

Fighting intellectual property pirates with bitcoin



By [Evan-Lee Courie](#)

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By stealing original digital content like books and films, intellectual property pirates are robbing hardworking creatives of their intellectual property and income.

To address this problem, masterminds at Stellenbosch University devised a solution to redefine the bounty hunter as we know it, by luring pirates with bitcoin in order to find out the source of the contraband material.

The result is Custos Media Technologies, a startup which embeds imperceptible bitcoin private keys in the digital files, with different keys for different advance copies of a movie or an eBook.

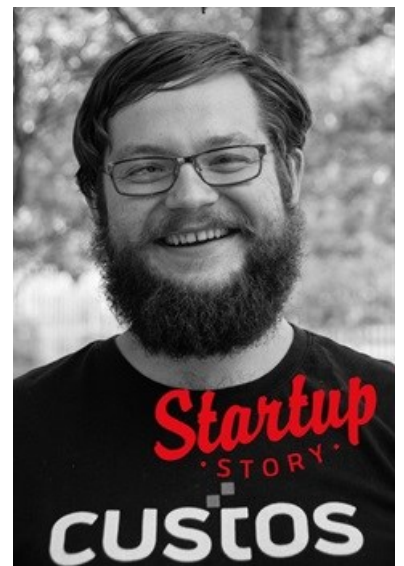
Underpinning this start-up was Amazon Web Services Cloud, allowing content owners to distribute, manage, and protect sensitive media. Custos Media's backend is 100% on AWS, offering a cost-effective solution, and enabling the company's systems to scale, on multiple regions at different times.

We speak to Frederick Lutz, COO and co-founder of Custos Media Technologies:

■ **Could you tell us about Custos Media Technologies?**

Custos Media Technologies provides content protection services for owners and distributors of digital media. Custos's patented blockchain-based infringement monitoring technology allows media owners to rapidly discover when their content leaked, and where the infringement originated.

Custos was developed at the MIH Media Lab at Stellenbosch University in 2014. The founders are Gert-Jan van Rooyen, Fred Lutz and Herman Engelbrecht. Other than the founders and the University of Stellenbosch, a local angel investor and the Digital Currency Group has a stake in Custos.



Frederick Lutz, COO and co-founder of Custos Media Technologies

Digital media protection

Custos's flagship product is its enterprise integration service for digital media protection. Clients who wish to protect video, audio, ebooks, or documents can integrate with Custos's API to register, assign, and monitor media items – with minimal impact on their existing workflow. The online screener distribution tool, Screener Copy, is easily adapted and re-branded for custom use cases.

Screener Copy uses cutting-edge blockchain and forensic watermarking technology to help filmmakers and distributors distribute and secure their content. Whether you only want to send out a couple of screeners to reviewers, or are marketing thousands of copies daily, Screener Copy is the seamless video distribution software the creative industry's been waiting for.

For example, a Tokyo-based client uses a white-labeled SaaS product for secure distribution of movie screeners to a network of buyers across Japan. Smaller movie producers typically do not have their own distribution platforms and require a solution to replace less secure online video sharing services. Screener Copy is Custos's SaaS service for independent film producers. A Screener Copy user can simply upload content, and nominate a list of recipients. Custos protection is added to each copy.

■ ***How did the idea come to fruition?***

Media distribution is broken.

Movies, ebooks, software – all are distributed using a paradigm from the 20th century: that the creator has, for the greater part, control over who receives the content, and that unlicensed duplication and distribution is difficult and rare enough to be managed.

The cornerstone of this paradigm is intellectual "property" because physical property has these properties of controlled distribution and costly duplication.

However, in the 21st century, this concept has become dangerously broken. Large and expensive digital assets are copied with impunity and distributed globally. Media creators have little recourse once files are shared on the Internet, because the prolific sharing happens largely anonymously, and often outside jurisdictions where owners can enforce media rights.

■ ***When, how and why did you get started?***

The founders are Gert-Jan van Rooyen, Fred Lutz and Herman Engelbrecht. G-J and Herman were the directors of the MIH Media Lab at Stellenbosch University, which focussed on cutting-edge new media research.

I was completing my Master's degree in Economics, from Stellenbosch University, on the economics of piracy. The idea, that was eventually patented, was the culmination of years of industry and research experience in the watermarking industry, and an early interest in blockchain technology.

■ ***What is Custos 's competitive advantage/core differentiator?***

There are other watermarking technologies, and we even use some of those in our process, depending on the media type, but none of them uses cryptocurrencies and the anonymity of blockchain-based technology to solve the leak detection problem. In that sense we are offering a unique value proposition to clients: we can detect leaks quickly and cheaply.

■ ***What are some of the obstacles you've had to overcome since starting out?***

One of the biggest obstacles for any entrepreneur in South Africa is securing funding - for a deep tech startup, it is even harder. We managed to secure funding from institutional investors, angel investors, and the government to help us build the company.

■ ***What advice would you give to other/young aspiring entrepreneurs?***

If you want to build a deep tech startup or something with an untested business model, don't expect to get funding in South Africa. It's not that there's no funding available, it's just limited. If you want to build company in South Africa, opt for something that can be built cheaply - think a Google Form, email and a human in the loop.

More generally - read. There's a wealth of books and blogs available on any and all themes relating to entrepreneurs. The lean methodology that most startups follow is all about learning as cheaply as possible. R300 for a book is a bargain for what you can learn from it, especially if you compare it to the time it would have taken you to learn it all from experience.

