

ACM West Live Streaming

A virtual Multichannel Video Provider vMVPD

A *virtual*/MVPD (vMVPD) is a service that provides multiple television channels through the internet without supplying its own data transport infrastructure (i.e. coaxial cable, fiber, or satellite technology). These services are also sometimes called “skinny bundles” as they often contain fewer channels than a traditional cable or satellite subscription. You may be familiar with some vMVPDs such as Sling TV, DirecTV Now, PlayStation Vue, Fubo, Philo, YouTube TV and Hulu Live.

Increasingly, content is available as a vMVPD

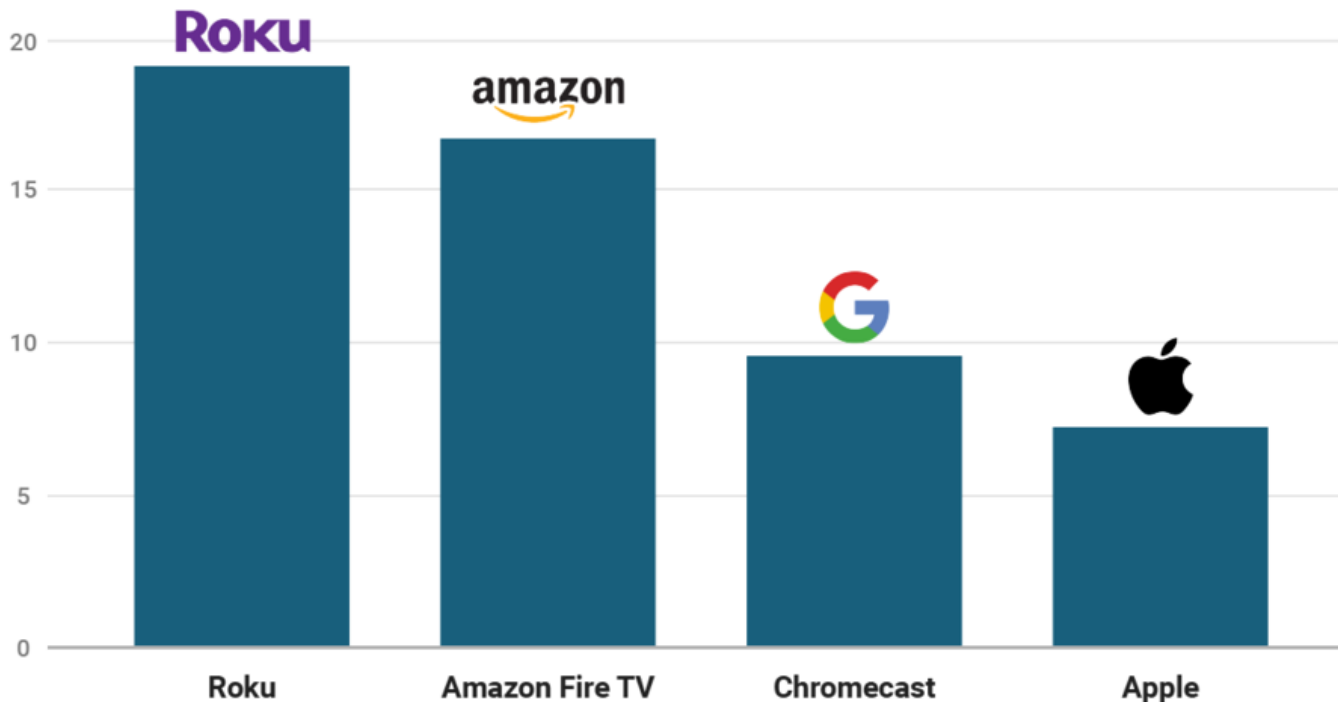


These vMVPD's are most often delivered through...



ROKU HOLDS ITS GROUND AGAINST TECH HEAVYWEIGHTS

U.S. household penetration of TV streaming boxes/sticks in April 2017*



NOTE: *Wi-Fi households only

SOURCE: comScore

Pure-Play Virtual MVPDs

Year-over-Year Growth



+58%

Number of Households



+53%

Hours Spent Viewing



+49%

Of time spent by over-the-top households with a vMVPD service is spent with the vMVPD



Almost All

Virtual MVPD viewing is on streaming boxes/sticks

Some Statistics

- Virtual MVPD use is still small but growing rapidly. In April 2018, 5 percent (4.9MM) of U.S. households with Wi-Fi internet streamed a pure-play vMVPD on their television screen. This is a remarkable 58 percent increase in households from the year before.
- vMVPDs are being adopted by more than just the younger generations. In April 2017, 29 percent of households using a pure-play vMVPD had a head of household under age 35. In just one year, that percentage dropped eight points to only 21 percent, indicating a higher number of older viewers are now using vMVPDs.

