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DENVER, CO  
OCTOBER 17-20



YOU'RE STEALING MY BUSINESS!



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# Automated Detection for Theft of OTT Service and Content

Lucas Catranis  
Product Marketing Director  
Irdeto



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## Setting the Scene

- Online Piracy has traditionally been sourced from legitimate set-top boxes using HDCP bypass attacks for HD and analog outputs without security on SD
- Online redistribution is changing, theft of content from OTT platforms is rising rapidly. Programs such as VLC allow paying subscribers to easily capture content from browsers and applications and instantly re-stream from their desktop.
- Theft of OTT credentials further allows pirates to obfuscate the source of OTT content theft.
- Real-time image recognition plugins allow pirates to detect and obfuscate overt subscriber identifiers on both STB's and OTT content sources.
- Live streaming is the most complex form of online piracy, piracy of VOD content is far simpler and allows pirates more time to sterilize unique content identifiers.



Whose content is being pirated?

## The short answer is...

Anyone with valuable content, is or has been pirated.

- Live Sports
  - Live Streaming Websites
  - Kodi Plugins
  - Desktop, Mobile and Smart TV Applications
  - Paid Pirate ISD's
  - Peer 2 Peer Streaming
  - Social Media Live Platforms (What happens when your bug is next to 4,000,000 viewers on a pirated stream?)
- Studio Movies & TV Series
  - Video Locker Websites
  - Peer 2 Peer Networks
  - Paid ISD's
  - Kodi Plugins
  - Pirate VOD Applications

## How Can you tell if Your OTT platform is leaking content?

### Cyber Hygiene

- Is your platform secure ( can hackers steal content directly from your CDN/edge devices?)
- Password Policy
- Concurrent Stream Management
- HDCP Playback rules

### Content Analysis

- Where and how to find stolen content (Do you know where to look?)
- How to identify content that has originated from your OTT Platform.

### What's the impact to your Brand if you are leaking content?

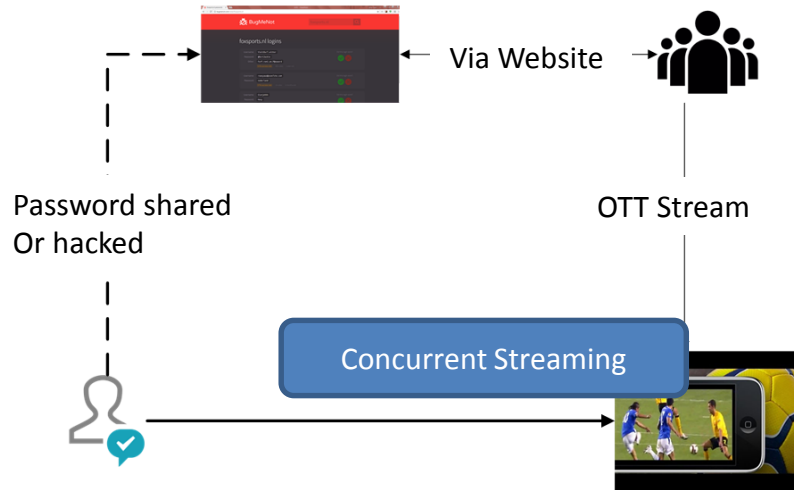
- Reputational Damage
- Liability

## Typical Platform Ripping Methods (HDCP Rip)



- Purchase HDCP 2.2 bypass from Amazon & connect to HDMI interface
- Restream output to PC Capture card for conversion

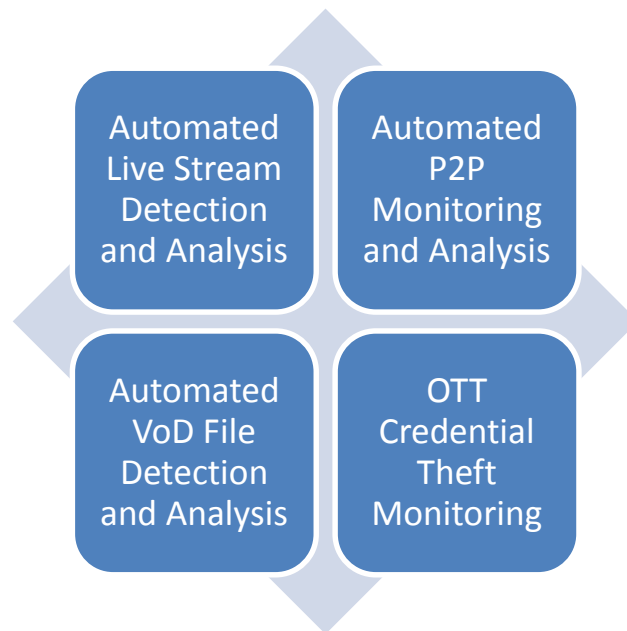
## Typical Platform Ripping Methods (Password Sharing)



