

Protecting Creativity in the Online Era

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Content Piracy has never been so easy

Ubiquitous broadband amplifies the issue

Anyone can be a content pirate

- Capturing content is easy (digital copy, camcording or HDCP stripping)
- Distribution is easy: enabled by growing broadband penetration

Anyone can access pirated content

- No need for black-market boxes or smartcards

The problem of illegal content redistribution is already very serious and growing fast

The collage features several news articles related to content piracy:

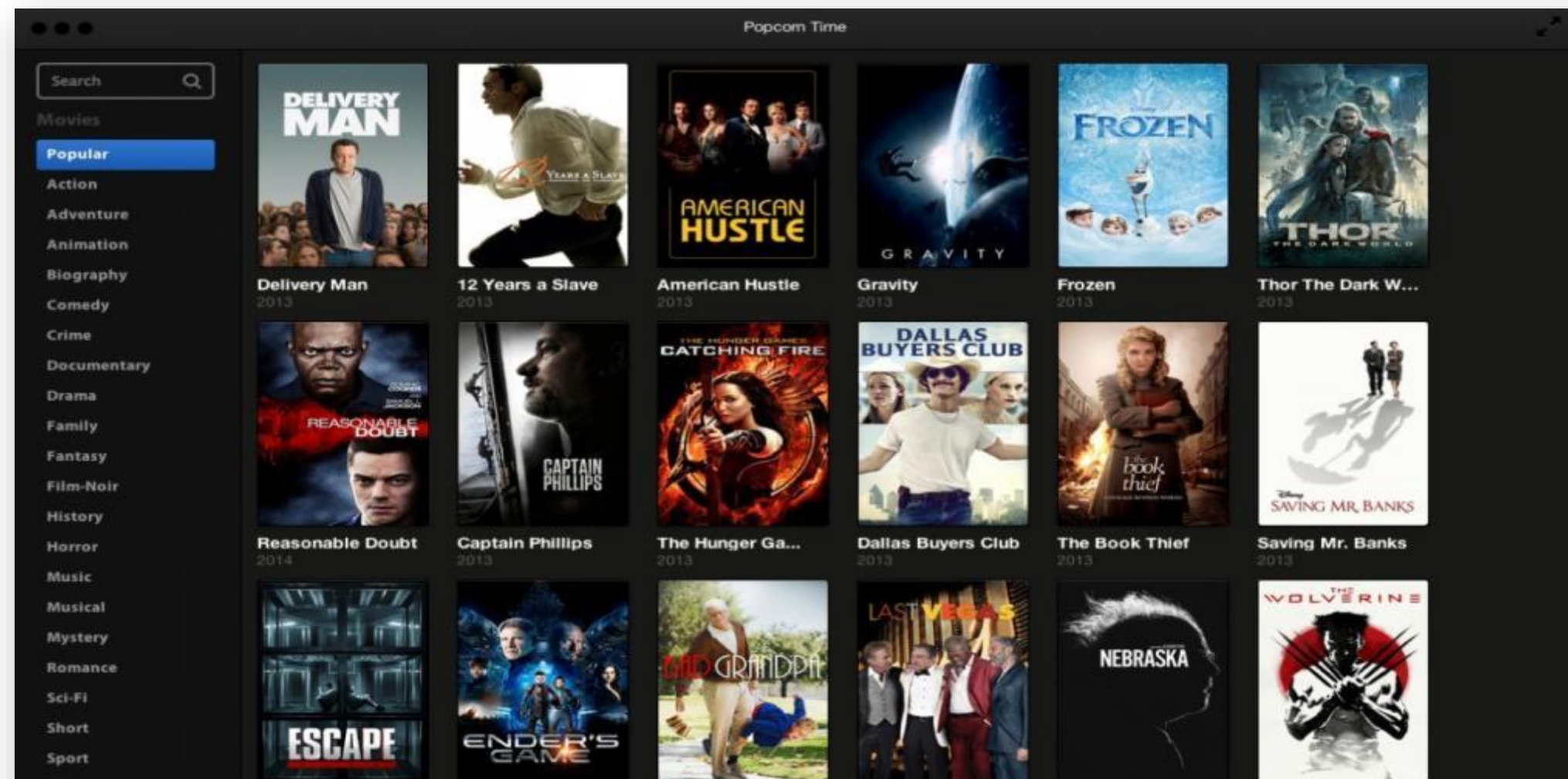
- Top Article:** *'Expendables 3' Leaks Online, Pirated Copy Downloaded 189,000 Times*. Includes a sub-headline: **LEAKED OSCAR MOVIE SCREENERS FLOOD TORRENT SITES**.
- Second Article:** *Mayweather-Pacquiao Fight Plagued by Piracy*. Includes a sub-headline: **Next Big Sony Hackers Leak: 'Chappie', 'Pixels' & 20+ Unreleased Films?**
- Third Article:** *'Game of Thrones' Leak Online, HBO Assesses Damage*. Includes a sub-headline: **Pirates Nab 'Minority Report,' 'Lucifer,' 'Blindspot,' 'Carmichael Show' Pilots Ahead**.
- Bottom Article:** *MPAA Targets MovieTube Websites in New Piracy Lawsuit*. Includes a sub-headline: **Despite efforts, UFC loses 'millions and millions' of dollars annually to piracy**.

