



RSong
RUNS ON RCHAIN



RSONG

White Paper

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RSong – The Blockchain Music Streaming App

Entire industries have been disrupted by new ideas and methods. The old order—large entities controlling the creative output of the artist, artisan, and inventor—is being replaced by the empowerment of independent artists with technologies that service every need of their career. The music industry is in such a transformation.

Consider Amazon and the publishing industry. Beyond the laborious task of research and writing, authors had to persuade a third party to read, accept, edit, publish, and market their book. Accounting soon followed. Writers generally receive nominal percentages of what is being generated by their own creation.

Thanks to Amazon's CreateSpace and KDP platforms, writers create, edit, and publish their own books, setting the parameters for how their creation is marketed and distributed while retaining a higher percentage of revenue. The entire process is in their hands, should they choose to pursue that route. Other platforms followed suit for all types of creative pursuits, including digital arts, video, and other creative formats.

We have entered an era where the artist owns every facet of their business.

RSong is different

Music was not included in that revolution. But RSong is about to change that.

Technology has also placed the entire creation and distribution process into the musician's hands, just as with authors. While writers focus on the quality of their words, musicians have a natural desire to hear their art with the best possible sound.

Everyone recognizes the warm, analog clarity offered by vinyl; compact discs remain one of the top means for experiencing music. But as we shifted from physical hardware to streaming, compressing files for storage purposes, the quality of music was greatly compromised. Computer speakers and (most) earbuds offer none of the depth musicians intend for their audience. Even top-shelf headphones and speakers cannot properly communicate their creative vision when listening to compressed files.

This is where [Immersion Networks](#) steps in. Founded by experts in perceptual audio, their technology allows for the delivery of high-quality streaming in a format suitably tailored for [RChain's](#) blockchain architecture.

Addressing Revenue

As with authors, musicians deserve fair pay. Artists and rights holders have largely been kept out of the revenue loop for a century. Right now, streaming revenue is divided up among numerous entities, including the platform itself, management, labels, publishing rights holders, and then, at the end of the chain, the musician.

This issue pre-dates the Internet. Blockchain technology is poised to solve this problem by using smart contracts, which enables efficient revenue distribution. Moving music onto blockchain enables rights holders, musicians, and composers to track the provenance of their work from the moment of creation and to control their revenue stream.

So far blockchain communication speeds have not allowed for rates consumers are accustomed to with real-time mobile applications. As with any technology, it was inevitable that platforms would catch up. The launch of RSong, alongside RChain's test net, shows that the platform is closing in on its goal of communication speeds that will compete with (and potentially outperform) what we're currently accustomed to. Artists will be empowered by RSong in a new way: with the highest quality audio produced to date combined with control mechanisms for payments.

RSong is negotiating with several creators to deploy the final piece of the full platform. This will create an adaptable platform that offers musicians and rights holders high revenue splits with the goal of reducing wait time for payments, eliminating yet another problem in the music industry: waiting months to receive a check from the licensed distributor.

Creative Solution

RSong will turn the control of music creations from inception to payment back to the artists themselves.

RSong creates a platform where the complex, blockchain-based technology disappears—is abstracted away—from the user. The music fan, whether creator or listener, simply posts creative content or listens to such content through a few easy clicks. No worrying about crypto, blockchain, response time, space, concurrent users, tracking, errors, or any other challenges that go into building a real-time streaming platform.

The true value of RSong is in user experience; technology fades into the background. By combining crypto wallet and blockchain technology into a single mobile app, RSong brings groundbreaking technology into the music world, providing the delightful experience fans expect with no learning curve.

How it Works

Behind the scenes an account is created and a user is associated with their playback. They are given tokens; the token count is deprecated as used. The user, writer, artist, and curator are all included in the smart contract. The user can focus on enjoying music.

The RSong Mobile App and backend [micro-services](#) provide:

- Accounts for both users and creators
- Tokens are allocated for asset consumption; the app determines if there are enough tokens to hear the song
- Tokens are transferred as payment to the creators in real time with no waiting
- Data stored onto the chain is binary format, preserving authenticity of the creative files
- Files are immutable; copyrights are preserved by preventing changes to original works
- MDE: Maximum Desired Experience
- Aim is high volume through blockchain and clustering technology
- Interlocking features allow real applications to flourish

Addressing Real Time Needs

- RSong is designed to work on mobile devices which have real-time demands by downloading 8MG+ songs in milliseconds. This speed on blockchain is demanding. RSong relieves this burden in a number of ways:
 - Caching ([redis](#))
 - [Kubernetes](#) / Google cloud cluster which scales the response in milliseconds—no lag, no downtime, immediate response
- Architecture scales based on load, spins up and down as needed
- RSong runs micro-batches to synchronize blockchain; this makes blockchain faster with no waiting for consensus
- Heavily monitored; RSong tracks requests, routes, responses, timing, etc.
- Everything is put into docker and k8-pods for single installation and use

Fast turn around, ROI

For better and faster feature delivery, we employ Continuous delivery (CD) by following the enabling idea of Infrastructure as Code (IaC). The system and devices which are used to run software can be treated as if they, themselves, are software. Main components of IaC are:

- [terraform](#) SDK
- [kubernetese](#) SDK

Terraform is a tool for building, changing, and versioning infrastructure safely and efficiently.

Kubernetes group containers that make up an application into logical units for easy management, discovery, and deployment. These SDKs allow us to code the provisioning and deployment of Rsong infrastructure in a cloud-agnostic way. The execution of code is triggered by a [Continuous Integration](#), CI, job thru [CircleCi](#).

Below is a generalized view of the solution architecture:

