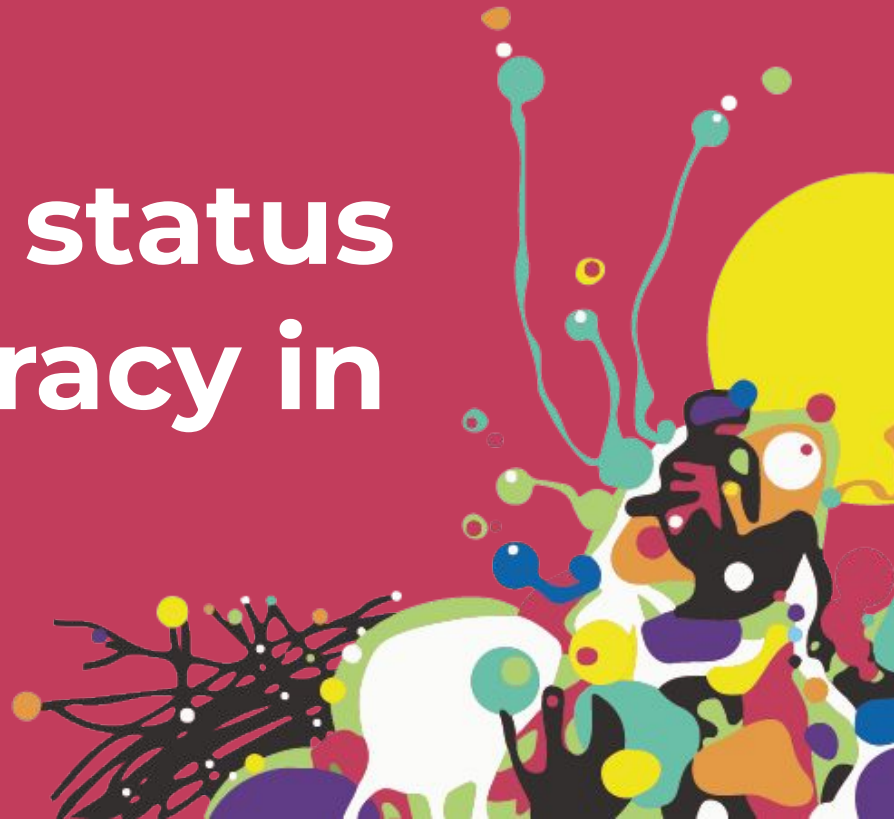


The Jack Sparrow's 101: History, current status and future of piracy in broadcasting



- ✓ **+12 years @ broadcast and streaming industry, nowadays consultant**
- ✓ **Associate Professor @ UPF**
- ✓ **Organiser @ BCN Video Tech meetup**
- ✓ **Supporter @ FC Barcelona**
- ✓ **Music vinyl collector & avid retro gamer**



Origins:

Where it began?



m0zie_1756: first audiovisual copy



<https://www.thomann.de/blog/en/was-mozart-a-music-pirate/>
https://en.wikipedia.org/wiki/Wolfgang_Amadeus_Mozart
[https://en.wikipedia.org/wiki/Miserere_\(Allegri\)](https://en.wikipedia.org/wiki/Miserere_(Allegri))

**Audio piracy came with domestic tape recorders...
(create vinyls was almost impossible due to costs)
New technologies implied better codification: less space**



https://en.wikipedia.org/wiki/Videocassette_recorder

https://en.wikipedia.org/wiki/Cassette_tape

<https://www.jstor.org/stable/23416211>

First piracy in video came with domestic video tape recorders.



