/tv-video-accessories/tv-antennas/abcat0107004.c?id=abcat0107004>
 - https://www.amazon.com/s?k=tv+antennas&i=electronics&ref=nb_sb_noss_1
 - www.MrAntenna.com, others: \$150 to \$500 exterior (parts, labor & setup)
 - Pricier indoor antennas are amplified (may need this in Sun City)
 - If doing an outdoor mount, **be sure to file an ARC application** and get approval. Latest FCC rules allow roof peak/side mounts of satellite dishes and TV antennas on masts.
 - Best results with an omnidirectional outdoor antenna.
- Most broadcast TV antennas in LV located in Henderson
 - From Sun City - ESE (100 & 110 degrees)
 - About 25 miles away
 - Sun City TV reception can be spotty – especially on indoor antennas
- Most OTA HDTV content format is 1080i or 720p
 - Both upscale well to HDTV's native 1080p or 4K resolutions
- <https://www.tablotv.com/> - OTA Receiver / DVR

Other HDTV Content Options (1)

- **Standard DVD movies (buy or borrow from Library or friends)**
 - Best if played on an up-converting (to 1080p) DVD or Blu-Ray Disc player
 - Becoming archaic
- **Blu-Ray DVD movies (buy or borrow from Library or friends)**
 - True 1080p HD output from player to HDTV
 - Need a Blu-Ray player; 3D and 4K come *only* on Blu-Ray
 - For 4K media, you need a 4K Blu-Ray player
- **Buy / rent digital movies (online) as MP4 files and download to your PC for offline playing.**
- **Streaming HD Video from Internet**
 - Many free and paid services (see upcoming slides)

Other HDTV Content Options (2)

- Also consider “Smart” Internet TV boxes or a “Media” PC:
 - Amazon Fire TV & Fire Stick
 - Roku & Roku Stick
 - Dlink Boxee Box
 - Google ChromeCast / ChromeCast with Google TV
 - Apple TV box
 - Sony PlayStation
- Boxes are useful if you do not have a *late model* “smart” HDTV
 - Many have free content channels – movies, original series, news
 - Many allow you to wirelessly “cast” the screen of a PC, tablet or smartphone to your HDTV
- A PC that can run Media Server software (see upcoming slide)
 - This is mainly an option for serious techies

Paid & Free Internet Streaming (1)

- Many “Smart” HDTVs now have built-in wireless (and wired) connections to your home network router.
- “Dumb” HDTVs need a HDMI feed from a PC, BD player or streaming device to a HDMI port on the HDTV.
- Streaming Prices are going up steadily
 - But so are cable and satellite.
 - Many ad-supported “free” streaming services (Tubi, FreeVee)
 - <https://www.usnews.com/360-reviews/streaming-services>
- [Suppose.tv](#) - Compares channel lineups for various services
 - Let’s take a look

Paid & Free Internet Streaming (2)

- **Popular Subscription Services – many with free trials or tiers:**
 - **Hulu + Live** - <https://www.hulu.com/welcome> **Has local channels**
 - **YouTube TV** - <https://tv.youtube.com/welcome/> - **Has local channels**
 - **Sling TV** - <https://www.sling.com>
 - **DirecTV Stream** - <https://www.directv.com/stream/> – **Has local channels**
 - **Amazon Prime** - <https://www.amazon.com/Prime-Video/b?node=2676882011>
 - **NetFlix** - <https://www.netflix.com>
 - **Disney TV+** - <https://preview.disneyplus.com>
 - **Peacock Network** - <https://www.peacocktv.com/> **(NBC)**
 - **Paramount+** - <https://www.paramountplus.com/> **(formerly CBS All Access)**
 - **Apple TV+** - <https://www.apple.com/apple-tv-plus/>
 - **StreamTV** - <https://www.amazon.com/MobiTV-Inc-StreamTV/dp/B085CHDX9B>
 - **Google Play** - <https://play.google.com/store>
 - **Vudu** - <https://www.vudu.com> – **Rentals – some free with ads**
 - **Also, many TV network websites offer on-demand content.**

Paid & Free Internet Streaming (3)

- Free Streaming Channels (Movies & TV series with Ads)
- Most have apps for Smart TVs, Roku, Amazon Fire TV.
- You can also view content via your web browser.
 - [Tubi](#)
 - [Pluto TV](#)
 - [FreeVee](#) (Free from Amazon, Prime not required)
 - [The Roku Channel](#) (requires a Roku device and account)
 - [Stirr](#)
 - [XUMO](#)
 - [Crackle](#)
 - [Hoopla](#)
 - [YouTube](#) (millions of videos, podcasts, channels, tutorials)
 - [Fawesome.TV](#) (Free and Awesome TV)
 - [NewsON](#)
 - [Samsung TV +](#) (built-in to newer Samsung HDTVs, 100+ channels)
- IPTV Services (free and paid) – *For more advanced users*
 - <https://troypoint.com/iptv/>

Paid & Free Internet Streaming (4)

