

Tearing Down the Wall of Digital Copyright Protection

Shôn Ellerton, January 21, 2020

Is YouTube's current model of copyright enforcement sustainable? Would widespread adoption of decentralised video platforms present a serious threat to copyrighted material?



I empathise with anyone who has felt the frustration of YouTube claiming a copyright on a video which they've uploaded, or worse, having it blocked. For example, I've uploaded many unlisted family videos using YouTube with some of them being flagged by YouTube as having a copyright claim on them because someone happened to be playing some music in the background. Occasionally, they get blocked completely.

Frankly, it's been getting out of hand for some time now and I believe, in the not-to-distant future, the model for enforcing copyright for digital material will not be sustainable anymore as I will later point out in this article.

How and why does YouTube flag or block videos based on copyright?

More than 10 years ago, a few major companies including Viacom filed lawsuits against YouTube for the publishing of copyrighted material. This prompted YouTube to develop a digital fingerprinting system called [Content ID](#) which detects patterns in the soundtrack of the video matching it to potential material claimed as being copyrighted.

The technology used is not too dissimilar to some of the myriad of [music recognition platforms](#) which many of us use to identify the tracks on an album,

like [Gracenote](#), or what song is currently being played, [Soundhound](#) being a great example of a great app.

During the last 10 or more years, YouTube have invested heavily in their Content ID system and has, by and large, being very successful in turning down many millions of videos due to copyright strikes. Those who claim copyrights on uploaded videos can monetise on the videos should they choose to or simply block them from use. Most copyright claims are flagged as being owned by someone else meaning that you cannot monetise or download them, but usually nothing more. Word of advice here. Always keep your original video file!

The system does not always work

The problem with YouTube's Content ID system is that it is not infallible in identifying copyrighted material. In the world of modern popular recorded music, for example, this is relatively straightforward.

However, in the genres of older music or classical music, this is highly problematic. For example, I remember uploading Tchaikovsky's *Peter and the Wolf* narrated by Paul Daneman performed by the Little Symphony of London from an old vinyl record my grandfather purchased back in 1969. It was uploaded for my use only; however, YouTube flagged it being performed by the Chicago Symphony Orchestra, copyrighted and owned by some outfit or another and, subsequently, blocked it from further use. Then I get an email warning me that I uploaded copyrighted material!

To add insult to injury, there are several cases of pianists who record and upload their own performances of popular classical pieces only to find that their material has been copyrighted by someone else. Popular classical pieces from the likes of Mozart, Beethoven, Liszt or Bach were composed well more than 60 years ago, so, in essence, should have their copyright status expired; however, it is the *performers and producers* along with their recordings that are claiming copyright status.

This is creating a bit of a problem, because it is increasingly becoming more error-prone for music recognition platforms to identify the exact recording of a particular piece of music played by a particular performer as time goes by when more uploads take place year after year. Once the system attempts to match the exact recording based on little nuances of the sound patterns, it then matches any possible copyright claim made to it. The system does its best to establish the

right match, but it is not always correct, and quite frequently so with respect to classical music.

The ethics of copyright is clouded

Most musicians have a hard time earning a crust purely based on playing, singing or composing music. Like rock stars or football players, only the top zillionth percent will make it big. If a musician manages to produce the next potentially number one album, it will never make it to the masses unless it's being properly produced, marketed and distributed. This takes a lot of spending power, risk and expertise to make this happen. Traditionally, only the very largest of the media companies, for example, Warner Brothers, can take on the task of making this happen globally. There are countless of other 'labels' out there but, in general, only the top 1 percent of them (and that's being generous) will be well-known.

The problem arises when the leviathans of the music industry start snatching rights to just about everything that could be of potentially significant value in the future. It is, basically, speculation like stock trading. Sure, the artist who wrote or performed that piece of music might fare well from the deal made, but often, the deal is far more in favour of the company buying the rights. After all, the company will make the claim that the risk is theirs and will, like the best of negotiators, try to maximise their side of the deal. Unless the artist is particularly savvy in negotiating deals!

The reality is that a very large percentage of music is owned by a very small percentage of companies, and this disparity will continue to increase. There may be a time, when simply whistling your favourite track will be flagged as a copyright offence!

Flagging or blocking videos with music playing in the background is absurd

I can fully understand the notion of flagging copyrighted music if simply uploaded to YouTube. For example, if one uploads a reasonably high-quality complete version of an audio track which has been copyrighted and then simply overlaid with an image or other silent video track, that is, essentially, uploading a near-original.

However, if the music is being played on someone else's boombox on the beach and you're recording your kid playing ball in the sand, this should never be flagged as being copyrighted. I had this same thing happen to me during New Year's Eve on the beach, and the video was blocked after being uploaded. No problem, I simply used Vimeo instead!