<https://opentext.uoregon.edu/payforplay/chapter/chapter-37-consumer-sound-and-video-copying-devices-the-cassette-and-home-video-recorder-sony-vs-betamax/>

Internet: pattern repeats. First in Music



<https://thafcc.wordpress.com/2015/04/27/the-man-who-broke-the-music-business/>
<https://en.wikipedia.org/wiki/MP3>
<https://en.wikipedia.org/wiki/Napster>
<https://pitchfork.com/features/article/7689-the-social-history-of-the-mp3/?page=2>

Internet: pattern repeats. First in Music



iTunes

<https://thafcc.wordpress.com/2015/04/27/the-man-who-broke-the-music-business/>
<https://en.wikipedia.org/wiki/MP3>
<https://en.wikipedia.org/wiki/Napster>
<https://pitchfork.com/features/article/7689-the-social-history-of-the-mp3/?page=2>

... then in video: exactly the SAME pattern when new technologies and better internet speed arrived



<https://www.zdnet.com/article/divx-pirates-raid-hollywood/>

<https://nickyguides.digital-digest.com/piracy-info.htm>

https://en.wikipedia.org/wiki/Kim_Dotcom

<https://en.wikipedia.org/wiki/BitTorrent>

... then in video: exactly the SAME pattern when new technologies and better internet speed arrived



NETFLIX

<https://www.zdnet.com/article/divx-pirates-raid-hollywood/>

<https://nickyguides.digital-digest.com/piracy-info.htm>

https://en.wikipedia.org/wiki/Kim_Dotcom

<https://en.wikipedia.org/wiki/BitTorrent>

First illegal streams came with Kodi and Acestream (P2P technology)



[https://en.wikipedia.org/wiki/Kodi_\(software\)](https://en.wikipedia.org/wiki/Kodi_(software))

https://en.wikipedia.org/wiki/Ace_Stream

How is it fight by the industry?



Hardware solutions are not useful



<https://www.immuniweb.com/blog/europe-largest-pirate-iptv-operation-disrupted-in-netherlands.html>

https://www.alibaba.com/pla/2023-Europe-6-Lines-Cccam-Cline_160688271255.html?mark=good&_at=upf&pla&searchText=satellite+tv+receivers&produc

DRM is a bit useful, but gives a lot of problems:

- If it gets hacked, you can not control anything
- More steps in API calls and/or video processing
 - More latency
 - More costs



https://en.wikipedia.org/wiki/Digital_rights_management

<https://www.brightcove.com/ko/resources/blog/dealing-drm-understanding-drm-and-how-produce-protected-content/>

<https://www.streamingmedia.com/Articles/ReadArticle.aspx?ArticleID=112279>

Industry fights the illegal with the illegal and/or legal resources: Rojadirecta case study



The screenshot shows the Rojadirecta website interface. At the top, there is a red banner with a cartoon character holding a red card and the text "ROJADIRECTA" in large white letters. Below the banner, there is a navigation menu with links: Forums :: Download sport events :: Highlights :: Beginner :: Tutorials :: Download software :: Español. The main content area is titled "Today on Internet TV" and displays a list of sports events. A search bar is visible above the list, with "Real Madrid vs. Barcelona" entered. The list includes various sports events with times and names of participants.

Time	Event
08:00	Tennis Barty, Ashleigh - Peguera, Jessica
09:53	Tennis Monfils, Gael - Berrettini, Matteo
14:30	Handball Poland - Spain
15:15	Others Prokhorov, Andrey - Lbov, Yuriy Vyacheslavovich
15:15	Others Morozov, Sergey - Slashchilin, Alexey
15:32	Tennis Sheinin, Bayley - Tchakarova, Eleonore
15:47	Tennis Villanueva, Gonzalo - Kolar, Zdenek
15:48	Tennis Forejtek, J/Vrbensky, M - Bemelmans, R/Eysseric, J
16:00	Tennis Corse, Joseph - Ventre, Alessandro-Damiano
16:00	Volleyball Ziraat Bankasi Ankara - Projekt Warszawa
16:00	Basketball Panathinaikos - Zalgiris Kaunas
16:00	Soccer Senegal - Cape Verde Islands
16:15	Tennis Mitchell Lee - Hovhannisyann, Mousheg

