



CTAM Top Tech 10 Trends: Online Video Piracy

Introduction: Nothing says “it’s a thing” more than having an in-depth tech conversation with a 19-year-old, on a Tuesday, and a 77-year old, on a Thursday, about how to watch TV online without paying for it. (In both cases, I wound up taking notes to relay back to colleagues.)

Unquestionably, the marketplace for pirated video content is escalating. According to [research from Sandvine](#) (which will be referenced throughout this Top 10), 6.5% of North American households watch pirated video content. It’s becoming a bit of a cottage industry -- CTAM, the NCTA, the MPAA, and their constituents are currently tracking nearly 200 pirate video sources.

Video piracy is as old as pay TV. Until now, it was like a low-grade infection, feeding on the edges of all pay TV forms: subscription, VOD, theatrical. Now, two accelerants -- the Internet, and the inherent nature of open source software development -- threaten to propel it into the “high fever” zone.

If there’s a pinpoint of hope in all of this, it’s that a giant cross-section of the consumer mainstream is unaware that they’re stealing content. Which means there’s room for education.

With that preface, please enjoy this edition of CTAM’s Top 10 Tech Trends, developed and curated just for you.

1. DMCA: File sharing is dead; long live file streaming!

Remember this one - The Digital Millennium Copyright Act (DMCA)? Set the time machine back to 1998, when Napster was giving the music industry serious -- and warranted -- heartburn, to illegally download, then “share,” media (songs, in this case).

Anecdotal context: It was in that timeframe when a friend emailed me to gleefully profess his love for his new cable modem. For him, downloading 5,000-plus hours of music from Napster, before it was shuttered, was retribution against the recording industry for pushing the Partridge Family’s “I Think I Love You” to the No. 1 slot in 1970, over Credence Clearwater Revival’s “Proud Mary.” The point: Five. Thousand. Songs.

The DMCA happened as a way to stop the bleeding from the music industry, in terms of revenues lost to pirated content -- or at least staunch it.

Two decades later, a reasonable rear-view assessment is “it’s a start.” Here’s what happened: The DMCA gave copyright-holders a means to go after *downloading*. Streaming hadn’t happened yet. Plus, “go after” essentially meant sending “take down” notifications (see Figure 1), which instruct the offending party to ... well, to *take down* the infringing

The screenshot shows a formal letter from YouTube. At the top left is the YouTube logo with the tagline "Broadcast Yourself™". At the top right are links for "help center" and "e-mail options". The letter is addressed to a "Dear Member". It begins by informing the member that material has been removed or disabled due to a third-party notification from "News" claiming infringement. It includes a "Please Note" section detailing the consequences of repeat infringement and providing a link to the "Copyright Tips" guide. The note concludes with a "Sincerely, YouTube, Inc." and the company's address: "© 2009 YouTube, LLC, 901 Cherry Ave, San Bruno, CA 94066".

Figure 1: An example of a DMCA "take down" notice



content. If you're thinking "whack-a-mole," in that what's taken down here pops up over there, you're in the zone.

For those reasons, and in the annals of video piracy, the DMCA chapter could probably best be titled "A Good Start."

Why this matters: Legislative heat for pirated video content is at best a slap on the wrist. A better and/or companion approach requires adroit consumer education about the impact of stealing copyrighted material.

2. If you haven't heard of Kodi, it's time you two met. Probably the hottest ticket in any conversation about online video misappropriation is [Kodi](#), formerly known as Xbox Media Center, and a curiously difficult-to-describe host of pirated video content! "Pirated" usually meaning streamed, as opposed to downloaded, via a large, growing, and digitally nimble marketplace of apps. "Curiously hard to describe" because it's both hardware and software; both legit and accomplice. "Don't do this! Here's how you do this."



Kodi describes itself as "open source home theater software" that can be "sideloaded" into mainstream streaming devices -- like any in the Amazon Fire TV family, for instance. Online sales giants Amazon, eBay, Craigslist market Kodi devices -- although it's worth mentioning that Amazon is part of the [Alliance for Creativity and Entertainment](#), which is actively prosecuting the Kodi box-makers (more on this later.) That makes Amazon the only major online store to screen for and remove Kodi boxes.

