

The Guide to DRM.

Everything you need to know about Digital Rights Management, how it works and when it's required.



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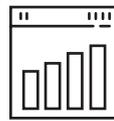
About SHIFT72

SHIFT72 provides an end-to-end online video platform for hosting, managing, monetizing and delivering video online. We also provide stunning OTT video channels & apps tailored to your brand.



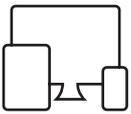
Quick to Market

Our online video platform is an out-of-the-box solution that gets you straight to market saving time and reducing cost so you can start growing your business.



High Performance

Manage your video workflows with speed, power, and efficiency and deliver content with best in class CDN options.



Reduced Complexity

We are a single vendor that provides all-in-one-solutions. We take care of all online video needs and help you deliver quality viewing experiences across all connected devices.



Studio Grade Security

Rest easy knowing your content is secure with our industry-leading built-in studio-grade digital rights management technology.

Trusted by leading Broadcast, Media and Entertainment brands for video on demand and live streaming services.



What is DRM?

Digital Rights Management (DRM) technology systems allow content providers to control how content is consumed. This control provides a means of preventing the unauthorized redistribution of digital media (piracy).

For distributors of premium studio-grade content, which are usually leading Broadcasters and Digital Media companies, studio grade DRM is required as outlined in most content licensing agreements. The main DRM technology systems that are used in the marketplace today are: Microsoft PlayReady, Google Widevine, and Apple Fairplay. These systems are all part of the UltraViolet standard of content protection - a guiding policy created by the Digital Entertainment Content Ecosystem (DECE), a union of 85 companies, including most Hollywood Studios.

Not all content requires DRM protection though; sometimes a simpler encryption will suffice.

How does it work?

A DRM workflow starts with content being encrypted and packaged in preparation for delivery. When a customer clicks play, the video player requests a key to access the content from a license server. The server determines whether the video player and device are authorized, before giving a response containing a decryption key. When the authentication process is complete the player can decrypt the video and start playback for the customer. This all happens instantaneously.

To avoid integration costs and wasting time, choosing an out-of-the-box DRM solution from one provider is a much more practical option. This way you don't have to worry about configuring complex video technologies and the added costs that come with this. SHIFT72's online video platform and APIs come ready with DRM if you require. Content is encrypted by our Crystal Encoding ingestion system and our HTML5 video player, called Zen Player, is pre-configured to communicate with a variety of license servers and DRM providers to ensure valid decryption can occur.

DRM Workflow

Source

Input video files are uploaded or transferred to AWS S3 for source storage.

Encoding

The input video file is then packaged and encoded into adaptive bitrate streaming formats such as MPEG-DASH or HLS.

Encryption

During the encoding process, files are also encrypted with digital keys from the DRM provider.

Storage

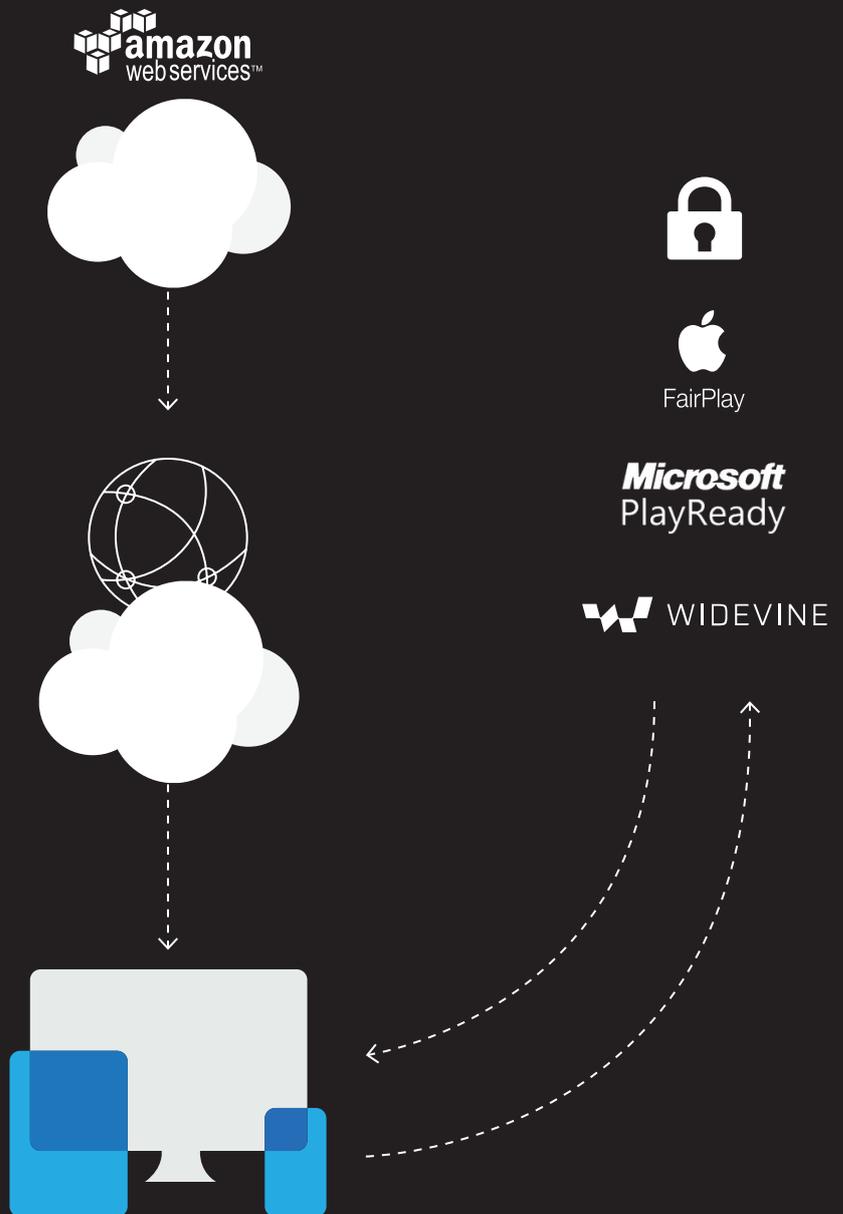
The video files are then transferred to a content delivery network for storage and delivery, usually Amazon CloudFront or Akamai.