<https://www.derechos.org/nizkor/espana/doc/rojadirecta.html>

<https://todotvnews.com/tribunal-supremo-declara-responsable-al-dueno-de-roja-directa-de-vulnerar-los-derechos-de-pi-del-futbol-espanol/>

<https://plazadeportiva.com/tribunal-supremo-declara-responsable-al-dueno-de-roja-directa-aclara-que-no-ha-sido-condenado-por-ningun-delito>

Industry fights the illegal with the illegal and/or legal resources: LaLiga case study

APPS | US & WORLD | TECH

LaLiga's app listened in on fans to catch bars illegally streaming soccer

It used a Shazam-like technology to identify soccer games

By [Dami Lee](#) | [@dami_lee](#) | Jun 12, 2019, 2:14pm EDT

f |  |  SHARE



GOOD DEALS


The best Father's Day deals that you can buy last minute

<https://www.independent.co.uk/sport/football/european/la-liga-fine-mobile-app-hacking-microphones-illegal-streaming-privacy-a8954876.html>

Recent news: ISP will give user's IP to content owners in Spain

SUNDAY, MARCH 17, 2024 REGISTER LOGIN SUBSCRIBE

The OLIVE PRESS Spain's leading expat newspaper launched 2006


HOME REGIONAL  OP DEUTSCH OTHER NEWS PROPERTY TRAVEL NATIONAL SPORT AD

Home > Other News > National News > Home viewers of pirated La Liga soccer matches can now be fined...

CATALUNYA BARCELONA OTHER NEWS CRIME & LAW LEAD NATIONAL NEWS

HOME VIEWERS OF PIRATED LA LIGA SOCCER MATCHES CAN NOW BE FINED INDIVIDUALLY IN SPAIN

Internet providers will have to supply details of illegal viewers to La Liga who will launch prosecutions

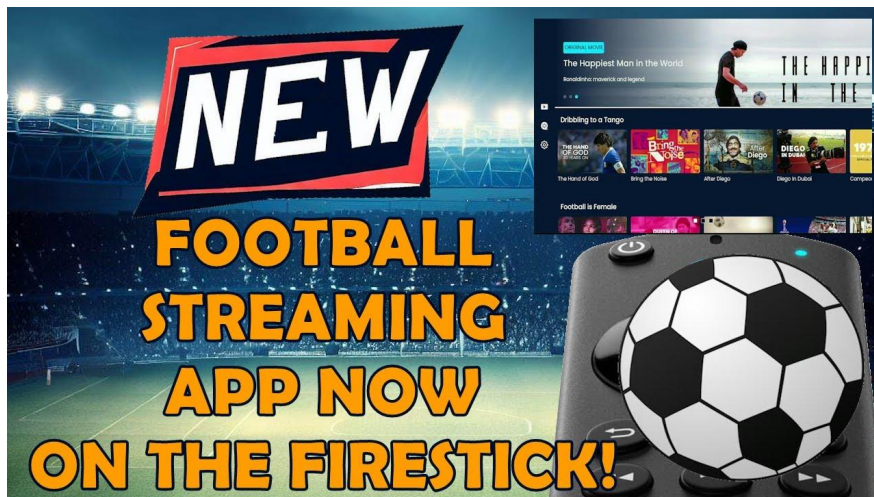
By Alex Trelinski - 8 Mar, 2024 @ 16:30  0

<https://www.theolivepress.es/spain-news/2024/03/08/home-tv-viewers-of-pirated-la-liga-soccer-matches-can-now-be-fined-individually-in-spain/>

Current status of piracy



Smartphone & OTT Apps, illegal IPTV lists, chinese IPTV decoders



Nobody understands about rights

Companies and content owners aren't transparent about money distribution, benefit and loss



Websites with links



[Buscar Torrents](#) | [Explorar Torrents](#) | [Torrents Recientes](#) | [Shows de TV](#) | [Musica](#) | [Top 100](#)

