THE LANDSCAPE FROM CREATION TO CONSUMER

- Today's video workflows continue to evolve, becoming more complex and more distributed with shorter times to market.
- Major content producers, create digital video content for streaming and downloads at an alarming rate.

- We see an explosion of devices where users want to consume streaming media and downloads.
- There are literally thousands of different playback platforms on which users want premium content.

- Numerous file formats, codecs, encryption standards, CDMs, encryption APIs and hardware DRM specs exist.
- Studios and OTT operators must preserve the value of their premium content around the world every second of the day.

- **To succeed, studios and OTT operators must change their DRM paradigm.**
- **Lifecycle DRM closes the gaps between studios and consumers.**

KEYOS MULTI-DRM OTT PRODUCTS

The KeyOS™ MultiKey™ Service is powered by Microsoft PlayReady, Google Widevine Modular, and Apple FairPlay DRM. Including support for HLS, MPEG-DASH and Microsoft Smooth Streaming. By supporting adaptive streaming technologies MultiKey enables smooth playback of media to clients via HTTP.

The KeyOS MultiPlay™ SDKs support all of the popular consumer playback platforms with a feature rich player and Multi-DRM support. Using conventional development platforms, the SDKs are integrated into our clients' premium apps for Apple iTunes and Google Play and utilized during the content playback process.

The KeyOS MultiKey™ Server enables in-network, on-premise and cloud, support for delivering multi-DRM license keys to a broad array of popular platforms and devices using widely-supported commercial DRMs. The KeyOS MultiKey Server can be provided as a Docker container or AMI for AWS cloud computing for global deployments.

BuyDRM's KeyOS MultiScreener™ platform provides every aspect of Screeners. Digital Dailies, Marketing, PR and sell-through for premium video content. Included are secure user access, multiple layers of access control, forensic and visual watermarking, just-in-time packaging streaming, rights policy creation, license key delivery services and secure content playback.

KEYOS ESP PARTNER PROGRAM | LAUNCH

TYPICAL STUDIO-TO-CONSUMER VIDEO WORKFLOW FOR B2B AND B2C

1. Content is filmed in a studio, on a soundstage, at a remote production site, or via remote contribution.

2. Content is ingested into a large-scale computing storage and editing platform which is either distributed or in the cloud.

3. Editors begin to arrange the content in a manner that is appropriate for the distribution channel or purpose.

4. During the editing phase, various digital dailies, executive reviews, and change collaborations occur across large groups, from all around the world.

5. The project is finalized and exported into a "digital glass master" mezzanine format.

6. Next, distribution partners get this mezzanine format, including derivatives encoded for streaming.

7. OTT Operates then publish the content to either an Origin server and JIT encrypt it on-the-fly as users make requests to watch it or pre-encrypt it.

8. CDNs or large hosting platforms store the content in distributed, networked storage platforms and cache it for streaming and/or downloads.

9. After the feature's theatrical or network release, it's later screened by voters for Academy Awards, the Director's Guild Awards, and similar organizations

10. This is done using digital screener platforms with DRM wrapped around visual and forensic watermarks embedded in the videos.

"THE GAME OF GAPS"

Premium Video Content Distribution Workflow

"End Game"
Gap

Gap   Gap   Gap

Studio → Distributor → CDN → End User → Bad Users
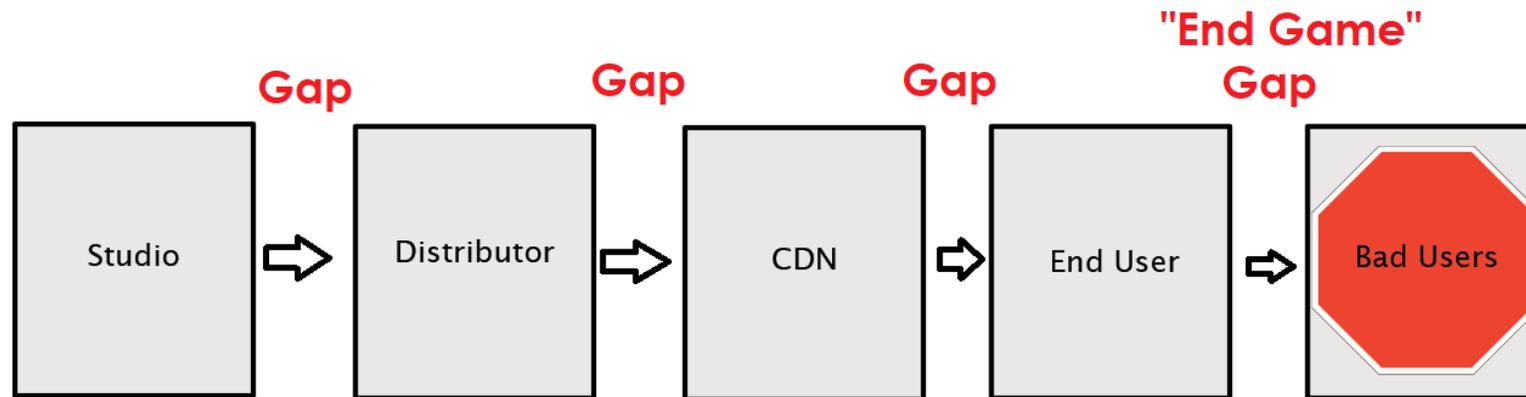
GAPS HARM PROFIT AND TRACTION IN THE MARKET

1. <u>Every step in the video workflow has a gap.</u>

2. Each gap enables the video to be copied, stolen, leaked or illegally re-distributed.

3. The net results of these gaps are significant including:

   - Reduced Profit
   - Loss of Market Share
   - Potentially Increased Licensing Costs
   - Increased Investigative and Legal Overhead
   - Loss of Content Licensor Confidence and/or Content License

WHY DRM?

