Solving the Blockchain Trilemma
Redlight Chain ($RLC) Whitepaper

Written by Alex Van Hulle and Rory Fearn on behalf of Redlight Finance
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Abstract

This whitepaper outlines how Redlight Chain ($RLC) aims to solve the Blockchain Trilemma of Scalability, Decentralization and Security through the optimization of our gasless blockchain. We aim to showcase to you how $RLC can be the true bridge from the "World of DeFi " into "Real World" business use, without sacrificing the use cases of either parties.

Introduction: A Gasless Solution to a 3 Pronged Problem

Redlight Chain is a Layer 1 EVM (Ethereum Virtual Machine)[1] compatible Blockchain, however it introduces revolutionary changes to the traditional EVM compatible blockchains. Typically speaking, EVM compatible blockchains are trying to solve Scalability, Decentralization and Security.

We at Redlight Finance feel that we have accomplished a solution to these problems through our innovation. Throughout this Whitepaper, you will read our take on this trilemma and how we have addressed our solutions.
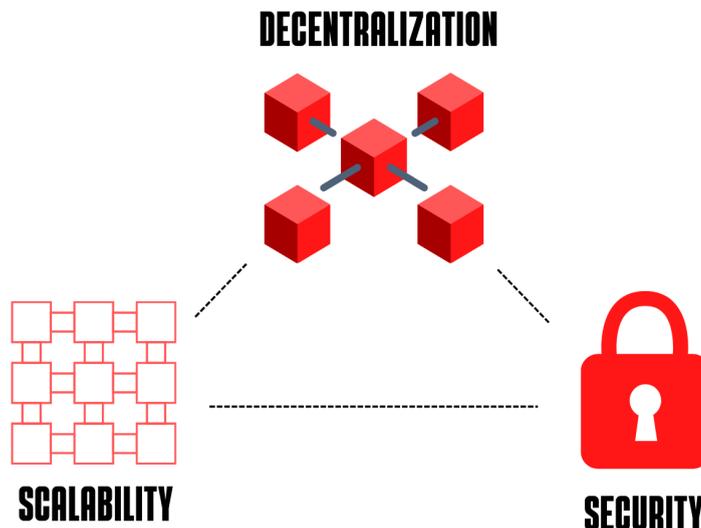
Most Blockchains try to boast a perfect solution to the Blockchain Trilemma, however, they usually have flaws in at least one of these (if not all 3) sectors. Our aim with $RLC is to minimize these flaws through the utilization of a gasless Blockchain, effectively prioritizing Scalability naturally so that we can focus on Decentralization and Security.

As said by the ledger academy:

"A solution to the problem could lead to greater adoption of cryptocurrency and blockchain and a wide-spread use of the technology across industries." [2]

We at Redlight Finance agree, and for the growth of the industry as a whole, this type of innovation is necessary.

Part 1: Scalability

Scalability is a vital part in any organization, business, or idea. It refers to how much the said entity can grow while maintaining core functionality, utility and solution. For a Blockchain, scalability refers to the Blockchain maintaining its transaction/block speeds & output, whilst growing and expanding in users/industries.

How does $RLC do this?

Being gasless in nature (fully gasless, not 0.000001, not staking a coin to get another token in return to use for gas, but truly gasless as in **0**), $RLC allows the Blockchain to be integrated into industries that rely on the passing or use of information from one point to another (transactions).

As you may be aware, this refers to just about every industry in the world.

The problem with traditional Blockchains is the fact that real world industries/companies do not want to have to pay gas or have their consumers pay gas just to perform these transactions. No matter how minute the transaction may be individually, the cost of these transactions on an industry/company-wide scale can add up. The education and

explanation of gas fees can also serve as an added barrier of entry when explaining Blockchain Technology to companies and consumers alike.

Both retail investors and industries do not want this undertaking.Therefore, by being a gasless Blockchain, this allows us to target industries that may otherwise never have given Blockchain Integration a second thought. [3]

Scaling with Gaming

A perfect example of an industry where scaling is possible is the multi-billion dollar gaming industry, especially already established NFT games. Typically, NFT games can lack proper utilization of their platform due to either one of, or a combination of the following issues; gas prices, congestion and/or lack of utility. $RLC solves the two biggest barriers: gas prices and congestion.

Attracting the Retail Market

Scaling within an already established cryptocurrency dominant audience is typical with Blockchains. $RLC is no different in this sense, however, we also aim to accomplish scalability outside of the norm. Due to our Blockchain technology, it allows us to not only attract the retail market (for buying, selling of coins/tokens etc), but any company/protocol who utilizes $RLC as their governance token now has an easier avenue to attracting their own retail audience - $RLC has simplified the overall decentralized finance barrier to entry: Gas.