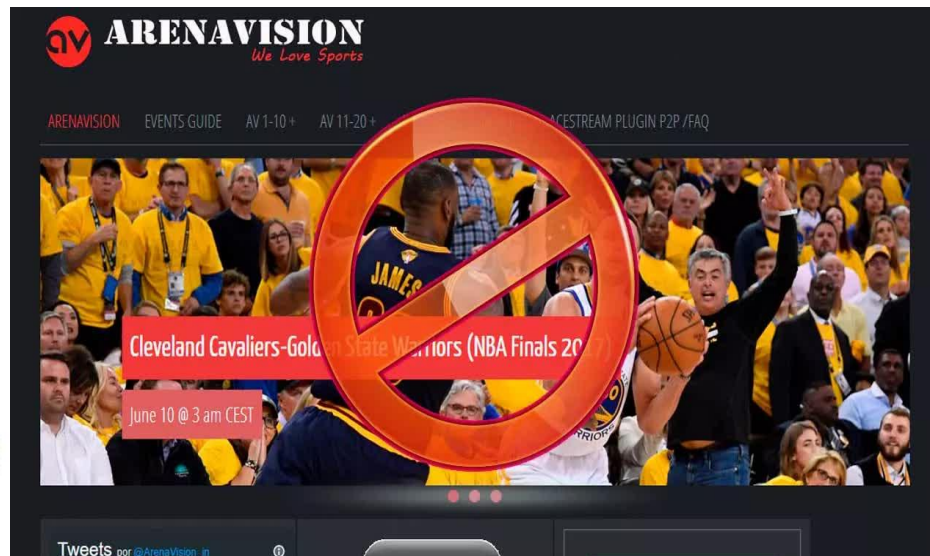
Búsqueda Pirata

[Preferencias](#)
[Idiomas](#)