Also from Comscore

But viewer/platform changes can benefit PEG media

- If one looks at the opportunities these new platforms offer, if not for the outdated funding model that does not include internet, there are many opportunities
- Social media is just another method of distribution, but it comes with ratings!
- These other platforms also support HD, on-demand viewing, and feedback. They are engaging.
- OTT platforms put PEG on equal footing with the Networks

OTT – Roku, Apple TV, Amazon Fire and Chromecast can be game changers

The viewer chooses the channels and apps that they are presented with, in their living room!

The content can be presented in high definition, just like any other premium content

Content is available live and on demand, just like HBO. You can search for content right from your couch.

PEG can now be prominent in the guide



Live and On-Demand Content front and center

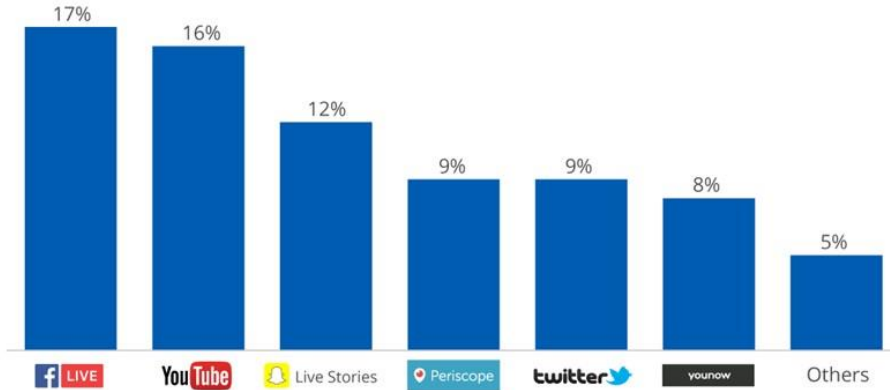


LIVE STREAM PLATFORMS

[illegible]

The State of Live Video Streaming

% of respondents who streamed live video on the following platforms



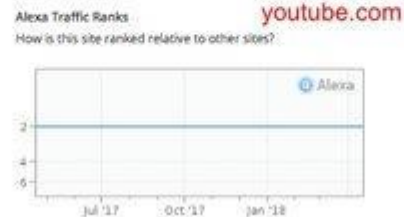
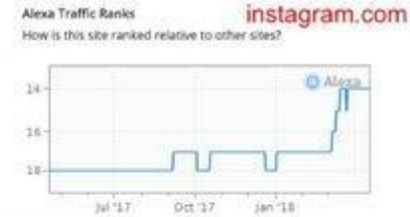
Based on a survey of U.S. internet user aged 13+ conducted in November 2016

BUSINESS INSIDER

Sources: UBS Evidence Lab, eMarketer

 **statista**

Platform Traffic Statistics



Viewer Trends

- Long-form content creation is up [189%](#) compared to last year (*Ooyala*) & Short-form content creation is up [178%](#) compared to 2017 (*Ooyala*)
- [42% of the U.S. population](#) have now live-streamed online content — compared to 25% just last year (*Vanguard*)
- Facebook Live videos are watched three times longer than videos that aren't live. ([Mediakix](#))
- 63% of millennials have watched live content and 42% have created it, making this group the largest consumers and creators of live video.
- 78% of online audiences are already watching video on Facebook Live. 90% think video quality is the most important aspect of Facebook Live videos.
- Facebook Live is currently the most popular platform for live-streaming video, even surpassing YouTube. This could be simply because Facebook has over 2 billion users to YouTube's 1 billion users. Facebook also makes it possible to access your video inside its app and on Instagram's Live Stories app too, ensuring higher quality and easier ways to share live video content with a vast audience via social media. Also, 85% of Facebook video is watched without sound, so be sure to include captions with your videos.

Live Streaming Devices

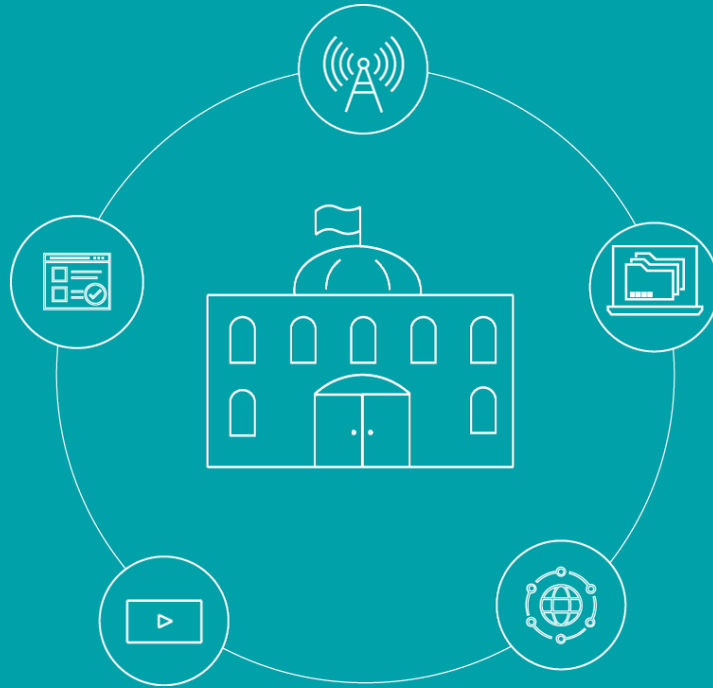


Live Stream Content

What do you do? Why do you do it?