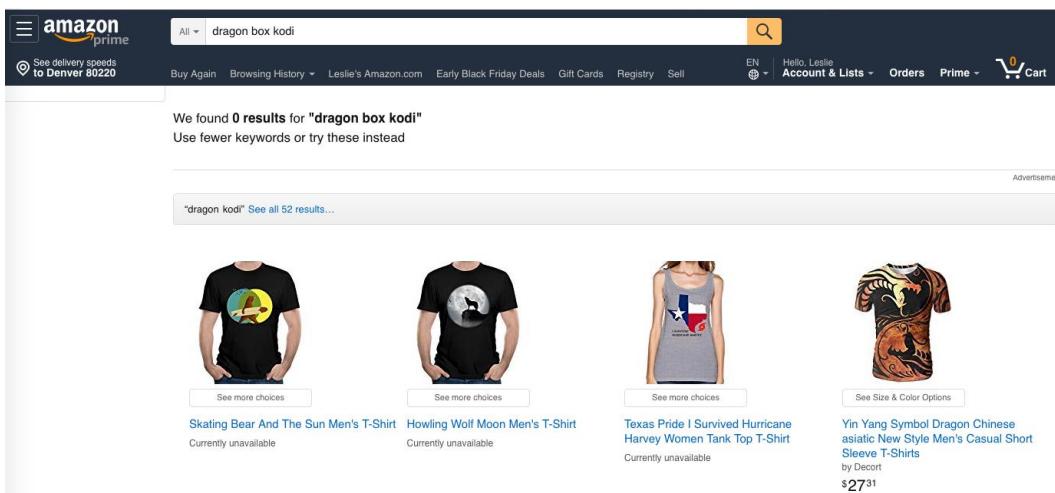


Figure 2: A search for a Kodi box on Amazon returned zero results, and these swell t-shirts.

News of video piracy developments tends to generate a noticeable uptick in online buzz. Witness Facebook's sales ban of Kodi and other "jailbroken" streamers in August, which spiked the "shared link" metrics in the cord cutting community. (Kodi's own Facebook page had 437,499 followers on Nov 1.)

You'll find lots (lots) more information about how Kodi goes to market, including details of what is a three-pronged hardware / subscription /ad-supported model, in [this very thorough technical paper, written by Comcast's Don Jones](#) and delivered at the 2018 SCTE Cable-Tec Expo. In short, Kodi is a thing, and will weave throughout the remainder of this document.



Why this matters: Kodi is open source, which is good for massively collaborative expansion. But when concerted expansion is focused on theft, massively collaborative counter-measures are required.

3. Legitimate streaming hardware is often home to ... illegitimate streaming software. Think about everyone in your life -- work, home, friends, family. How many of them use some kind of streaming stick? If you're like me, it's easier to think about how many of them *don't*.

On those streaming sticks are apps -- the biggies, like Netflix and YouTube, sure. Plus loads of others, including those that exist to lure consumers, from within a totally legit environment -- into a well-lit, dark alley.

If you're reading this, you're probably hip to CTAM's latest Connected Consumer study, which raised more than a few eyebrows when it became clear that 72% of "Connected Early Adopters" partake of pirated video services.

Perhaps as interesting is the next-biggest slice of people who, knowingly or unknowingly, steal copyrighted content: "Connected Mainstreamers," at 44% -- which sure seems pretty close to half.

Consider this: One of the recurring threads in conversations about online video piracy is how professional, attractive, and legit the offers look. Maybe slightly nerdy, yes, but legit. (See Figure 3.) What's the best way to tell your Aunt Carol that the streaming stick she got for her birthday, which your cousin sideloaded with Kodi and enabled for lots of "free" video, is not good? That's the task.

Why this matters: A significant portion of consumers is probably unaware of, or ambivalent to, the legitimacy of the content they're streaming. File under "If They Only Knew..."

4. There's a lot of'em! CTAM, the NCTA and their leadership are tracking roughly 200 different pirated video sources. Ah, for the simple days of "just" competing against DirecTV and DISH for video customers!

That's probably why the words "cottage industry" crop up with such frequency, when discussing the state of online video piracy. If the Uber/Lyft community of drivers is any indication, seems like a lot of people are taking side jobs to supplement their regular income. Selling pirated video is similar avenue, often very lucrative. As Jack Burton¹ explains in "*The Sky is Falling: Could OTT From Unexpected Places Herald the Napsterization of Television?*"

¹ Jack is a respected engineer, most recently with Cablevision Systems/Altice. The paper referenced will be published in an upcoming edition of *Broadband Library*.