Todos Todo Video Aplicaciones Juegos Porno Otros

Búsqueda Pirata

Voy a tener suerte



Future of piracy



Universitat
Pompeu Fabra
Barcelona



Piracy will keep existing

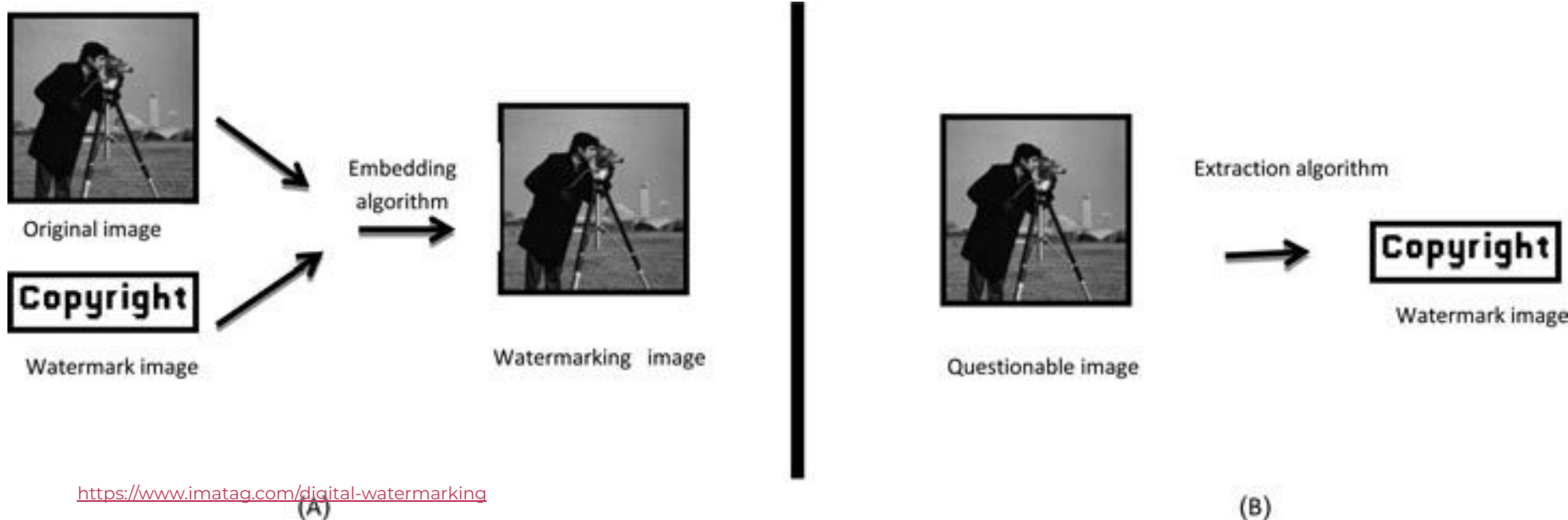


Ways to fight it in the future?



Present & Future: Watermarking techniques are still very useful

Maybe in the future we can put invisible watermarks individually in streams



Hardware solutions are not useful. If you get hacked, you can't fix

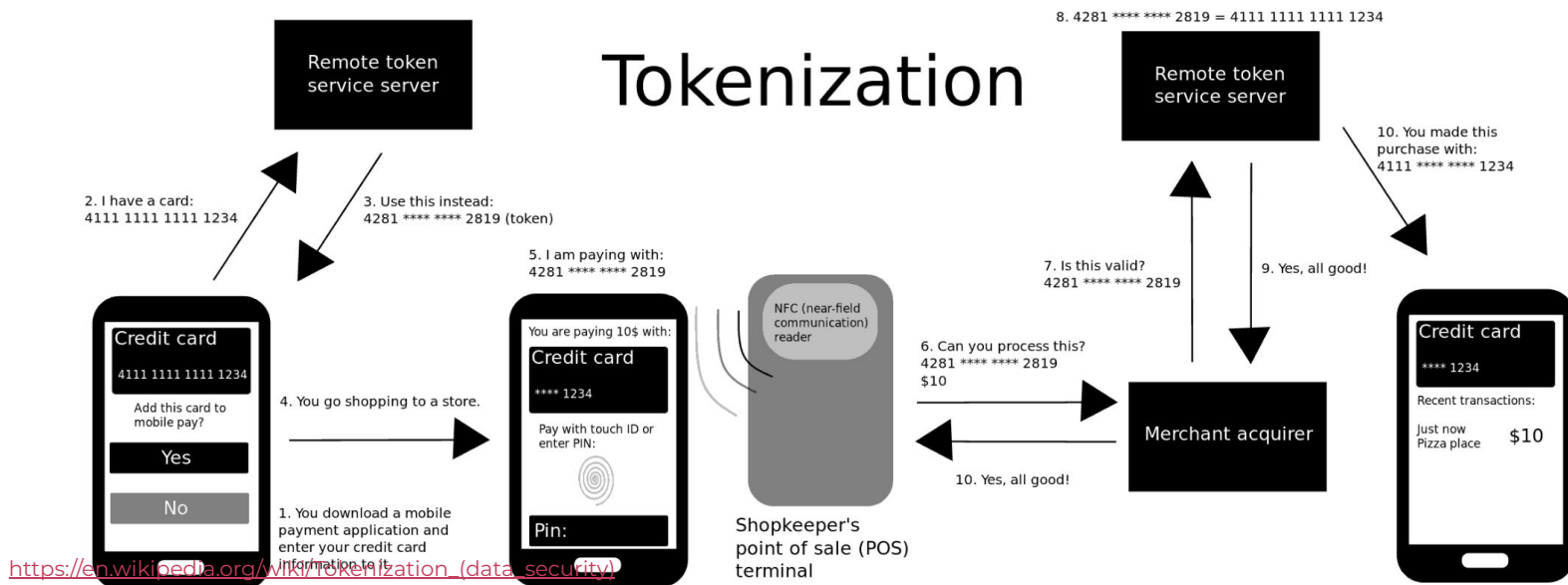


<https://www.immuniweb.com/blog/europe-largest-pirate-iptv-operation-dismantled-in-netherlands.html>

https://www.alibaba.com/pla/2023-Europe-6-Lines-Cccam-Cline_1600882712155.html?mark=google_shopping&biz=pla&searchText=satellite+tv+receivers&product