Navigation and branding elements include: VARIETY Editions: U.S, SIGN IN, Google Custom Search, Subscribe Today!, FILM, TV, DIGITAL, CONTENDERS, VIDEO, DIRT, JOBS, MORE, HOME | DIGITAL | NEWS, THE BUSINESS, HOLLYWOOD, ESQ, INTERNATIONAL, SCREENRANT, SR EXCLUSIVES, MOVIE NEWS, TV NEWS, TRAILERS, REVIEWS, PODCASTS, VIDEO, THR, ESQ., POWER LAWYERS, POWER BUSINESS MANAGERS, SUBSCRIBE, and social media icons (Facebook, Twitter, YouTube, Instagram).

Content Piracy has never looked so great

Pirates match legitimate providers

- Pirate websites offer a high quality experience
 - Advanced UI
 - HD resolution
 - VOD and live
- Content can be shown on large screen displays
 - Via IPTV boxes, Kodi apps, Chromecast dongles, etc
- Not restricted by release windows or geo blocks
 - Content can be accessed even before release
 - Content can be delivered to any country
 - Content can be viewed on any device



Watermarking makes Content Piracy Traceable

CA and DRM are no longer sufficient

- Traditional content protection is still necessary: CA and DRM ensure that content is delivered only to authorized users
- However, CA and DRM do not prevent these users to illegally re-distribute content to millions of others
- By making content traceable to its source, forensic watermarking is an effective deterrent against illegal re-distribution



