

Custos breaks silence as blockchain watermarking patent approved

When we think about content security in the web3 space, comparisons are naturally drawn between DRMs and NFTs, effectively as different ways of managing rights for digital assets. DRM started out in the music industry protecting artists' content from being stolen and resold via cryptography keys, then migrating to TV and film as a pivotal revenue protection mechanism, while NFT records are stored on blockchains connecting purchases to purchasers as a means of authenticity.

Seldom have we heard the words blockchain and watermarking used in the same sentence, which is why a company called Custos Media Technologies captured our attention during a chance encounter at the recent IBC 2022.

Circling back for a post-show briefing with Custos co-founder Fred Lutz, Faultline quickly learned that our timing was serendipitous, as the South African firm only received patent approval two weeks ago for its blockchain-based watermarking embedding technology.

This finally means, after being founded in early 2014 and flying under the radar ever since, Custos is now at an inflection point – and Faultline is one of the first to hear about it.

Core to Custos' approach to content protection (and the neatest part of its business model) is that it effectively gets content pirates to rat on each other, anonymously. Custos' proprietary watermarking technology embeds an invisible blockchain-based tracker into each copy of a video that is issued to a user – with a fidelity guarantee inside each copy.

Custos claims to be the only provider of a four-tiered detection system. The first is a web of bounty hunters inside piracy networks. These could be content pirates themselves, or students frolicking in the dark web, or an upstanding citizen just looking for some extra cash. Neither Custos or the content owner know who the bounty hunter is, nor does it matter.

What does matter is that detection of leaks by individuals inside a piracy network are reported and rewarded with Bitcoin, funded by the content owner.

Custos isn't solely reliant on so-called bounty hunters though. Its in-house scanning technology make up the second and third tiers of its detection stack, providing a set of tools for low security clearance that help studios improve detection of leaked content, and for high security clearance gives access to original, unwatermarked content to improve detection and reliability.

The fourth and final tier comprises the Custos forensic team which provides support in cases where leaked videos have been heavily tampered with.

While there are obvious differences with Custos' approach to content protection and piracy detection compared to the traditional TV landscape, there is a shared view that forensic watermarking is a futile mechanism without rapid detection of leaks using a system that can extract the watermark data. Custos claims to have this all developed in-house, which is impressive considering how many content protection companies rely on licensing watermarking from the likes of ContentArmor.

That said, Faultline is more accustomed to writing about forensic watermarking as a premium technology for premium Hollywood movies and UHD titles, not as a protection mechanism for cheap low-distribution content.

This is where parallels with Hollywood end, because Custos is protecting niche content. While it has successfully supported takedowns within a TV piracy syndicate in Japan, the value is in limited distribution content such as videos for board meetings, or material being sent out to the press, or private content in academic circles.

Lutz explained that Custos designed a watermark from scratch in the era of cloud compute. This is apparently not expensive to implement compared to forensic watermarking in mainstream media, embedding data in the movement of scenes in a two-stage A/B process.

Of course, there are initial encoding costs of a couple of dollars, but at scale this becomes quite cost-effective, we are told. New video content requires pre-processing, at a duration of between 2x to 4x the title's runtime, then any number of uniquely watermarked copies can be produced instantaneously in the delivery stage.

"We do compete with DRM, but DRM is just protecting content. The biggest competitor is people not doing anything," commented Lutz.

To date, Custos has protected some 3 million titles, with almost 100% success rate.

Tests have been carried out for residents at an unnamed University, where the fastest takedown request was just 30 seconds. Typically, there are seven minutes from upload to pirate site and detection.

We are pleased to hear that Custos has held onto an element of its crypto-skepticism from the early days, which is a mindset that helps one traverse a market in which Custos has often found itself ahead of the market to its own detriment.

"For years, there was no use-case for blockchain in the real-world, so we made something applicable," commented Lutz.

When Custos was starting out, smart contracts were known as smart contracts, not as NFTs. One issue with NFTs, according to Lutz, is that there is no connection to digital assets, so if a server goes down then the asset goes down too.

Finding that linkage between the smart contract and the digital asset is where Custos thrives, embedding a smart contract into the digital media asset linked to a crypto wallet.

Budding competitors without eight years' experience run into the same barriers to entry as Custos did when coming out of the gates, such as transaction fees.

Custos chose Bitcoin because of its global appeal, despite being one of the more expensive cryptocurrencies for transactions. The cost was worth the reach, so Custos went ahead and built proprietary (and now patented) technology to handle Bitcoin rewards.

While niche, you cannot fault Custos for having long-term visions of disrupting the mainstream space. Applying its blockchain-based watermarking embedding technology for live sports streams is something the company is working hard on – in a multi-billion dollar opportunity to detect and shutdown real-time sports piracy.

“We might have a way to overcome this. It’s the technically very hard, but streaming providers like it,” said Lutz.

Do not be deceived, as things are developing quicker than we initially realize, with an estimated six months until final development on a proof of concept for live sports watermarking.

<https://rethinkresearch.biz/articles/custos-breaks-silence-as-blockchain-watermarking-patent-approved/>

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