(Approx. 544 words)

Modern Television Technology

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After a recent class on “Getting the Most From Your Roku” and in preparation for a March General Meeting update on “Cutting the Cord” I reflected on how different television viewing is today. Growing up in San Francisco my family had just a few choices for television viewing, all over the air, and received with an antenna either mounted on the roof or rabbit ears that sat on top of the huge console. I’m sure we all remember the gyrations we went through when using rabbit ears in an attempt to receive a stable snow and ghost-free picture! And, of course, the drudgery of walking over to the TV to manually change the channel.

How times have changed, now we change channels from our favorite viewing spot and control source, volume, channel, and even record our favorite shows!

Today, we watch TV on smartphones, tablets, computers, and television sets in various resolutions. We stream to TVs using different devices like Roku, Fire TV Stick, and Android boxes and we do it in a multitude of formats.

Many years and millions of dollars have been spent to build a streaming infrastructure capable of on-demand and live streaming to a myriad of different devices and configurations. The internet wasn’t set up to do this – top quality video in such a large scale according to said streaming media consultant and expert [Dan Rayburn](http://www.danrayburn.com/). Streaming isn’t a static medium like TV, and our on-demand consumption pattern requires video to travel through lots of steps as it’s formatted for the final destination device.

If you look at some of the parts of the required process of streaming a live event, it is a complicated and involved process. First, you must capture the event, then convert the file format and maybe add a content protection scheme or ad insertion for on-demand revenue models and, finally, formatting for delivery through the internet to a multitude of devices.

According to Mr. Rayburn, it's a lot more complicated. There's no standard for encoding, so video files need to be "wrapped" differently for every platform they're delivered to; files are wrapped differently for [Roku](https://www.pcmag.com/reviews/roku-premiere-plus-2018) than they are for a desktop browser, a smart TV, or an Android or iOS device. A single video file could be wrapped 20 times or more depending on the devices to which it's being delivered. Enjoying video on a powerful computational device such an Xbox or PlayStation is different than streaming to a device with less memory and computational power such as a Fire Stick. The size of the video file segments must be adjusted as well as the metadata payload. And we have begun to take for granted that the video we desire will be available in 720, 1080p, or even 4K quickly and reliably when and where we want it.

Video streaming is a whole new frontier to be developed and as the deployment of streaming options continually expands, so must the technology and computing power needed to reliably deliver it.

Just a little background as to what is involved in streaming content as we all anxiously look for ways to improve our television viewing experience.