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Watermarking 101

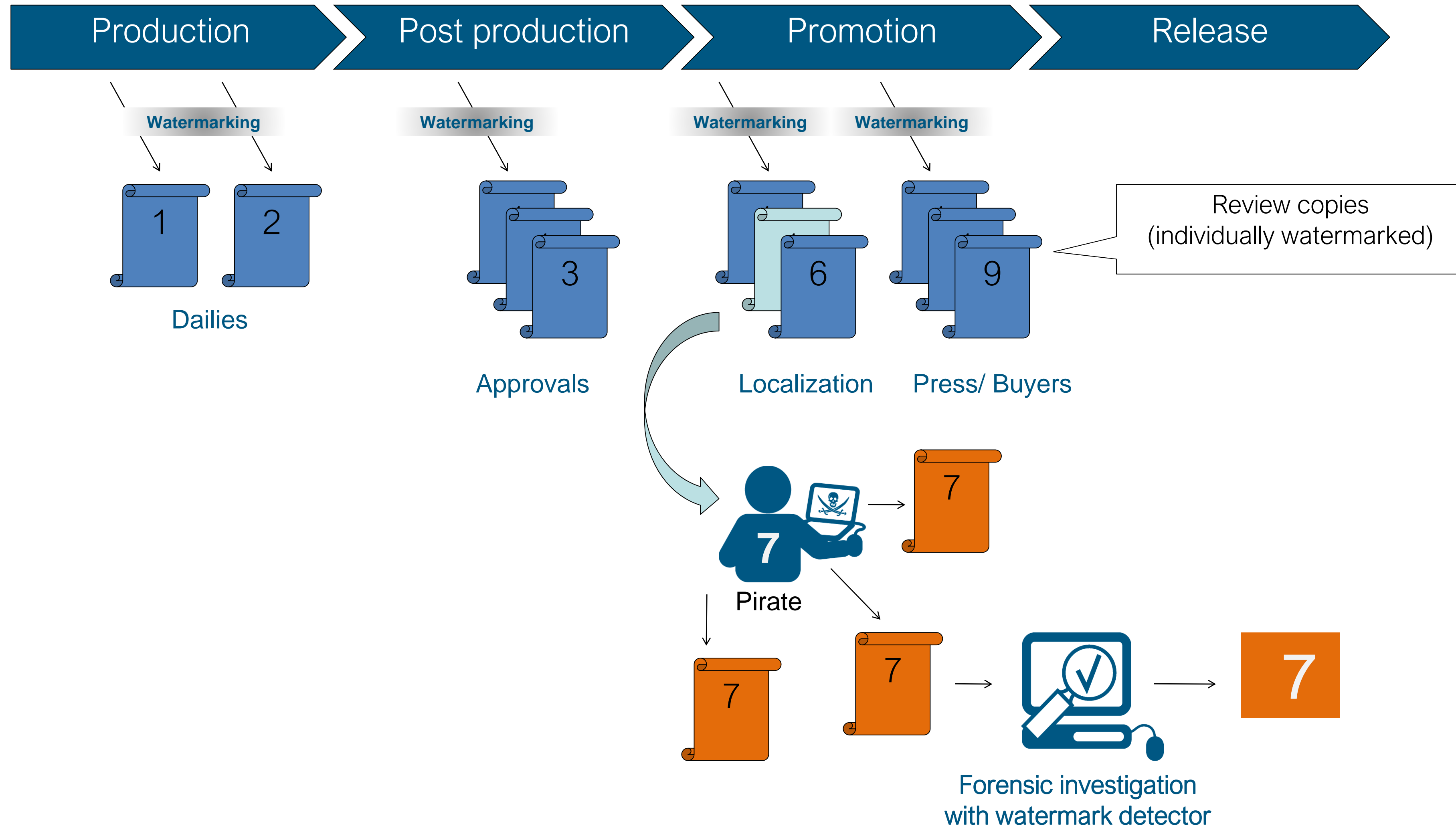
- ⇒ Watermarking involves the **embedding** of unique, imperceptible and inseparable information into the **video**
- ⇒ A watermark make each **content copy unique** and thereby enable tracking of its distribution

Key requirement for the watermark

- ⇒ Imperceptibility
does not impact quality viewing experience
- ⇒ Robustness
survives degradation of the content



Watermarking for Pre-Release





Watermarking for eScreeners

The transition from physical media

- Should be compatible with packaging and encryption processes and done on-the-fly
- Should be easily integrated with customers' workflow designed inhouse or using third party online video platforms
- Should be easy to deploy in cloud platforms