- How many people are P, E, G, other?
- How many stream live content, on-demand content?
- What type of live content would you, or are you making?
 - Can you stream live remote events to your cable channel?
 - Government Meetings, Music, Protests, Ceremonies, Sports

Open.Media is bringing local government into the 21st century.



Colorado Channel Site - Live & Archived House & Senate Sessions

[WATCH MEETINGS](#)[ABOUT](#)[RESOURCES](#)[GET INFORMED](#)[DONATE](#)

LIVE AND REPEAT COVERAGE OF THE COLORADO LEGISLATURE

Providing Coloradans with the opportunity to watch and listen to the Colorado General Assembly at work.

[VIEW PAST SESSIONS](#)[HOUSE](#)[SENATE](#)

ACM.Open.Media Site - Archived Conference Sessions



ALLIANCE FOR COMMUNITY MEDIA

UPCOMING & ARCHIVED VIDEOS

Search

Search agendas and captions *

- Wed. July 11
- Thurs. July 12
- Friday July 13

Session	Date	Documents
Opening and Keynote Address	Wednesday, 07/11/2018	

Features



Archived video
library



Agenda indexing



Social media
sharing

Giving citizens the ability to share clips on social media **increases engagement.**

EVERYWHERE



Live Streaming Workflow

24x7

- Encode Channel output
- Station Bandwidth
- CDN
- Set and forget

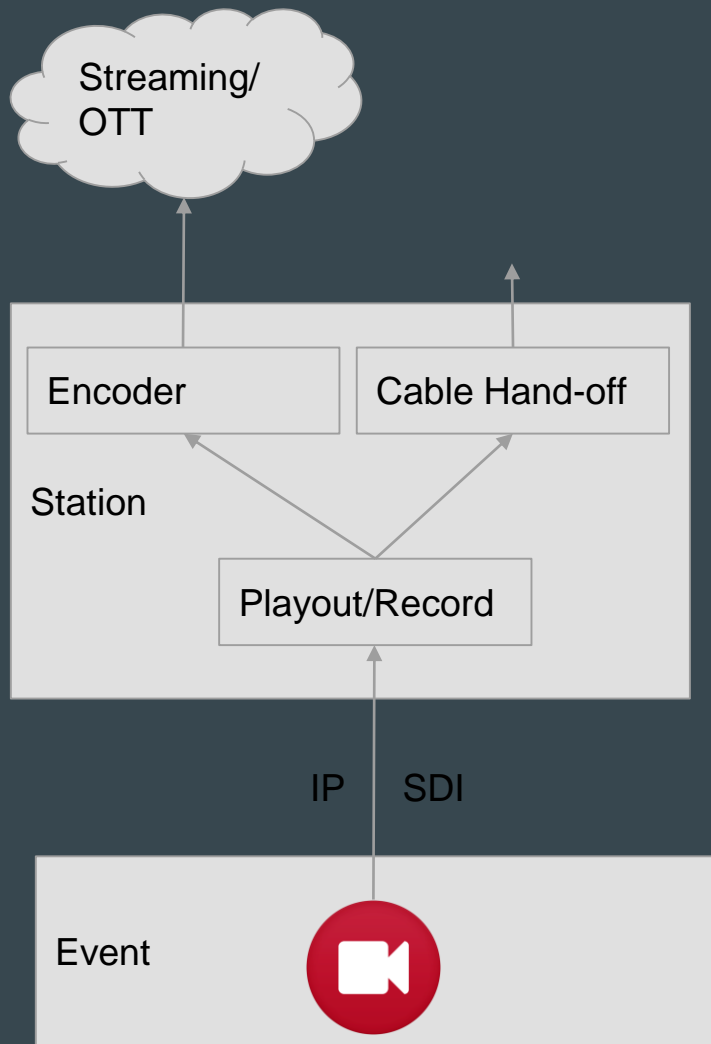


What happens at the (live) event horizon?