- **Las Vegas Clark County Library District:** www.lvccld.com
Free Media Services – Register with your Library card number.
 - **Acorn TV**
 - Acorn TV offers unlimited streaming of world-class mysteries, dramas, and comedies from Britain and beyond, including a full slate of original and exclusive programming.
 - **Great Courses**
 - Start your journey of lifelong learning taught by the top 1% of university professors and experts from the Ivy League and other renowned schools and institutions.
 - **Hoopla**
 - Hoopla is a digital media service that allows you to borrow movies, music, audiobooks, ebooks, comics and TV shows to enjoy on your computer, tablet, or phone – and even your TV!
 - **Kanopy**
 - *Kanopy* is an award-winning video streaming service providing access to more than 30,000 independent and documentary films.
 - **Kanopy Kids**
 - *Kanopy Kids* highlights films and TV series that inspire and inform, helping children develop empathy, mindfulness, and self-esteem through entertaining and educational videos.

Example Cost Layout

Example: Basic “Cut the Cord” Package (Assumes a “Smart” 4K HDTV)

- **Cox Internet Service (100 Mbps)** **\$50.00 / mo**
 - Includes web surfing, e-mail, streaming
- **Indoor amplified antenna \$60** **\$ 1.00 / mo**
 - Based on 5-year life; gets all local channels
- **Amazon Prime (includes FreeVee)** **\$15.00 / mo**
 - free Amazon shipping, video on demand
- **Paramount + (ad free)** **\$12.00 / mo**
 - Vast archive of movies and TV programs + original programming
- **YouTube TV (100+ local & cable channels)** **\$73.00 / mo**

Internet + TV Monthly Total ... \$151.00 / mo

Home Theater Media Portals

- Allow you to play media on your PC and stream it to your HDTV
 - *Yes, for this you need to be (or know) a techie nerd*
 - Challenge is to acquire and store streamable content on your media server's hard drive.
 - Lots of work to record or rip from DVDs, organize and tag your collection.
- 10 Most Popular Media Center Applications:
 - <https://mediaexperience.com/top-10-most-popular-media-center-software-for-your-hdtv/>
- KODI Entertainment Center / Personal Video Recorder app:
 - <https://kodi.tv>
- Media Portal:
 - <https://www.team-mediaportal.com/>
- Plex Media Server / Clients
 - <https://www.plex.tv>

Internet Services In Las Vegas

High Speed Internet Service in LV

- **Cox Cable**
 - Speeds from 10 to 940 Mbps (See upcoming slide)
- **CenturyLink DSL (fiber / DSL hybrid)**
 - Speeds from 10 to 40 Mbps (DSL), 940 Mbps (fiber)
- **Hughes Net (satellite) – subsidiary of Echostar**
 - <http://www.hughesnet.com/>
 - 25 Mbps - Various data limits: 10, 20, 30 or 50 Gbytes/mo
 - Target market is rural communities
- **4G/5G Fixed Wireless Access Internet Connection**
 - T-Mobile – available now! \$50 per month. Speeds vary. (See upcoming slide)
 - Verizon, AT&T coming in 2023 / 2024. \$~\$70 per month. | Speeds from 25 Mbps to 2000 Mbps
 - Pricing competitive with Cox & CenturyLink

Cox Cable Internet

- <https://www.cox.com/local/residential/nv/las-vegas/internet>
- Cox offers high speed Internet access – various plans
 - 100 Mbps \$50 / mo No contract
 - 250 Mbps \$70 / mo No contract
 - 500 Mbps \$90 / mo No contract
 - 940 Mbps \$110 / mo 2-year contract
- You can get Internet-only service w/o TV
 - Some savings if you bundle with Cox TV or Cox Phone
 - 1.25 T-byte / monthly limit
- Plans feature “Powerboost” – increases download speed when doing large downloads
- 500 Mbps & above require a DOCSIS 3.1 modem

T-Mobile Home Internet

- <https://www.t-mobile.com/isp>
- **No speed tiers – Price is \$50 / month if using autopay.**
 - Guarantee minimum of 25 Mbps down
 - Normally get about 70 - 250 Mbps down
 - Speeds attained vary based on cellular signal strength and on load volumes
 - Using a mix of 4G and 5G technology – distances to antenna about 1 mile
- **No equipment charges – all bundled into monthly price**
 - Includes a Cellular data modem / WiFi 6 router combo
- **No contract – can cancel anytime**
- **Available now in most Sun City Locations**