Software solutions are (more or less) useful, but not unbreakable

This adds steps on the video pipeline (pros & cons)



Creative solutions / Crazy ideas

¿new video player?

¿tokens inside the video file?

¿more continuous token review?

¿CMCD kind-of idea, of adding path/token in manifest's URLs?

¿Extra checks in WebRTC servers?

Troll option: give bad manifests (HLS and DASH) or repeat chunks (WebRTC)

 THEGAMER 🔔 Newsletter Log

Trending Final Fantasy 7 Rebirth • Helldivers 2 • Unicorn Overlord • Infinite Craft • Disney Lorcana • Roblox • Events • Release Dates

Home > Lists

20 Games That Trolled Players For Pirating (And 10 That Ban Them Completely)

When the internet allows people to steal copies of video games, developers and studios have to fight back.

BY EMILY COATES PUBLISHED JUL 27, 2018



Troll option: give bad manifests (HLS and DASH) or repeat chunks (WebRTC)



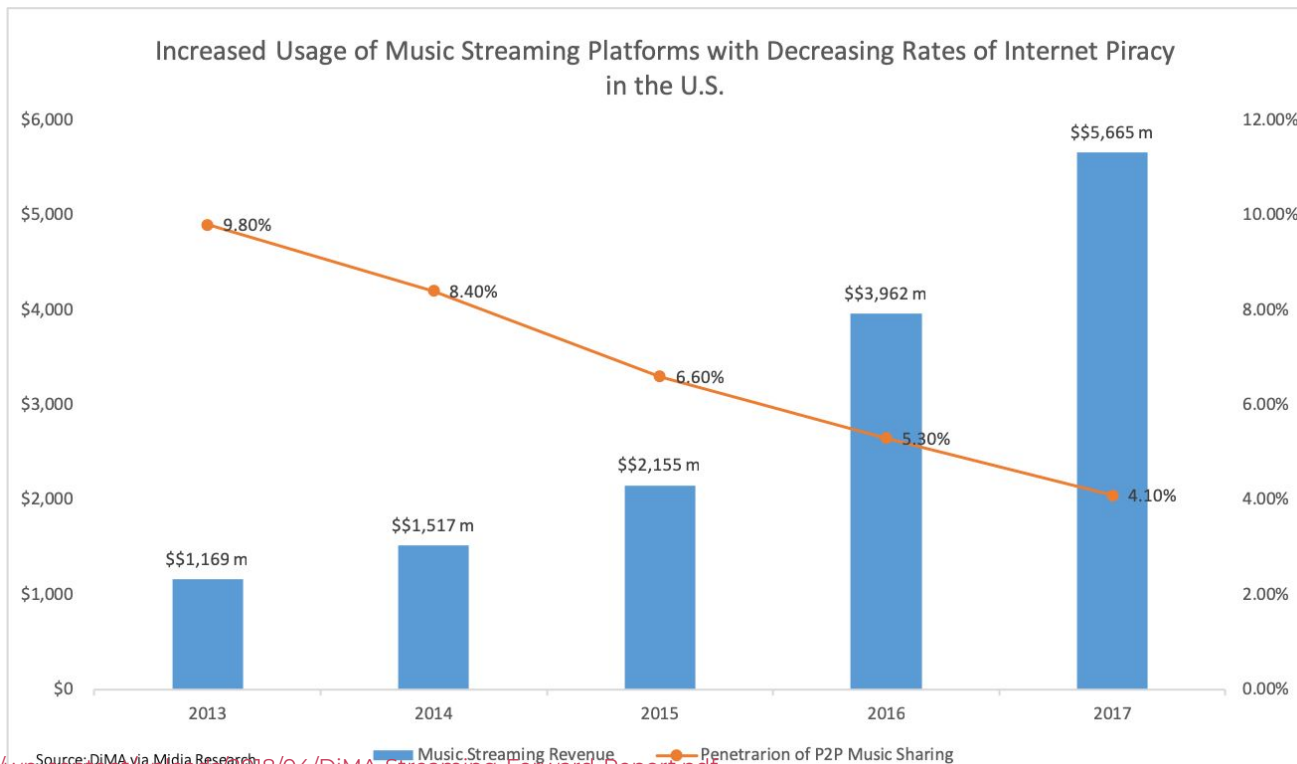
Possible solutions?