Authentication

The video player will request authentication from the DRM server to ensure that the license is valid.

Playback

Once authenticated, the video player can unlock the video and allow for video playback.



The need for multiple DRM encryptions

Each platform and browser supports a single DRM encryption, and since not all consumers watch content on the same platform and browser, multiple DRM encryptions must be used in parallel to ensure full coverage across all screens. To aid in achieving full coverage, the MPEG Common Encryption (MPEG-CENC) standard was introduced, which makes using multiple DRM encryptions more efficient. It works by allowing multiple DRM encryptions (Microsoft Playready and Google Widevine) to be made on a single video and leaves the video player to decide which encryption must be activated based on the platform and/or browser being used. The exception to the MPEG-CENC standard are Apple devices and browsers, which instead require HLS packaging, Apple's version of HTTP stream packaging used instead of MPEG-DASH. Apple then uses Fairplay for DRM encryptions. What this means is that for full platform and browser coverage, content must be packaged using MPEG-DASH for MPEG-CENC encryptions and HLS for Apple Fairplay encryptions.

Not all content requires DRM

Sometimes an AES encryption is enough to protect content. AES encryptions are supported by both MPEG DASH and HLS and can be used across all browsers and native iOS applications. It's important to check firstly with the content owner if DRM is required. Knowing which content owners make up the Digital Entertainment Content Ecosystem (DECE) is also useful to know as these are the ones who always require full DRM to protect their content.

Playback & offline viewing

With multi-DRM encryptions in place, the video player automatically chooses the DRM encryption that must be activated based on the platform and/or browser being used. In the case of downloading content for offline viewing, as long as the player is native to the DRM system, then decryption and playback can occur. Since SHIFT72's online video platform, including player, is fully configured for DRM, offline viewing is possible and ensures content licensing requirements are intact.

Leading DRM systems

There are three DRM systems that together achieve extensive platform and browser coverage: Microsoft Playready, Google Widevine, and Apple Fairplay. Other DRM systems exist, such as Adobe PrimeTime, but these systems don't currently add to the coverage achieved from the leading three DRM systems.



Microsoft PlayReady

Microsoft introduced PlayReady in 2008. It's one of the leading DRM systems on the market. They provide a standard set of tools which for integrating PlayReady which decreased development time and complexity.



Google Widevine

Google acquired Widevine's DRM technology in 2010, a move that bolstered Google's video business and connected them with premium content distributors. SHIFT72 had a role to play in the smooth introduction of Widevine, as we helped ensure secure playback on Firefox Browsers by fixing bug issues during early adoption.



FairPlay

Apple Fairplay

Fairplay was initially designed by Veridisc, but was adopted by Apple to initially securing audio files in iTunes. It has now been adapted for video as well. Unlike PlayReady and Widevine, Fairplay involves setting up a Key Security Module (KSM) inside an existing key server infrastructure. Every time a file of content is encrypted a key is created and stored in a key database.

Supported devices & browsers

Google Widevine	Apple FairPlay	Microsoft PlayReady
    	  	        

Conclusion

To achieve acceptable device coverage - and broad delivery of premium content to viewers - you will need to use multiple DRM systems. To avoid integration costs and wasting time, choosing an out-of-the-box DRM solution from one provider is a much more practical option. This way you don't have to worry about configuring complex video technologies and the added costs that come with this.

SHIFT72's Crystal Encoding includes multiple DRM encryptions (Google Widevine, Microsoft PlayReady and Apple Fairplay) that works in union with SHIFT72's Zen Player to achieve secure playback with no plug-ins required. Both Crystal Encoding and Zen Player are components of SHIFT72's online video platform, but can also be licensed out separately for content ingestion and delivery.

Trusted by leading entertainment brands



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