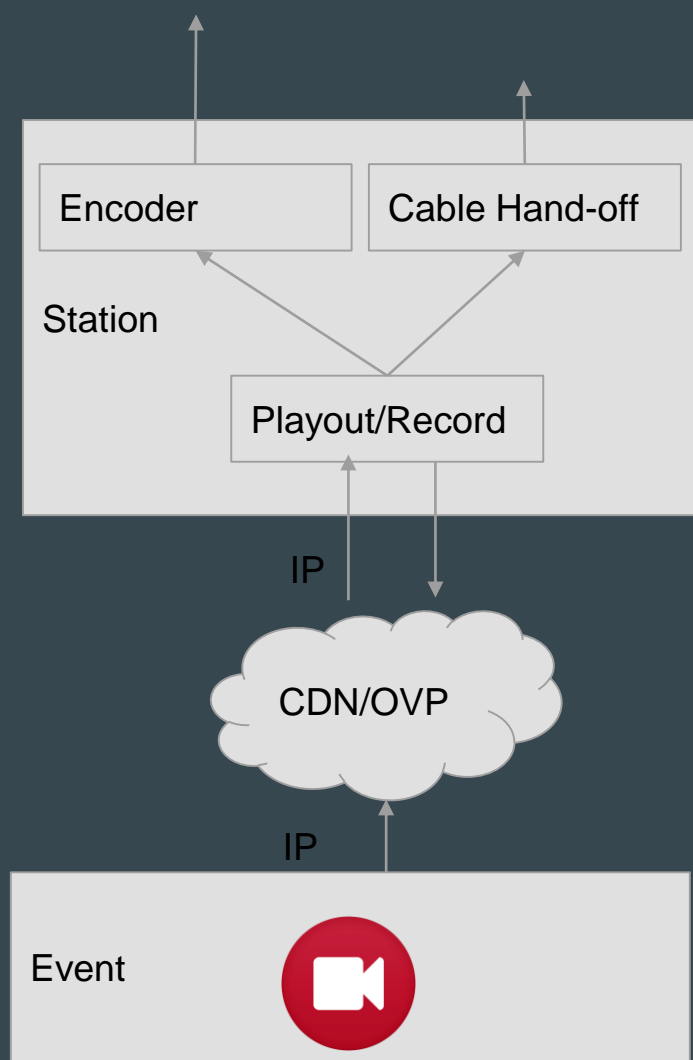
Event → Station → Cloud

- Encoder at event location
- Scheduled, Manually & Auto Triggered
- Start/Stop (Encoder, Automation)
- Record locally (backup)
- Record Master Control
- Publish for VOD
- Service Auto Capture Live for VOD



Event → Cloud → Station

- Encoder at event location
- Scheduled, Manually & Auto Triggered
- Start/Stop (Encoder)
- Record locally (backup)
- Service Auto Capture Live for VOD
- Playout / Record from Cloud



Backhaul

- Ethernet, Microwave, Cellular, Baseband
- IP - LAN vs. Internet
- Fixed vs. Mobile Remote
- Internet / Noisy Networks
 - SRT, LRT, Zixi, ARQ
- Station Bandwidth (Ingress)
- YouTube as backhaul



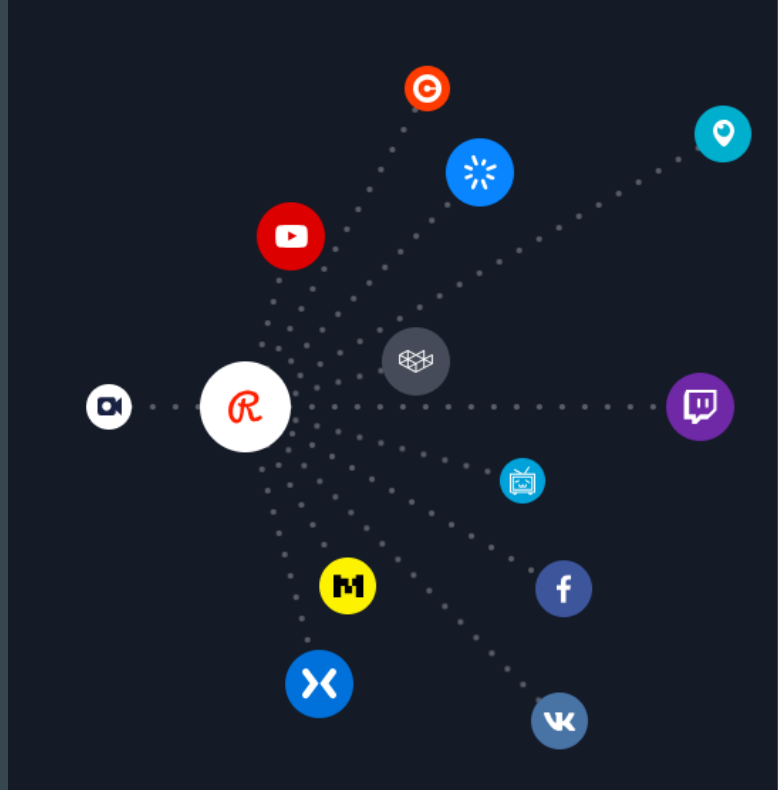
Multiple Destinations

- Brute force - Multiple Encoders
- Single Encoder, Multiple Streams
- Single Encoder, Local Distributor
- Single Encoder, Cloud Distributor
- Bandwidth
- Packaging vs. Transcoding