One must ask themselves the question. What purpose does it serve to block or flag videos which have music being played in the background along with a lot of foreground noise? Why on Earth would anyone find it great to play music from a download of a piece of music with someone else's kids playing and shouting in it? I can't fathom it at all.

If I was the owner of a piece of music and I copyrighted it, I would happily let it be played in the background. If anything, it serves as free advertising.

Music and film educational videos are often hampered

There's a great YouTube channel by a guy called [Rick Beato](#) who frequently uploads great tutorial videos on everything about music. On one of his videos, he discusses the problem he has with teaching music students using well-known music samples from legendary artists. For example, he cites that Ozzy Osborne material, even very short fragments of it, are being flagged instantly when uploaded as part of a new video. He gets around this by trying to play the music himself, but, of course, this requires a considerable amount of extra work and skill to do, if not impossible for some cases.

Another example might be with teaching students about cinematography. Again, we sometimes encounter the same issues here, especially with vehemently protective owners like Warner Brothers who seem to acquire anything they can get their hands on. There are many great classic film examples which are invaluable as an aid to teach students and film buffs.

For a slightly different reason, videos get removed. For example, the case of the Friends video with its canned laughter removed by an enterprising chap to see if it was still funny. As predicted, it was not funny at all with its canned laughter removed. The video was quickly pulled down when the owners of the franchise discovered it!

Bypassing the Content ID system

There are some who are intent on ‘breaking the system’ just for the hell of it or to just show off their skills at bypassing music recognition systems. They often try practicing on uploading popular pieces of music, sometimes deliberately, to see if they can escape the watchful ‘eyes’ of the Content ID system. It’s not as easy as it once was when I tried it myself a year or two ago. Changing the pitch, tempo or even removing sections of the song using Audacity still got caught by the system.

There are still ways to ‘fool’ the system but for most, it’s hardly worth it if you just want to upload your family videos into YouTube. You could try to painstakingly remove the ‘offending’ background music, but this requires a little technical savvy and does not always work, especially with loud backgrounds. Overlaying the soundtrack completely and replacing it with royalty-free muzak is as naff as it gets! So please don’t do that.

Let’s move away from YouTube

Moving away from YouTube seems a logical tactic if one wants to escape the prying eyes of its notorious Content ID system. The next best option out there is Vimeo although it’s second by a long way in terms of popular use. I’ve had to use it on occasion when YouTube decides to block my family videos because of copyrighted music playing in the background.

Do I feel guilty about it? HELL NO!

There are plenty of other platforms one can use, but it just needs a little research to find the best ones to support your needs. One thing for sure is that many of them may be working on improving their own equivalent of YouTube’s Content ID system, so things may change. Saying that, competitors *not* including such draconian measures could be their best cutting edge!

Decentralised platforms giving power to the people

I mentioned earlier on in the article that the current model of copyright enforcement will not be sustainable. The increasing draconian measures to flag, block and censor videos uploaded to the YouTube platform will eventually drive many users away from it and seek alternatives. Such alternatives, as

mentioned above, may go the way of YouTube and impose the same restrictions. However, there is a very serious threat to the industries supporting copyrighted material.

Enter decentralised hosting platforms! If you are not aware of what these are, you may be surprised to learn that *no one* can censor or remove your videos. Trouble is, you can't either! Decentralised video hosting platforms will, essentially, kill off copyright enforcement because, there is no way to control it.

There are a few decentralised platforms in existence, many more of which are being in the state of being developed. Examples include [DTube](#) and [LBRY](#), which uses blockchain to encode and store the videos. Once they are written on the blockchain, that's it! They cannot be changed. In the world of file storage, [Sia](#) uses a similar principle in that your data is encrypted and stored on at least thirty other machines anywhere in the network, anywhere in the world. None of these platforms have advertising but rather incentivise those hosting data and those posting or upvoting videos in return for native electronic tokens which you can exchange for other services or convert to real money through crypto exchanges.

Can they be truly censored at all?

Yes and no. First off, for most users, there is a front-end website which displays what videos are available. This website; however, is centralised and can be controlled directly. Second, users within their respective communities vote on what content should be shown at the top of the list. However, the video is still in the network. It may not be shown listed in the website, but it won't disappear. It can't. There are other ways to access this data armed with a little knowledge about the [IPFS](#) (InterPlanetary File System) network.

This, in a way, reminds me of accessing material from newsgroup servers through front-end websites listing NZB files which contain all the metadata you need to download chunks of data from various *alt binaries* in order to download all sorts of media from books to movies. NZB websites frequently get cut-off by the likes of media protection outfits like [MPAA](#) and [BREIN](#), but they simply resprout elsewhere, just like Whack-a-Mole or slaying the mythical Hydra snake! Considering a very small fraction of the population that bother with newsgroup servers, I wonder why so much effort and expensive is devoted to quashing these web services.