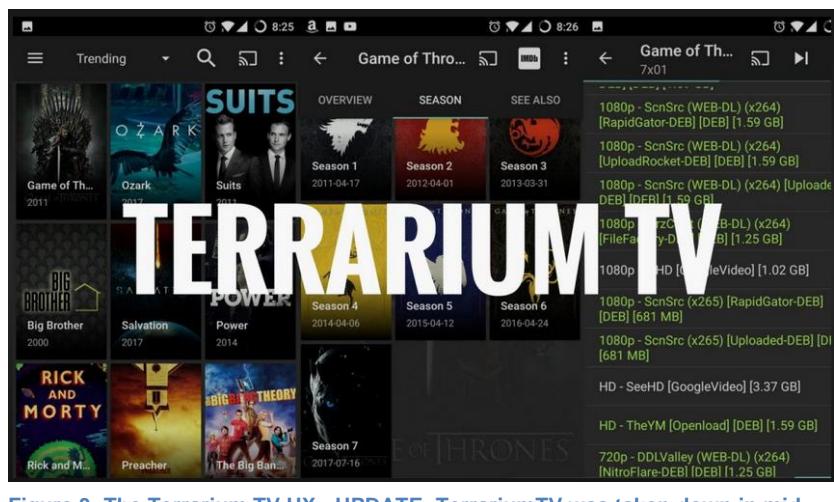


Figure 3: The Terrarium TV UX - UPDATE: TerrariumTV was taken down in mid-September 2018



"This developed not from the pirate labs of the 1990s, but from groups of college kids, homemakers, professionals, etc. that have found this to be a source of supplemental income. Truly a "cottage industry" - work is done in the home. There are even stories of modified streaming players being sold at shopping mall kiosks."

Why this matters: The expansion of the online piracy marketplace is akin to a low-grade infection. Even with the take-downs of major online pirate sites this year, the derivative -- the growth of the growth -- is worthy of heightened concern.

5. The financial impact is eye opening. Sports, in general, is a useful barometer of consumer viewing behaviors -- which is why it seemed plausible to highlight Sandvine's findings, from this summer, about pirated viewing of the World Cup Games. Read more in [this blog](#); condensed version is that Sandvine studied the HTTP traffic moving over one Middle Eastern Network, and found that 40% of streams were illegal, from unlicensed providers. Kodi-based devices enabled a big chunk of the activity. That had to put a dent in the \$3.2 billion FIFA was anticipating, in broadcasting fees.

Switching over to boxing: The biggest of the Big Fights in 2017 was Mayweather vs. McGregor. To watch it live, people paid \$99.95 for an HD stream. When the match began, a couple of people using Facebook Live shared the stream. According to an article from Yahoo!Sport, one screenshot shared from Facebook Live showed 472,000 viewers watching a pirated stream, while another had 234,000 viewers. Just the viewership from those two streams could cost the event more than \$70.6 million. Related research from Irdeto, a digital platform security company, discovered 239 streams that reached 2,930,598 viewers. Want more? Here's [additional perspective from Sandvine](#).

Why this matters: Two words -- lost revenues.



Figure 4: Nearly a million people saw the 2017 Mayweather v. McGregor fight (\$99 in HD) from one of two known Facebook Live streams.

6. For lots of consumers, streaming pirated content is simply... additive. According to CTAM's latest research into connected consumers, some 60% of respondents in the U.S. and Canada said that the availability of "free" online content from illegal providers isn't a catalyst to cut the cord or otherwise downgrade their subscription video services. Rather, it's just another source.

Why this matters: With 60% of respondents stating that viewing pirated content is not a trigger to cut the cord, there's still 40% of consumers who haven't responded either way.

7. Pirate streams don't just impact revenues. They waste bandwidth, too.

Surely this has happened to you: You're listening to Pandora, or streaming something, and suddenly you notice the absence of sound. You look at your screen, and see a prompt: Are you still listening/watching? It's



a clever method of bandwidth preservation, much more necessary in the world of IP (where connections are 1:1) than in the world of traditional broadcasts (where it's one-to-many/all.) If you're not watching, your stream gets "released," and simultaneously stops consuming bandwidth.

According to Sandvine's research, this "phantom bandwidth consumption" phenomenon is wasting 1.1 Terabytes of data per month. Bandwidth refresher: "Tera" comes after "Giga;" Giga comes after Mega; in each case, it's an order-of-magnitude shift.

Turns out that pirate video streams have no such bandwidth preservation mechanism; no such "are you still watching?" prompt. It's logical to presume that if the goal is to promulgate "free" content, being responsible about how much bandwidth it consumes probably isn't on the development roadmaps of pirate streamers.

Why this matters: Piracy cuts two ways -- into revenues, and into broadband capacity.

8. It's not all bad news -- some very public victories happened this year.

If you caught the caption on Figure 3, you know that Terrarium TV was officially shut down in mid-September. (Within hours, news stories surfaced with alternatives.)

Other major take-downs this year: [Tickbox](#) and [Dragonbox](#), two prevalent sources of Kodi-branded boxes. Both represent significant wins, because they set a legal precedent for the creation of such hardware as representing or inducing content piracy.