Streaming Distribution Applications & Services

- Wowza
 - On premise vs. Cloud
- restream.io
- switchboard.live
- LiveU Matrix
- Teradek Core
- Wirecast Restream
- Closed vs. Open systems
- Transmux vs. Transcoding
- Adaptive Bit Rate (ABR)
- Cloud production switchers



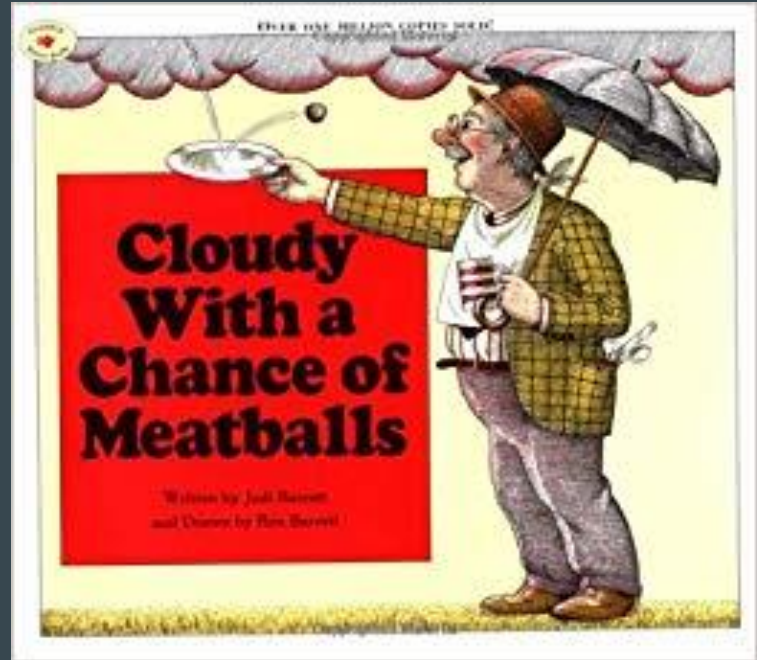
Live Streaming for Program Distribution

- PEG Peer to Peer
- Tune into neighboring station's relevant events
- Ditch the Satellite Receivers and related fees
- NASA TV
- Classic Arts
- YT Live
- Licensing