"*...the U.S. Chamber of Commerce estimates that global online piracy costs the U.S. economy $29.2 billion in lost revenue every year. Streaming video piracy is by far the largest part of that, with over 80% of all piracy due to illegal streaming.*"

"Impacts of Digital Video Piracy on the U.S. Economy"
U.S. Chamber of Commerce Global Innovation Policy Center (GIPC)

WHAT PIRACY?

WHAT DOES **DIGITAL VIDEO PIRACY** COST THE U.S. ECONOMY?

$29.2 B lost annually due to digital video piracy

560,000 in job losses annually due to digital video piracy

126.7 B views of American-produced TV episodes pirated digitally each year

80% of digital video piracy is through streaming

SOURCE: Impacts of Digital Video Piracy on the U.S. Economy | U.S. Chamber of Commerce

ncta.com | @NCTAitv

WHY IS DRM A STUDIO-MANDATED TECHNOLOGY?

Full-spectrum content security is the driving force behind the studios' DRM mandate.

Licensees use consumer DRM to encrypt and protect the digital media assets licensed from studios.

A Holistic Security Approach Includes:

- Geo-Fencing
- Link Protection
- Streaming and Download Tokens
- Forensic and Visual Watermarking
- Simultaneous Streaming Session Blocking
- Digital Rights Management

Note: Forensic watermarks are embedded in the video while DRM is wrapped around it.

WHERE AND WHEN DO YOU IMPLEMENT LIFECYCLE DRM?

– During content editing, screening, digital dailies, award voter, or executive review, <u>implement DRM encryption at content ingest points and in the streaming and downloadable videos.</u>

– Delivering streaming or downloadable video on-the-fly (OTF) <u>requires that the OTF server has implemented DRM in accordance with your DRM vendor.</u> Ensure they are using at-rest file encryption on the in-the-clear content.

– With CDN delivery, <u>use an OTF origin server and encrypt the content as users make requests.</u> You should origin the content into your CDN(s) or hosting platform(s), which lowers your storage bill and <u>prevents your un-encrypted content from being exposed in the cloud or datacenter.</u>

– When possible, <u>package each piece of content or presentation sets with unique encryption keys.</u> You can use different keys for the audio and video segments and different keys for the SD, HD, and 4K presentation sets.

– With live content, <u>rotate the encryption keys regularly as often as possible</u> and necessary.

– For VOD content, <u>require license key renewal on a regular basis especially for downloadable content</u>, early-release or screener content.

– <u>The higher the value of the content, the more inclusive your Lifecycle DRM approach should be</u>.

BUYDRM CUSTOMERS
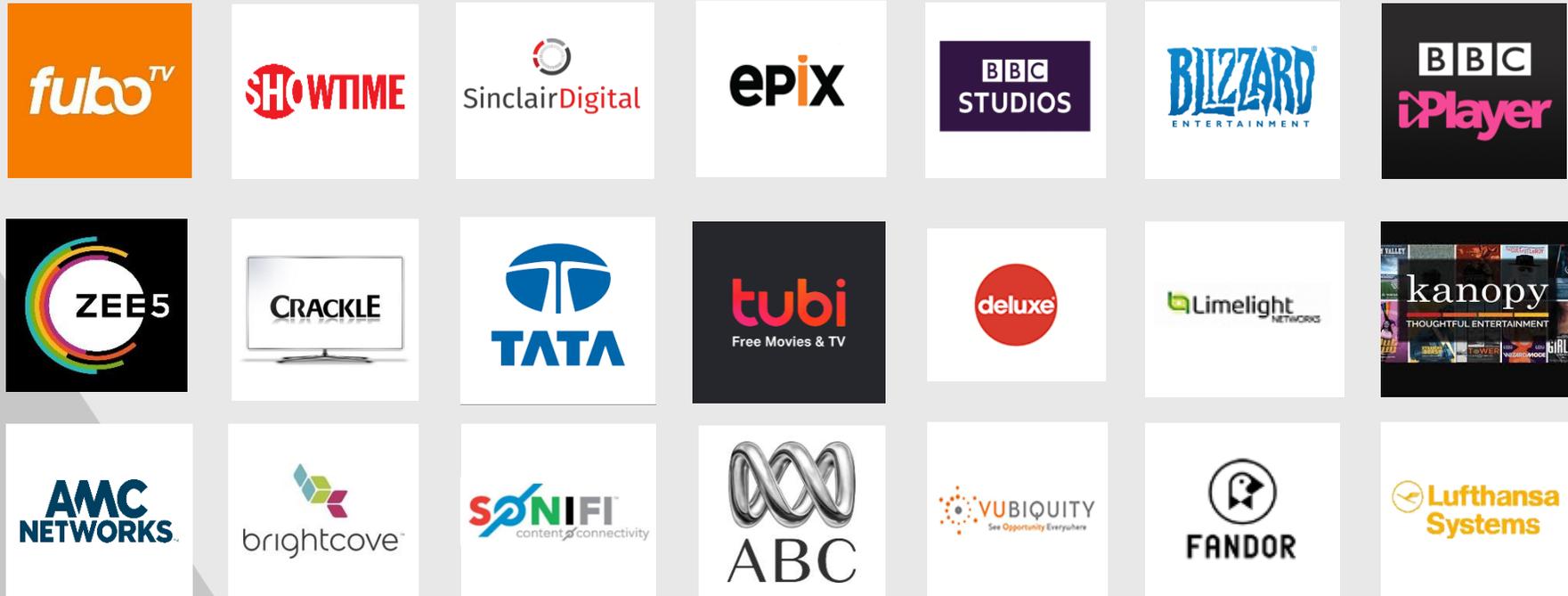
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