- OTT credentials are shared or hacked via special purpose websites
- Simultaneous streams to content
  - Concurrent Streaming is a common deterrent



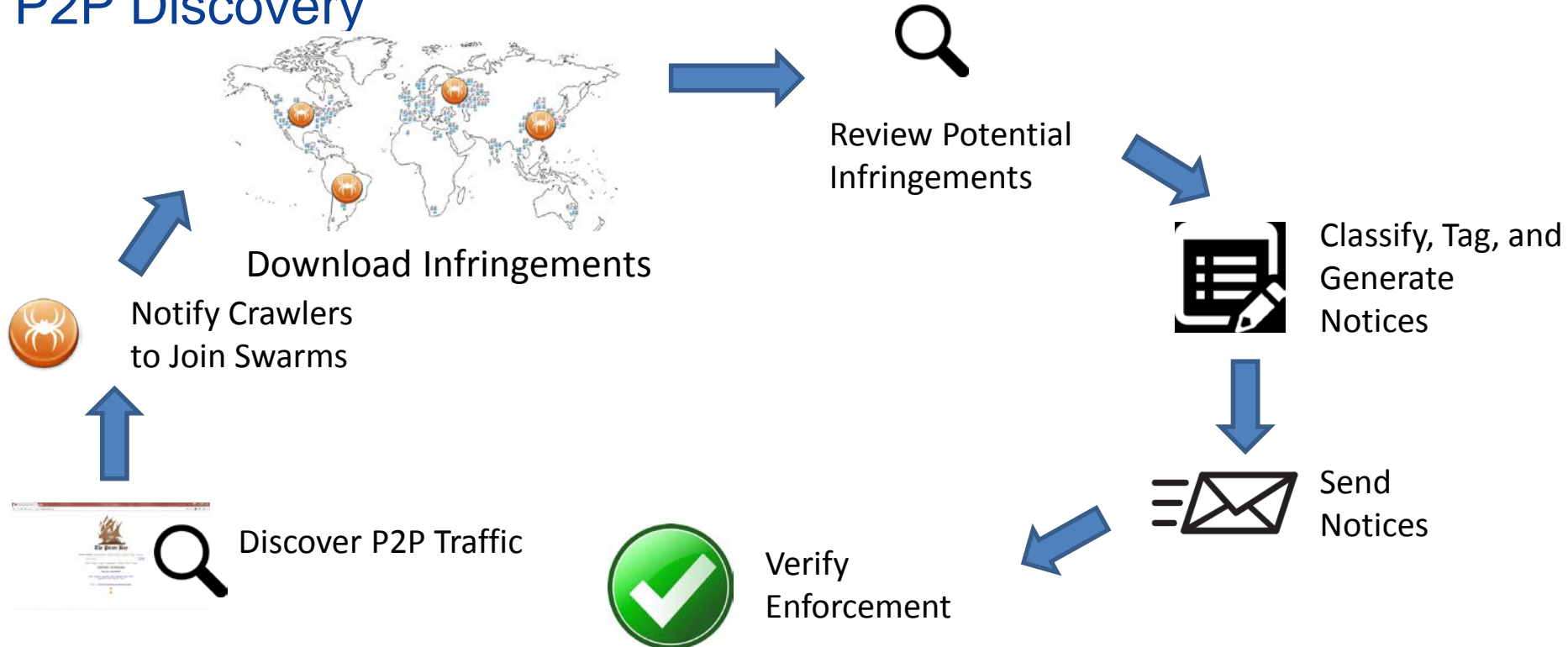
## How We Find and Identify Stolen Content