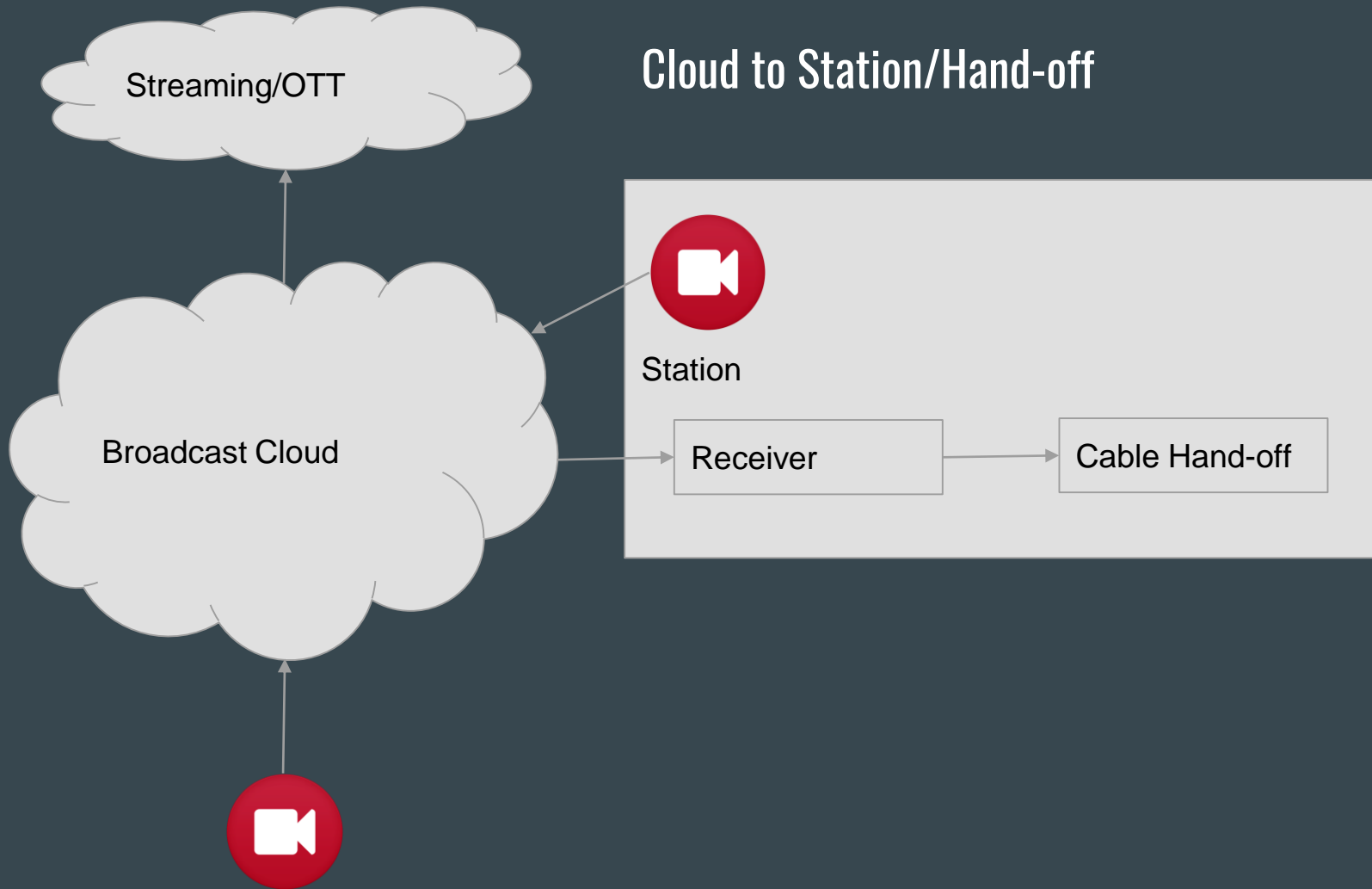


Cloud Hosted Broadcasting

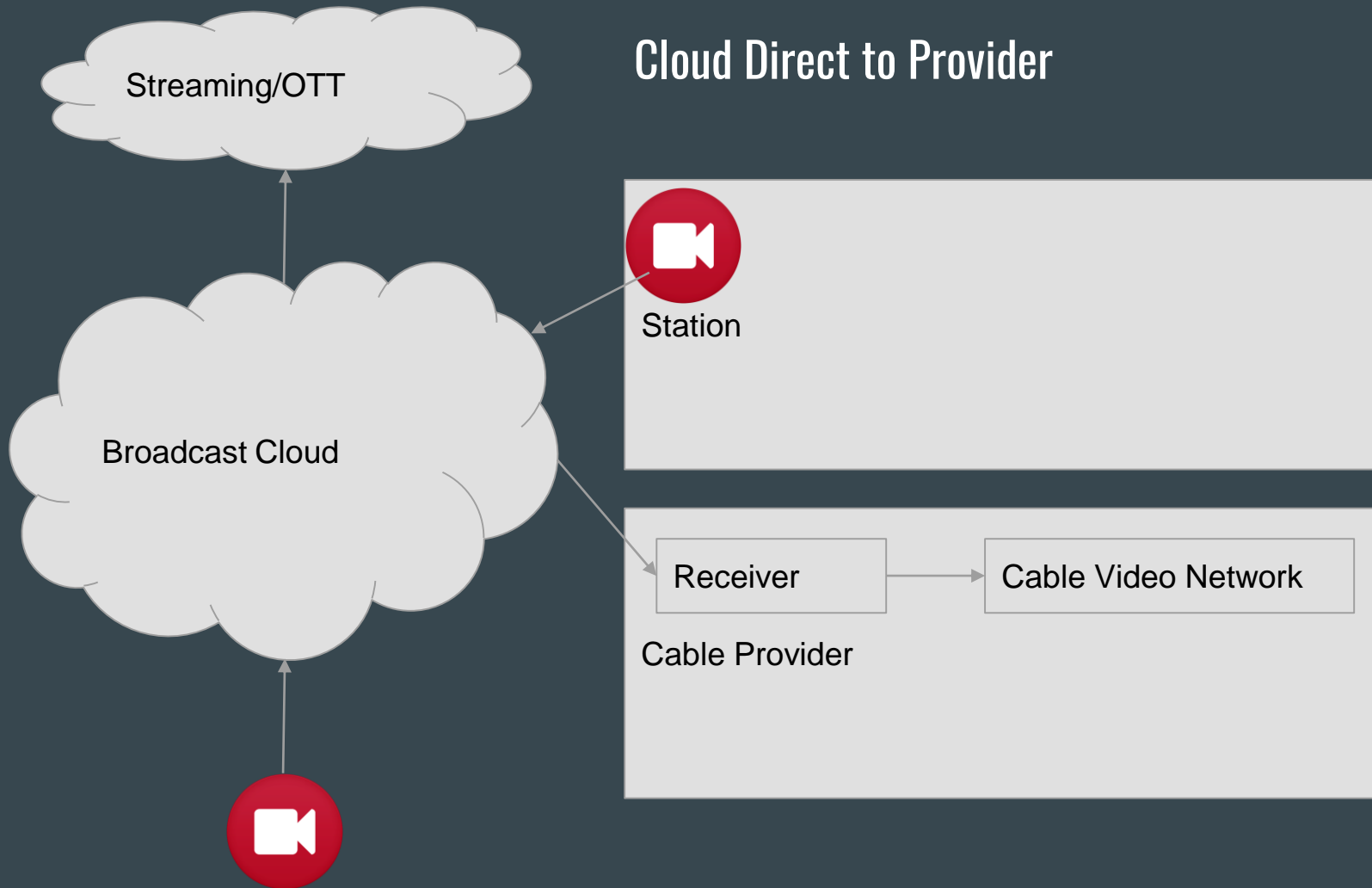
- Playback can live in the cloud too
- Eliminate rack, power, equipment maintenance, backup etc...
- As more moves to the cloud, closer to the action
- Reduces bandwidth load at the Station
- Reliable transport important
- Pure streaming channels