Dragonbox, based in Carlsbad, Calif., made a Kodi-based box that sold for \$350 and had a 250,000 customer footprint throughout the U.S., according to [Variety's Gene Maddaus](#), and marketed itself as a way to "Get rid of your premium channels ... [and] Stop paying for Netflix and Hulu." Georgia-based Tickbox took the "we just make the box" stance, arguing that its hardware is no different than a laptop or tablet. Both lost; Tickbox agreed to settle its infringement for \$25 million. Additionally, a Florida federal judge awarded \$90.1 million in damages to Dish Network LLC in a Federal Communications Act suit over a scheme by SetTV to stream unauthorized Dish content to subscribers who purchased SetTV boxes.

Figure 5: Page 1 of the lawsuit against Tickbox TV

Other in a laundry list of 2018 takedowns: 123Movies (an indexing-style website/advanced class), Fab IPTV, and Kodi add-on repositories Illuminati, XvBMC, Noobs and Nerds, Mr. Blamo, and UrbanKingz.

In part, these happened because of a planned campaign of "knock and talks," conducted by the MPAA this year, in coordination with the FBI. Usually conducted in the early morning, they went down like this: Knock-knock, who's there, you've been served.

Why this matters: It illustrates momentum in the get-the-bad-guys scene.

9. The Alliance for Creativity and Entertainment, or ACE, is committed to the crackdown.

Citing an estimated 5.4 billion downloads of pirated content and 21.4 billion visits to streaming piracy sites -- and



that's 2016 data -- 30 media heavyweights [coalesced last summer in a move to collaboratively fight piracy.](#) They call themselves "ACE," or, the Alliance for Creativity & Entertainment, and are aligned with the MPAA.

ACE was formed in June 2017; by November, headlines like this one were popping up in the technical trade press: "*Hollywood strikes back against illegal streaming Kodi add-ons / It could be the end for popular Kodi add-ons Covenant, urlresolver and metahandler*" (Engadget). And this one, a month later, in HowToGeek.com: "*Why Your Kodi Box Isn't Working, and What to Use Instead.*"

ACE members include: Amazon, AMC Networks, BBC Worldwide, Bell Canada and Bell Media, Canal+ Group, CBS Corporation, Constantin Film, Foxtel, Grupo Globo, HBO, Hulu, Lionsgate, Metro-Goldwyn-Mayer/MGM, Millennium Media, NBCUniversal, Netflix, Paramount Pictures, SF Studios, Sky, Sony Pictures, Star India, Studio Babelsberg, STX Entertainment, Telemundo, Televisa, Twentieth Century Fox, Univision Communications, Village Roadshow, the Walt Disney Company, and Warner Brothers Entertainment. So, pretty much everybody.

Why this matters: At least moles are getting whacked, and that's because of industrial unity and ACE. Will they pop up next week, somewhere else, with a new name? Maybe. Probably. For that reason, it's perhaps best to look at this one from a place of "if left unchecked..." Anyone who's experienced a mole/vole/prairie dog/mouse situation in the back yard can attest -- not good.

10. Copyright holders all over the world are mounting their own defense.

Having seen the recorded music industry destroyed by Internet technologies, the owners of video content are no taking the current onslaught laying down. Multiple organizations in addition to ACE, are working on technical and policy solutions to stop the big core of the problem, which is the aggregators of stolen content. Those include CAOVP, the IPTV Task Force, CASBAA and others; law enforcement is stepping up, and governments are starting to allow more aggressive responses to the pirates.

Why this matters: This is a very difficult problem, and the battle will be fought on many fronts -- but copyright holders are becoming more effective with countermeasures every day.

And that ends this compilation of Tech Trends, here on the cusp of the end of 2018. Thanks for sticking with it all the way to the end! May your tech-talk be scintillating, informed, and fun ... and your online piracy conversations informed and provocative.

Resources & Additional Reading:

<https://torrentfreak.com>

<https://www.engadget.com/2017/11/16/kodi-covenant-colossus-urlresolver-mpa-shutdown/>

<https://www.howtogeek.com/336176/why-your-kodi-box-isnt-working-and-what-to-use-instead/>

<https://variety.com/2018/digital/news/dragon-box-sued-netflix-amazon-universal-warner-bros-disney-paramount-1202660358/>



<https://www.sandvine.com/hubfs/downloads/archive/2017-global-internet-phenomena-spotlight-subscription-television-piracy.pdf>

<https://www.law360.com/articles/1095586/dish-wins-90m-in-settv-set-top-box-subscription-scheme>