Enhancing Digital Rights Management By Using IP Geolocation Database and Feeds

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As online streaming service providers strive to meet the demand for more digital content in the form of movies, music, books, and software, they also face a significant challenge to remain profitable — copyright protection.

In 2017, Statista found a total of 300 billion visits to media piracy sites, approximately 36% of which was for TV series and the rest for film and music. Pirates duplicate copyrighted content and distribute it at lower prices or even for free. In most cases, the pirates earn from pay-per-view streaming and pay-per-click (PPC) advertising.

Media pirates earn millions of dollars, while studios and online streaming providers lose US $6.1 billion a year. Authors and book publishers, meanwhile, are losing US $300 million a year due to e-book piracy.

To protect their content from abuse and ultimately their revenue, media publishers are now employing digital rights management (DRM) solutions. Let's explore what this method is and how using IP geolocation data can help make it more effective.

The Basics of DRM

What Is DRM?

Despite being far from perfect, DRM is an effective copyright protection technique. It effectively reduces the amount of copyrighted material that is stolen, copied, and illegally distributed on the Internet. It has two crucial components for protecting copyrighted content:

- **Encryption:** With the use of the Advanced Encryption Standard (AES) to encrypt files, DRM prohibits unauthorized users from accessing them by rendering them unreadable. Only users with the correct encryption keys can access the encrypted content.

- **Program integration:** The publisher doesn't give the encryption keys directly to users. Instead, they integrate said keys into programs that they developed. This way, even if users can access the content, the publisher can still restrict what they can do with it.

DRM does not only ensure that unauthorized users can't access protected content, but it also requires users to only access said content on authorized devices or programs.

Pros and Cons of DRM Use

DRM does more than encrypt copyrighted content. It also allows publishers to dictate what paying users can and can't do. For instance, even when a customer buys a DVD, a DRM program can be set so (s)he can only make a limited number of copies of the movie or entirely prohibit them from making any copy.

DRM can further limit the period during which users can access specific content. In this case, their access rights expire after a particular number of days. It can also prevent users from editing and saving a local copy of the content.

For publishers and online streaming providers, DRM is an effective way of protecting copyrighted content. However, specific challenges that are difficult to ignore also surround the technology.

First, there is the inevitable tradeoff between user experience (UX) and piracy prevention. When implemented, DRM restricts user access, resulting in a negative UX.

Some consumers are also resistant to DRM as they see another tradeoff, this time one between privacy and piracy. They are reluctant to the idea of giving up personal information just to access certain content.

IP Geolocation Integration

IP geolocation integration into DRM is a noninvasive method of filtering users based on their IP addresses before giving them access to content. Integration can be done in various ways. DRM users can feed IP geolocation data into their programs for counterchecks before providing access, for one thing. Another is by integrating a readily available IP geolocation API into the DRM solution quick IP address verification.

Regardless of how IP geolocation data is used, it enhances DRM since it doesn't require consumers to give out personal information before they can enjoy copyrighted content. Netflix is a staunch DRM user that takes copyright protection to another level by using an **IP geolocation database** to determine consumers' physical locations.

Aside from limiting access to content to paying subscribers, Netflix's DRM solution further filters content types according to its users' locations. As a result, the shows available for U.S. audiences are not the same ones that Asian viewers can access. Enhanced DRM through IP geolocation integration solves the previously mentioned challenges:

- Piracy prevention versus UX: it creates a location-based content library and, therefore, tailored UX.

- Piracy prevention versus privacy: it is noninvasive, allowing users to maintain their privacy.

How to Enhance DRM with IP Geolocation Database

Whois XML API offers an IP geolocation database that contains more than 30 million IPv4 and IPv6 records spanning 250 countries and covering 99.5% of all IP addresses used worldwide. Each record contains useful details such as those of the Internet service provider (ISP), country, time zone, city, and postal code.

The database is updated weekly to ensure accuracy and relevance, which are critical in DRM implementation. With IP geolocation-enhanced DRM, online streaming providers can:

- Restrict access to content based on the user's IP address
- Block peer-to-peer (P2P) site operators and other unwanted users from accessing the content
- Limit the number of times the content can be accessed based on users' IP addresses
- Block users who access the website anonymously

To sum up, IP geolocation-enhanced DRM does not only enforce copyright laws based on users' locations, but it can also weed out potential threats and protect content providers' websites from cyber attacks.