Cloud to Station/Hand-off



Cloud Direct to Provider





Encoding Equipment

Software vs. Hardware Encoding



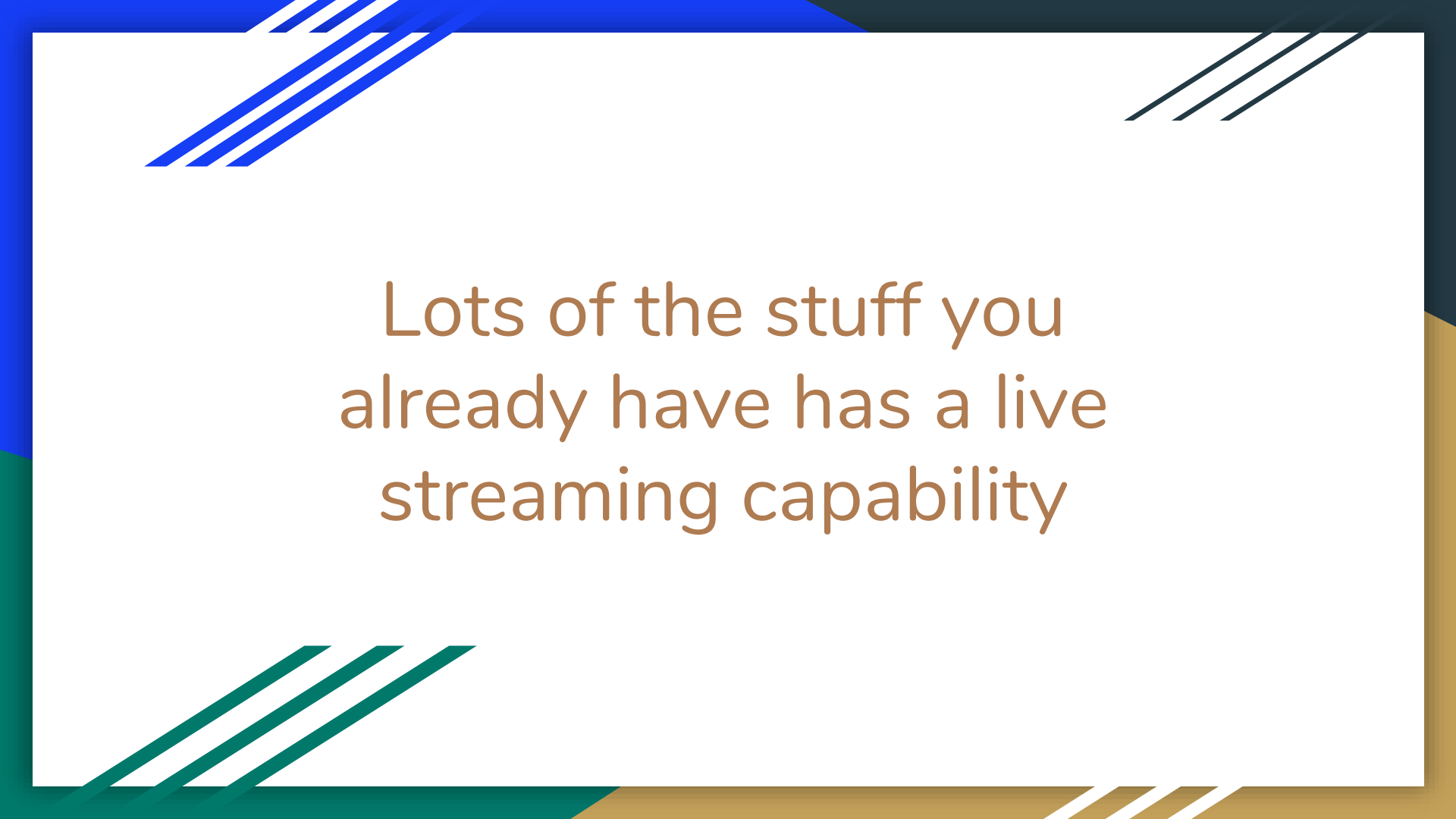
Software Encoder



Streaming Platform of
your Choice

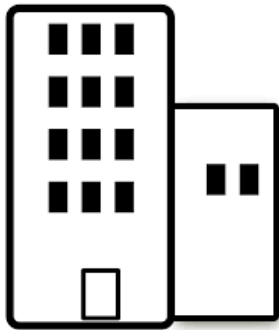
Hardware Encoder





Lots of the stuff you
already have has a live
streaming capability





On Premises

Or



In the Cloud

Or Both

Tech Trends

- Codecs
 - HEVC (H.265), VP9, AV1
 - AVC Content Aware Encoding, HDR
 - Licensing
 - [Browser / HTML5 Video Compatibility](#)
- Protocols
 - RTMP (primarily ingest-only, widest CDN support)
 - HLS vs. DASH
- Networks (5G)
 - Simplify backhaul & live remote
 - Broadband & Video competition
- [Bitmovin Developer Survey](#)



Extra Slides (TBD)

OTT

...

Internet video delivery, typically bypassing traditional provider

OTT Providers (vMVPD)

Includes LIVE

- AT&T Watch TV (\$15/month)
- Philo (\$16/month)
- Sling TV (\$25/month)