Watermarking for Digital Cinema

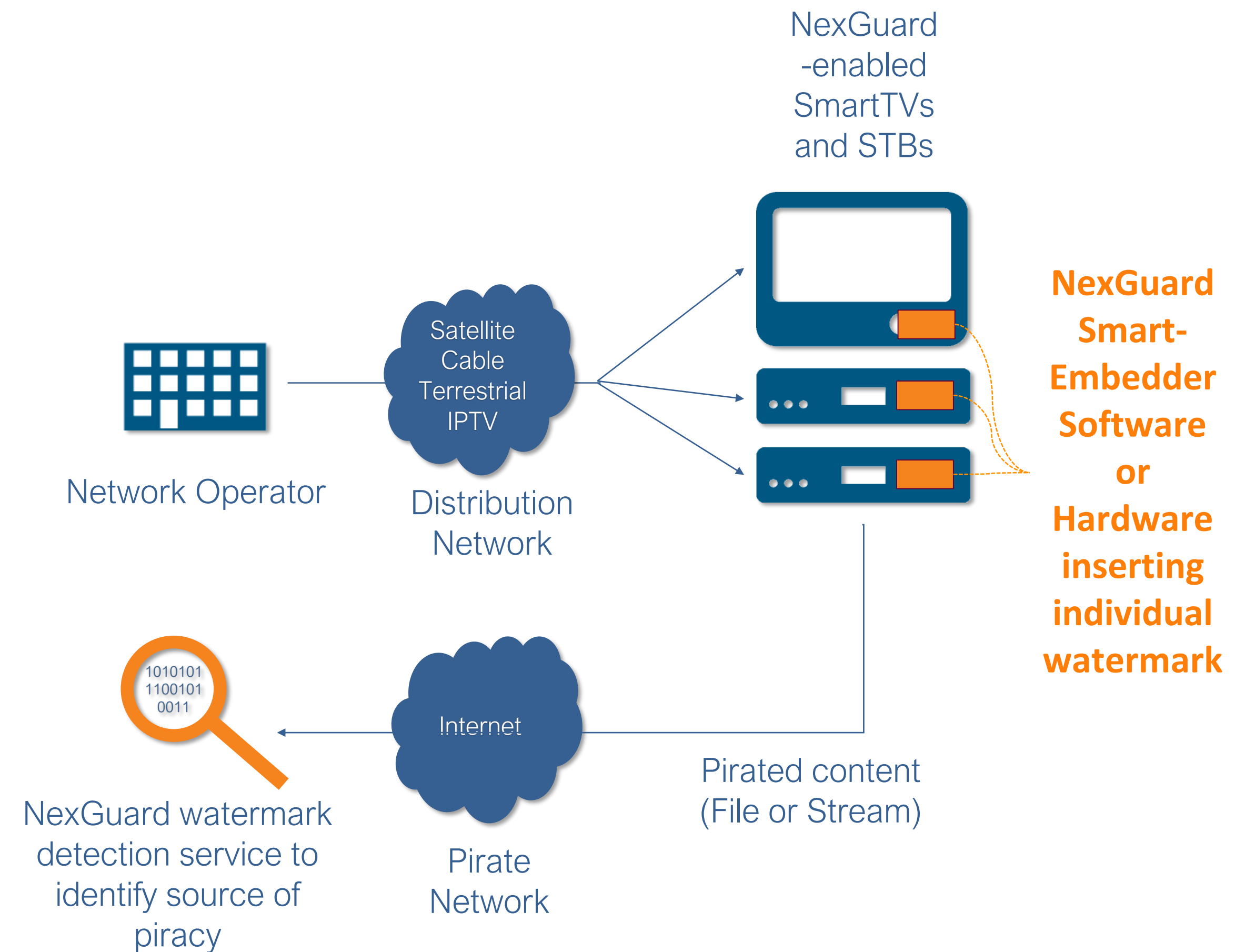
- DCI (Digital Cinema Initiative) has mandated the use of video & audio watermarking in servers and projectors
- The watermark is used to trace where and when camcordings were performed, aiding e.g. the FBI in piracy investigations
- Successful detections are done on a daily basis