■ ***What has been your proudest achievements thus far?***

In April this year, we celebrated our 100,000th copy of a film protected by the Custos blockchain technology. At the time, we had not had a single pirated leak. It turned out that the warning about the tracking technology embedded in each recipient's copy was enough to deter piracy for all would-be pirates. The number of protected copies has increased since then to over 180,000, and [drumroll] we caught some pirates!

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"Our main market is for pre- or early release movies, where you expect between 20–60% of titles leaked. We effectively stopped early stage piracy." - Fred Lutz, Co-Founder & COO

A post shared by Custos Media Technologies (@custostech) on Sep 25, 2018 at 4:44am PDT

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Custos is the first company in the world to use blockchain technology to catch a pirate red-handed. This is big news both to the blockchain and media industries.

Deterring leaks is exactly what the technology is intended to do. The fact that we add tracking technology to each copy is meant to instil a credible threat of detection on any would-be pirate. Zero leaks from over 180,000 copies of movies exceeded even our own expectations about how effective the technology would be. Our main market is for pre- or early release movies, where you expect between 20–60% of titles leaked. We have effectively stopped early-stage piracy.

■ ***What does the future of entrepreneurship look like to you, considering the rapid growth on the technology front?***

We are sitting in the southern tip of Africa and serving customers on four continents thanks to services like AWS. This, paired with the oversaturation of Silicon Valley, I expect innovation will increasingly be driven by the developing world. You don't need local infrastructure anymore, so ideas and execution will win over location.

We as technologists are so eager to jump on the next big thing - everyone wants to implement the newest blockchain technology, and add drones, and force machine learning into whatever you are building. There's a lot to be said for implementing slightly more mature tech. Most use-cases will benefit from a database over a blockchain, and basic data analytics and visualisation can take you a long way before you need to apply any machine learning to it. If you want to make a difference, figure out how to apply the boring stuff at scale.

■ ***What is the importance of startup accelerator/incubator programmes?***

We participated in the Grindstone Accelerator in 2017 and have been in the LaunchLab incubator since 2016, and we have benefited greatly from both. The benefits can be grouped into 1) information sharing, 2) support and 3) access.

In both programs, we received mentorship from experts in their fields. The value of having that level of a sounding board cannot be underestimated. Other than the top down information sharing, having other entrepreneurs and technical experts

around you means you have a lot of knowledge to tap into for everything from suggestions for service providers to guidance on ad campaign keywords.

We don't only share knowledge, we also share our successes and stresses. Even the most supportive significant other or parent won't necessarily know how it feels to be at the end of your runway or the rage you feel when 40-60% of your income is wasted on tax, or when foreign investors don't want to invest in you because the SARB is holding your IP ransom.

Lastly, these programs are focal points in the industry, giving you access to people and services you would not have otherwise.

❏ ***What would you like to see changed in the South African startup landscape?***

Firstly, more knowledge sharing. The success of Silicon Valley is a result of people moving rapidly between companies and sharing knowledge as they go - we need to get this right in South Africa. We have some of the best technical talent in the world, but very little experience in execution. We need to start moving and start talking to each other.

Secondly, the government is doing great things to support startups like the funding we received from the Technology Innovation Agency (TIA), but it is still incredibly cumbersome to start and run a business in South Africa. You cannot really start a business here without a lawyer and accountant to guide you through all the red tape.

Also, you cannot get your IP out of South Africa, which increases the risk to foreign investors. If the government is serious about boosting the economy and creating jobs - cut the red tape, cut taxes, and remove the exchange controls. We want to build, but we can do that from anywhere. Make it attractive to do it from South Africa.

Thirdly, while there is funding available in South Africa, there is no risk capital, and specifically no funding available for deep tech. You'll see universities and government programs like TIA stepping in to drive innovation, with the mandates of local VC firms focussed on later stage investments. Don't get me wrong, the VC firms are doing nothing wrong, there's just not enough risk capital in South Africa to make higher-risk investments feasible.

To overcome this, we need to start driving foreign risk capital to South Africa. Even just over the last couple of years, we have seen foreign VCs opening up to investing abroad.

❏ ***What do you believe are the traits an entrepreneur needs in order to succeed?***

You are only as good as your team, and being good at recruiting good people and keeping them happy and inspired is the best skill you can have. Being able to motivate yourself is great, but discipline means that you can keep going even when you don't feel motivated. You won't always be able to motivate yourself, so you'll need discipline.

Lastly, an entrepreneur needs to be able to communicate. You are constantly selling yourself, your company, and your product. The best way to improve this is through practice. Start blogging, go to pitching events, and read up on communication strategy and writing.

❏ ***Tell us about your biggest struggles as entrepreneurs as well as some major highlights.***

The biggest struggles also breed the biggest highlights for me. If you have a great team as we do, when the going gets tough they pull together and push harder.

❏ ***Why would you encourage someone to become an entrepreneur?***

Building a startup is the closest you'll get to complete magic. We take imagination and sheer power of will and bring something into this world that did not exist before. It's an amazing feeling!

❏ ***What is the importance of entrepreneurship - especially in a country such as South Africa?***

Politicians love punting the government's role in job creation. The government's impact on job creation is like a reserve bank's impact on monetary policy - great policy has no impact, but a bad policy is catastrophic. Jobs aren't created by

policies, jobs are created by entrepreneurs. Entrepreneurs seek sustainable business models around which they can build companies. South Africans are incredibly innovative and hard-working, we are entrepreneurial by nature.

What we need to get right is to make it attractive for the entrepreneurs to operate from South Africa.

▣ **What's next for Custos Technologies?**

Custos is scaling in the film industry, and we have started pilots in the ebook and document protection markets. After this, we will follow market signals to expand into other markets.

For more, go to [Custos Media Technologies](#)

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