Repressive solutions seem not to work...

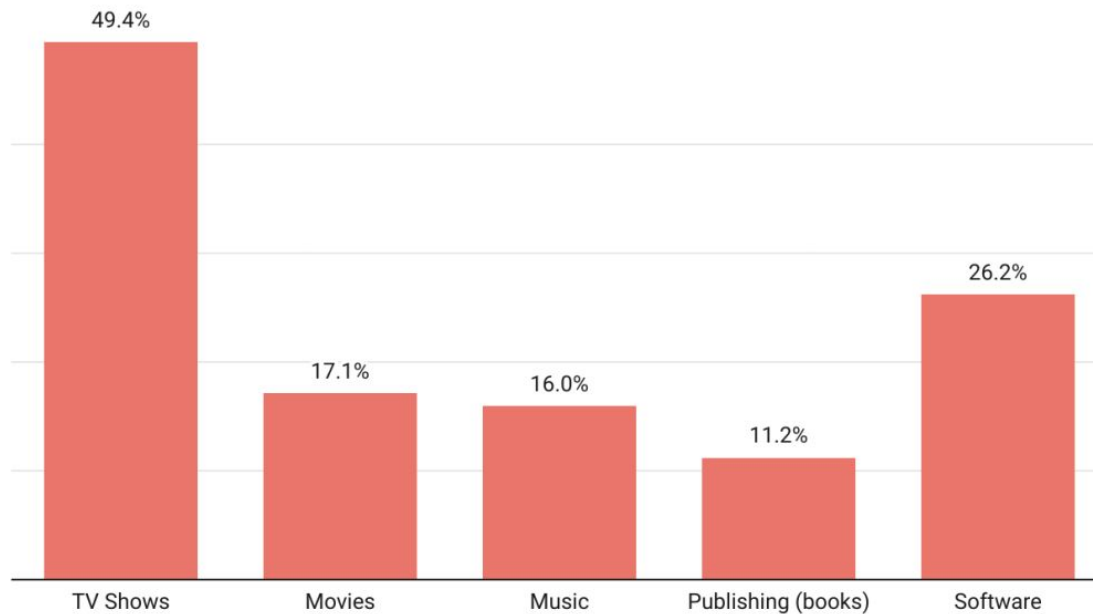


...but education & good price, indeed



...but education & good price, indeed

Most Pirated Items on the Web



Source: Enterprise Apps Today

<https://dima.org/wp-content/uploads/2018/04/DiMA-Streaming-Forward-Report.pdf>

Pricing is important:

- Piracy represents people who do not want or who can not pay your product
- It's not you're losing money - you're losing POTENTIAL customers



wikiHow

More transparency on content owners



<https://the-media-leader.com/a-lack-of-media-transparency-is-hurting-brands-heres-what-they-can-do-about-it/>

Conclussion







In Loving Memory





Pirate this presentation!

Any questions?





Thanks

franciscojavier.brines@upf.edu