- DirecTV Now (\$40/month)
- YouTube TV (\$40/month)
- Hulu With Live TV (\$45/month)
- PlayStation Vue (\$45/month)
- Fubo TV (\$45/month)

On-demand

- Netflix (\$8 - \$14)
- Amazon Video (Prime/\$8)
- Individual Networks (HBO GO etc...)
- Custom Channels
 - Amazon Channels
 - Roku Subscription
 - Hulu Add-ons
 - Apple TV / App Store

Access

\$44.99/mo*

Core

\$49.99/mo*

Elite

\$59.99/mo*

Ultra

\$79.99/mo*

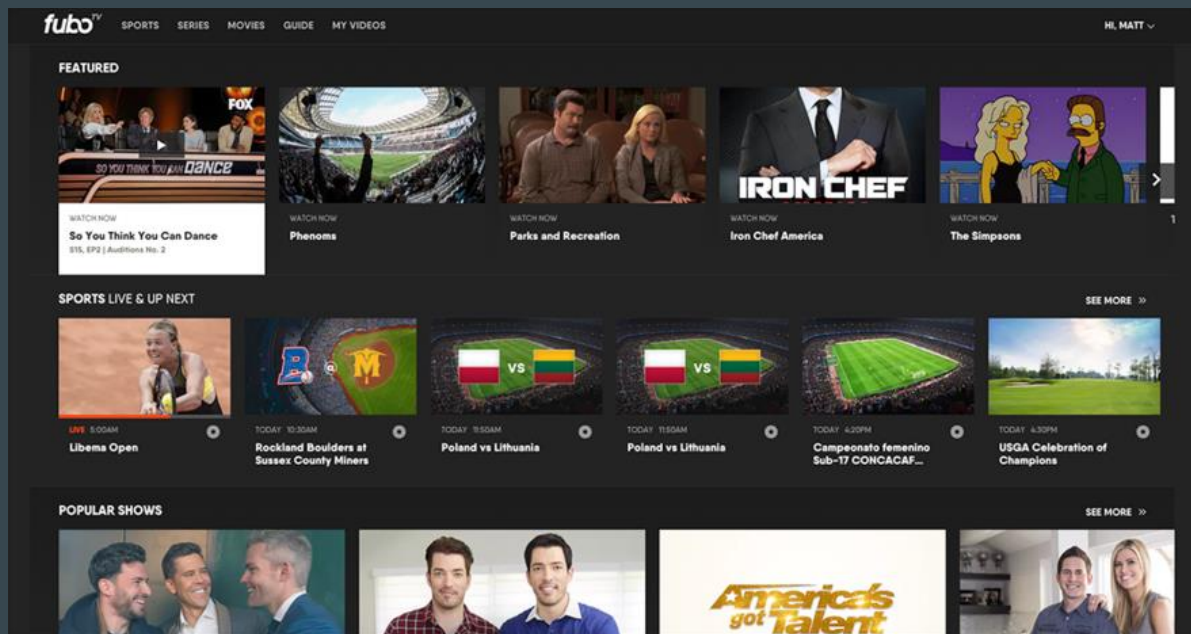


OTT Advantages

- User Experience (UX)
- Interface Consistency
- Value
- Recommendations
- Personalization
- Cloud DVR
- Ad Flexibility
- Measurement

vs.

- Quality of Service (QoS)
- Owning the Pipes



OTT Playback Devices

- Mobile Phones
- Tablets
- PCs / Laptops
- Gaming Consoles
- Streaming Boxes & Sticks
 - Roku
 - Apple TV
 - Fire TV
 - Chromecast



OTT PEG Impact

- Cord Cutting
- Opportunity to Expand Viewership
- Enables Viewership Stats
- HD to the TV...4K next
- Monetization