Digital Television Technology

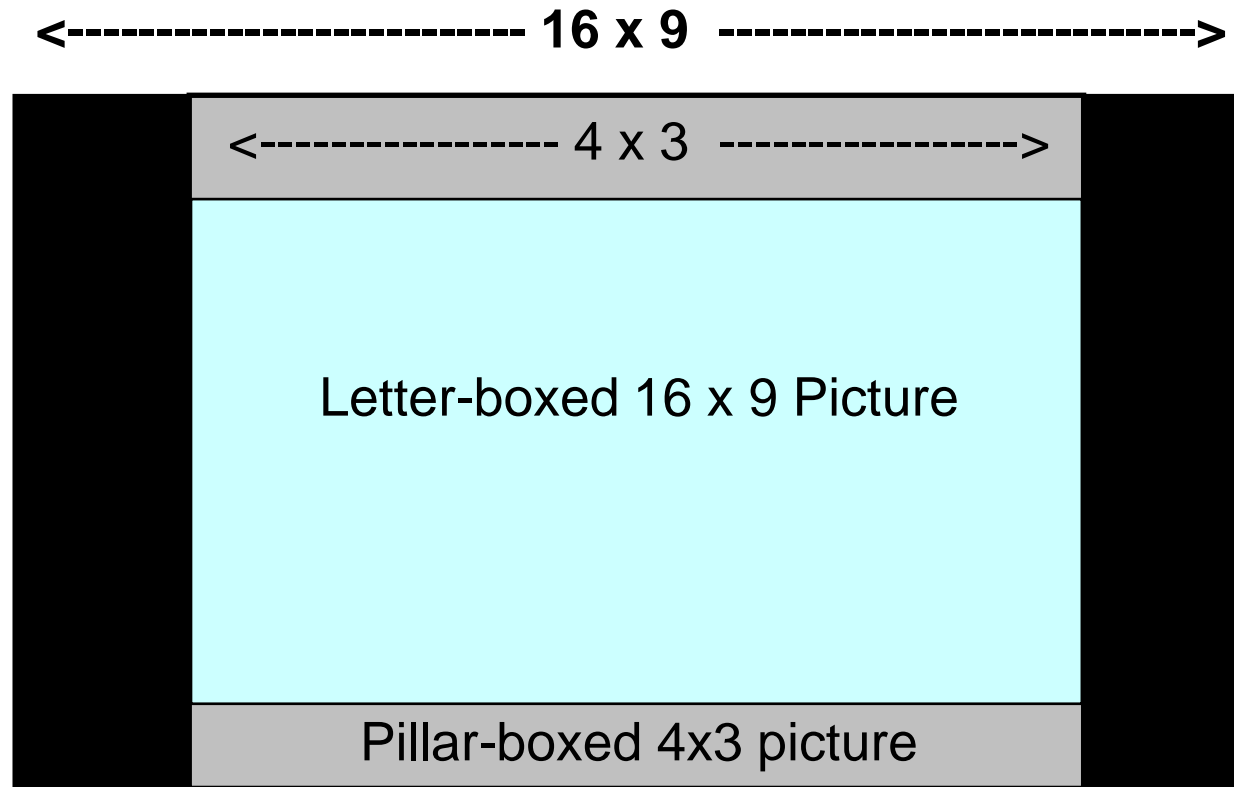
Digital TV Overview (1)

- **Advanced Television Systems Committee (ATSC) Digital Television Standards**
 - Audio / video signal sent as stream of numbers representing compressed picture and sound.
 - Circuits in digital TV receive, decode and display picture.
 - Older DTV sets can still also accept “analog” signals (dual tuner), **but none are transmitted in Las Vegas.**
 - Digital picture stream not affected by electronic interference; includes error detection & correction.
 - Result: “snow free”, crisp broadcast pictures, sound.
- **High-definition Digital Television (HDTV)**
 - Adds higher picture quality and widescreen modes.
 - Standard (4 x 3) and Widescreen (16 x 9) aspect ratios.
 - 480p, 720p, 1080i and 1080p horizontal scan line density.
 - HDTV sets are 1920 x 1080 pixels.
 - Almost all new sets are 3840 x 2160 pixels (“Ultra HD” or 4K)

Digital TV Overview (2)

- **Broadcast Digital Television**
 - “Over the air” (OTA), cable, satellite
 - Outbound only from broadcaster to receiver
- **No retransmit; if data scrambled or lost, picture suffers**
 - OTA broadcasts drop off once out of range of transmitter (parts of Sun City at the edge of reception range)
 - Weather (rain, lightning or snow) can affect OTA and satellite reception
- **DTV displays video as a series of “frames” (pictures)**
 - Minimum display rate is 30 frames per second
 - Progressive (P) modes (720P, 1080P) display 60 frames per second
 - OTA and cable transmit 1080 frames in “interlace” mode (1080i) alternating even and odd scan lines
 - Satellite and DVD/Blu-ray can sustain full 1080P modes
- **When a frame in the stream is lost or too garbled to decode, the TV picture breaks up into squares (pixilation)**
 - Each compressed frame’s display depends on the frame before it, so loss of one frame can affect many following frames.

TV Aspect Ratios



HDTV Connections

- **High-Definition Multi-media Interface (HDMI) - Best**
 - Best (all digital)
 - Combines video & sound in one signal cable
 - Can be passed through newer stereo receivers
 - Most HDTVs now have two to four HDMI connections
 - Cheap HDMI cables work fine *BUT ...*
 - Get cables rated for HDMI 2.0 or 2.1 – support 4K / UHD
- **Component Video (red, green, blue wires) - Good**
 - Supports HD & widescreen (1080i only)
 - Need separate cable (digital or analog) for audio