Subscriber-level Watermarking For PayTV operators

Protecting premium sports & entertainment

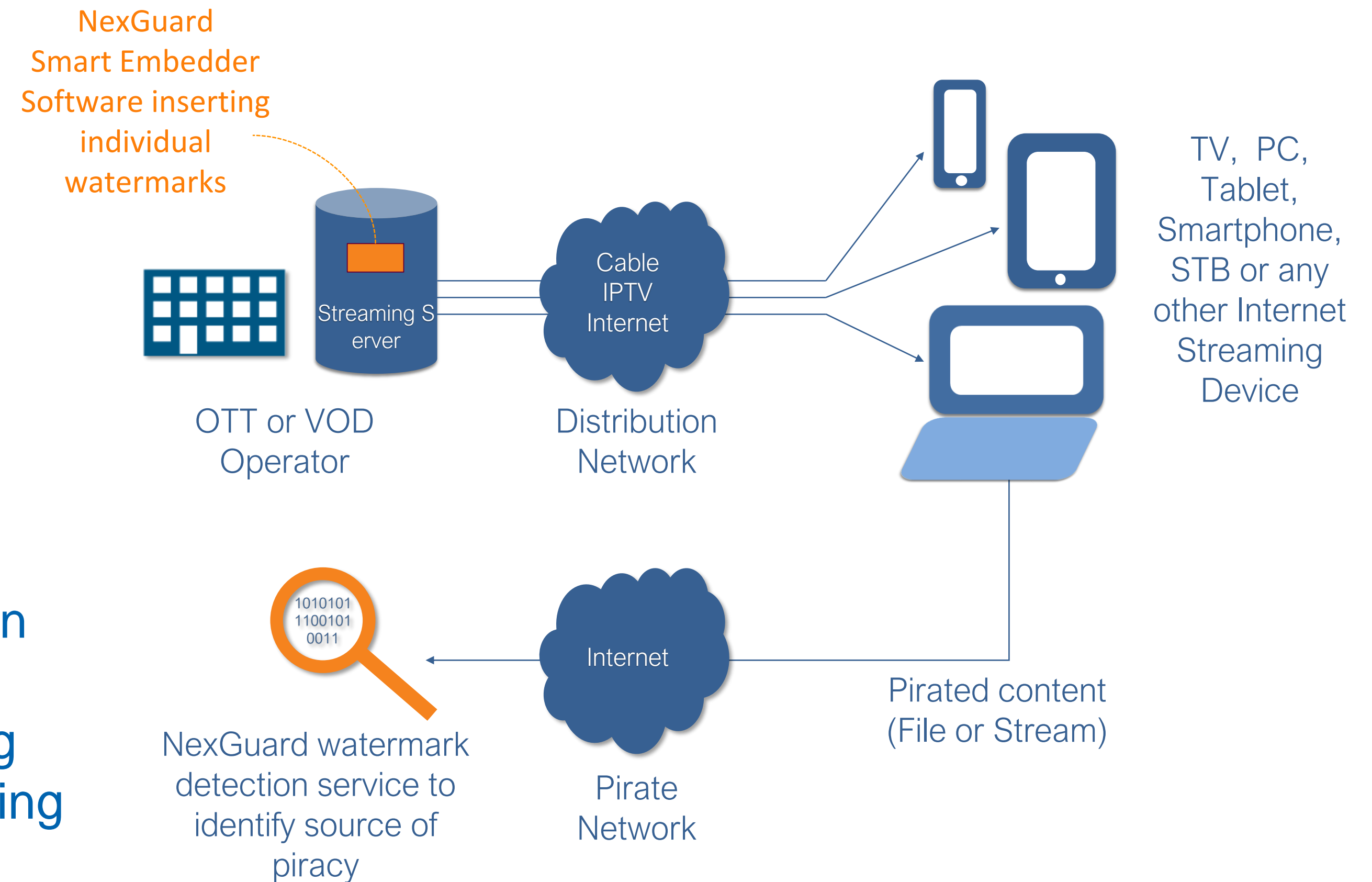
- Should be implemented client-side to support broadcast networks
- Watermark should be robust to camcord and analog/HDMI output capture
- Should support all classes and levels of legacy Set-Top Boxes via software
- Should be integrated in chipsets for ease of deployment to new Set Top Boxes



Subscriber-level Watermarking for OTT Streaming

For Streaming Video Providers

- Should uniquely mark each streaming session
- Watermark should be robust to camcord, screen scraping and any form of re-streaming
- Should support On Demand and Live streaming
- Should be compatible with any ABR format
- Should support UHD/HDR
- Should support any DRM system
- Should work with any CDN





Questions?