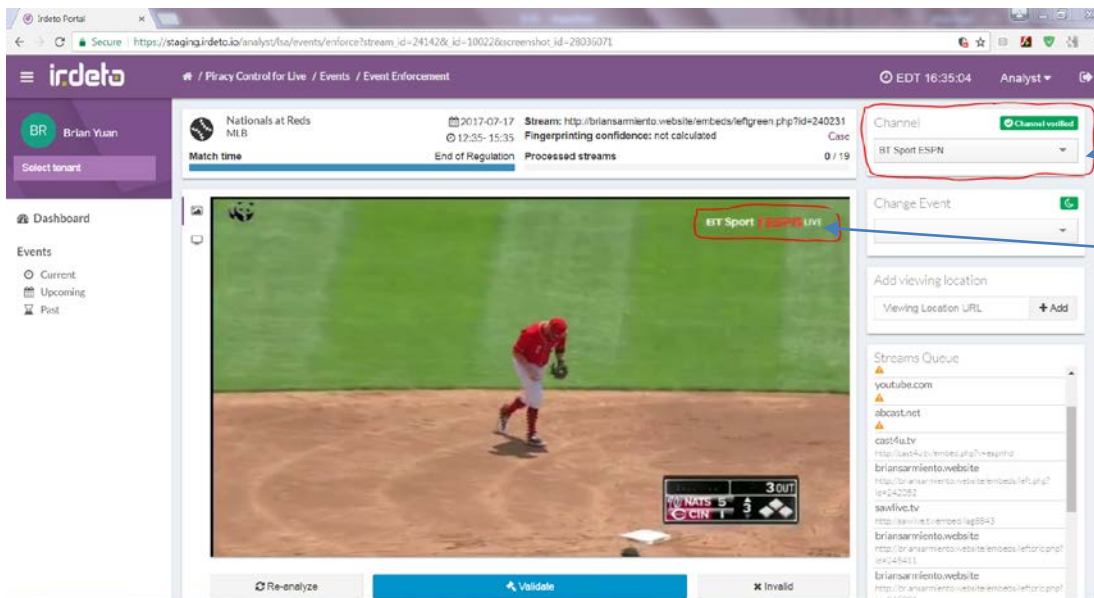
## Streaming/Cyberlocker Content Discovery



## P2P Discovery



## Key Technologies – Automatic Tagging via Machine Learning



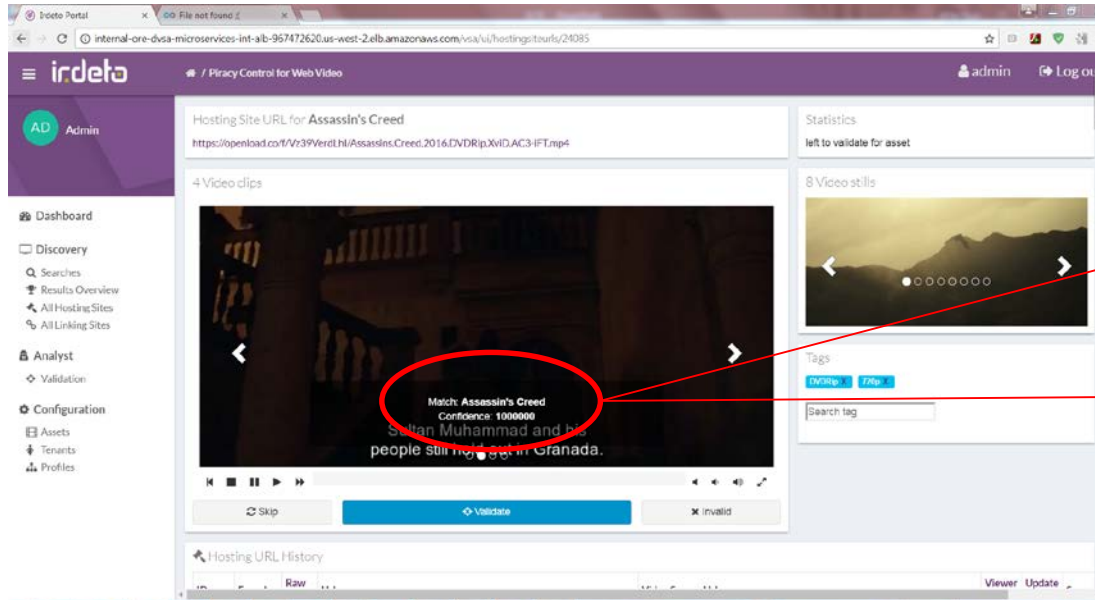
“Acuity Logo Match”

Screenshot from pirate stream

Machine Learning for automatic broadcast identification

- Screenshots with logo samples are given to the system to “train” for logo identification

## Key Technologies – Video Fingerprinting & Watermark Detection



Video fingerprinting  
automated sample &  
validation

Automated video  
capture for WM  
detection

- Video fingerprinting for automated content ID & episode tagging
- Watermark detection for source detection and BI

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**THANK YOU!**

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lucas.catranis@irdeto.com



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