Decentralised video platforms are not in the radar for most of us yet but we're getting closer to universal adoption. It will change and re-radically change how we think about earning revenue through digital media. I predict that there will be a return and more emphasis on musicians earning through live performances, because you can't digitise being there at the concert 'in the flesh'. Big screen cinemas may have a second period of enlightenment and discovery; again, based on the fact that you can never re-create the same experience at home. Well, at least for most of us!

Mainstream adoption of decentralised services?

Decentralised video platforms like DTube are not particularly stable yet, as with Sia, its file storage equivalent. Often, they are very slow and prone to just stopping without any warning. Much of this is to do is because they are new and haven't obtained the critical mass of peer-to-peer nodes to make it really usable. However, it is only a matter of time when they might become the new Netflix or the new Spotify.

Another problem is the level of understanding required to use them. Fair play to DTube insofar that all you need to do is click on it to play, but there's a little more involvement when uploading material. Reading through the documentation page for LBRY looks downright daunting if one's not familiar how blockchain works. It's enough to scare most people away. The same applies to decentralised file storage in which you need to download software and set it up properly for it work.

There is also the issue of security and access with blockchain-based services. Accounts are made accessible using a private key, *which you must never misplace or give out*. Any data which is encrypted and requires a private key to access is forever inaccessible if that private key is lost. Much like cryptocurrency, the idea that it is entirely your fault if you accidentally send digital currency to the wrong address or if you lose your private key. There is nothing any central authority could do to get it back.

There is scant media attention on the rise of decentralised video and file storage platforms. If I walk up to the average Joe in the street and talk about decentralised video platforms, I'm likely to get a blank look. Very few people know or use them. It surprises me that so few *do* know about them, because,

given a few years down the line, it's possible it could completely change the face of media and virtually wipe out all copyright enforcement.

Should smartphone apps be readily accessible and stable enough for making it easy to watch and upload content to decentralised platforms, enough traction could be made to effectively overturn the traditional YouTube-type centralised video platform markets.

The dark side of decentralised platforms

It wouldn't be right not to mention the dark side of decentralised platforms. Many of us would take delight and stick the proverbial finger out to those platforms who have the power to censor and block our material being uploaded.

But at what cost?

One thing for sure that decentralised platforms will bring is an even greater quantity of detritus, some of which, could be really bad stuff like child pornography or other content which could be very damaging to watch. This is quite scary in fact. With no way to stop this stuff being uploaded, let alone being deleted, is alarming to say the least. Users with knowledge how to download material using the IPFS framework or by other means circumventing the need to use a publicly hosted website will have carte-blanche to do anything they like without being suspected.

The other potentially frightening thing about blockchain-based decentralised hosting is that one needs to be very careful what they're posting because once it's up there, it *stays* there.

The fight to prevent piracy

The never-ending fight to end piracy will continue to go on; however, in the future, it will be much harder to do so once decentralised services become more accepted in daily life.

Developing ways to prevent media being distributed illegally has always been a major challenge. One way is to encode media with encryption through DRM (digital rights management) or other methods. For example, many years ago it was commonplace to have a physical dongle that you had to keep inserted in your computer for a piece of software to work. Sony once encoded their

compact discs differently so that computers were unable to read them but had to revert because it prevented users from playing CDs on their computers by installing software which prevented them in doing so. This was the case of the [rootkit scandal](#) that caused a little bit of a ruckus!

Whatever measures take place to write protection onto digital media, I guarantee there will be one incredibly smart reclusive teenager somewhere in the world holed up in his or her bedroom diligently finding a way to break the code. Remember that little software gem piece, [DVD Decrypter](#), which had cease and desist notices from [Macrovision](#) (a dirty word if you remember those days)? The last stable version from 2005 is floating around on the Internet, easy to get and still works! Someone out there will always crack protected software but not so easily, if at all, with blockchain or [directed acyclic graph technology](#).

Conclusion

I look forward to the day when the adoption of decentralised video platforms become more widespread and the behemoths like YouTube begin to have serious competitors. The days of enforcing digital copyright are getting nearer to an end because to do so, will become unsustainable. Industries with the old mindset of stamping out censorship and piracy simply by blocking content will not make any headway amongst the newer technologies that decentralised services will deliver.

If it is not happening already, I wouldn't be surprised if YouTube are hiring experts in the field of decentralised video services. I would!

One thing for sure, decentralised video could open a whole new world of no censorship, no copyright protection and free speech. Decentralised platforms have their own self-governing ecosystems with tokenised currencies, pure voting power by the users and the ability to grow without constraint. The more users there are, the better the system operates; quite the reverse with a centralised system.

In the more distant future, many networks of decentralised services could conceivably gel together to form self-governing super-networks that look after our every need. Would it be an exaggeration to suggest that this could be the new 'Skynet'? A beast let loose from its cage?