Educating an individual that is interested in gaming that they can play your game & earn cryptocurrency in return is a relatively easy to understand concept. However, explaining that each transaction they make will be subject to a gas fee, which can be unpredictable at times, therefore actually costing them to play can come across as quite confusing to newcomers, and certainly not the friendliest invitation to the party that is decentralized finance.

$RLC's gasless technology removes this immense, and sometimes confusing, barrier to entry and allows true growth outside of the crypto world. Scaling not only through

Blockchain integration in different industries, but also through the mass adoption of otherwise non-crypto investors allows the cryptocurrency market to grow as a whole.

We at Redlight Finance believe that $RLC can be a crucial link between the crypto and non-crypto worlds.

How do you maintain Transaction & Blockspeeds?

Whilst the overall Blockchain scales through adoption it is necessary for it to also scale through validation, otherwise we can end up with the Blockchain crashing/users facing downtime.

The solution to this is similar to the reason Bitcoin almost never has network issues; it's the absolute mass network of Proof of Work machines. For $RLC, the scaling of validators is essential with the growth of our Blockchain.

* Validators are Node Endpoints that get paid to confirm information on a Blockchain* [4]

Our plan is with the growth & adoption of our Blockchain we will release batches of validators that will be available for purchase, instead of releasing all validators at once and restricting growth. This allows us to grow with our Blockchain. During testing our Blockchain maintained a <= 2 Second Blockspeed

Part 2: Decentralization:

In a typical organization or entity, things or processes tend to be controlled by a single central entity. Decentralization in a Blockchain takes that controlling power and spreads it out to multiple people all over the world. For $RLC, this is done through validators (nodes) governing the information on the Blockchain instead of it being controlled by a centralized entity. Most EVM-1 compatible Blockchains operate like this through a variety of different methods such as; Proof of Work (POW), Proof of Stake (POS), and Proof of Authority (POA). $RLC falls under the latter, POA, which is an upgraded form of POS. Instead of the need to stake with monetary value, the "identity" of a validator replaces this and performs the role of a stake

WHATS THE DIFFERENCE?

BLOCKCHAIN CONSENSUS METHODS
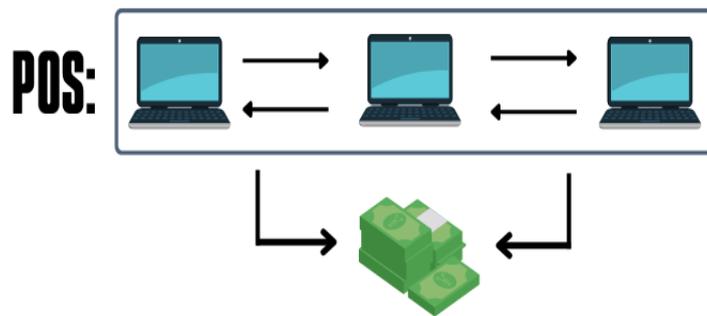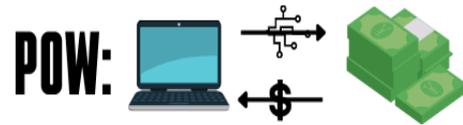
POW:

POS:

POA:

=COMPUTER =EARNINGS

Part 3: Security

Blockchains as a technology through cryptography[5] are extremely secure, but nothing is impervious.

Adaptability, upgradeability and flexibility are important factors for any technology to maintain its utmost security. $RLC applies these three factors by maintaining a dedicated security team to monitor network & server activity.

However, most Blockchain security issues are not necessarily hacks, but more so social engineering and exploitation. As mentioned before, nothing is impervious, however, risks can be mitigated. Proof of Authority allows us to utilize its decentralized nature to not rely on a single entity, but rather spread the burden of "risk" between all of the validators. This makes it extremely difficult to affect the network via a targeted attack. For example, a malicious validator can be kicked off the network by other validators through the decentralized voting process in Proof of Authority.

** Check back here where we will link the security audit when it is finished **

Network Attacks: The Pocket System ™

Network attacks can be common in blockchains to slow them down or completely kick them offline. In traditional blockchains the cost of gas mitigated this issue by requiring more gas during periods of congestion, making transactions expensive, which in turn decreases the total amount of transactions. Simply put, users of the blockchain may not want to spend the required amount of gas while the network is busy as it can be more expensive, which allows the network to naturally clear and return to normal operation.

With $RLC being a gasless blockchain, we do not have a means for a natural solution like this, which is why we have developed the "Pocket System ™". The "Pocket System ™" is an intelligent queuing mechanism that allows the split of transactions to alleviate congestion. The "Pocket System ™" can automatically recognize network attacks and specifically reroute them to a separate pocket to be validated, without affecting the rest of the network.
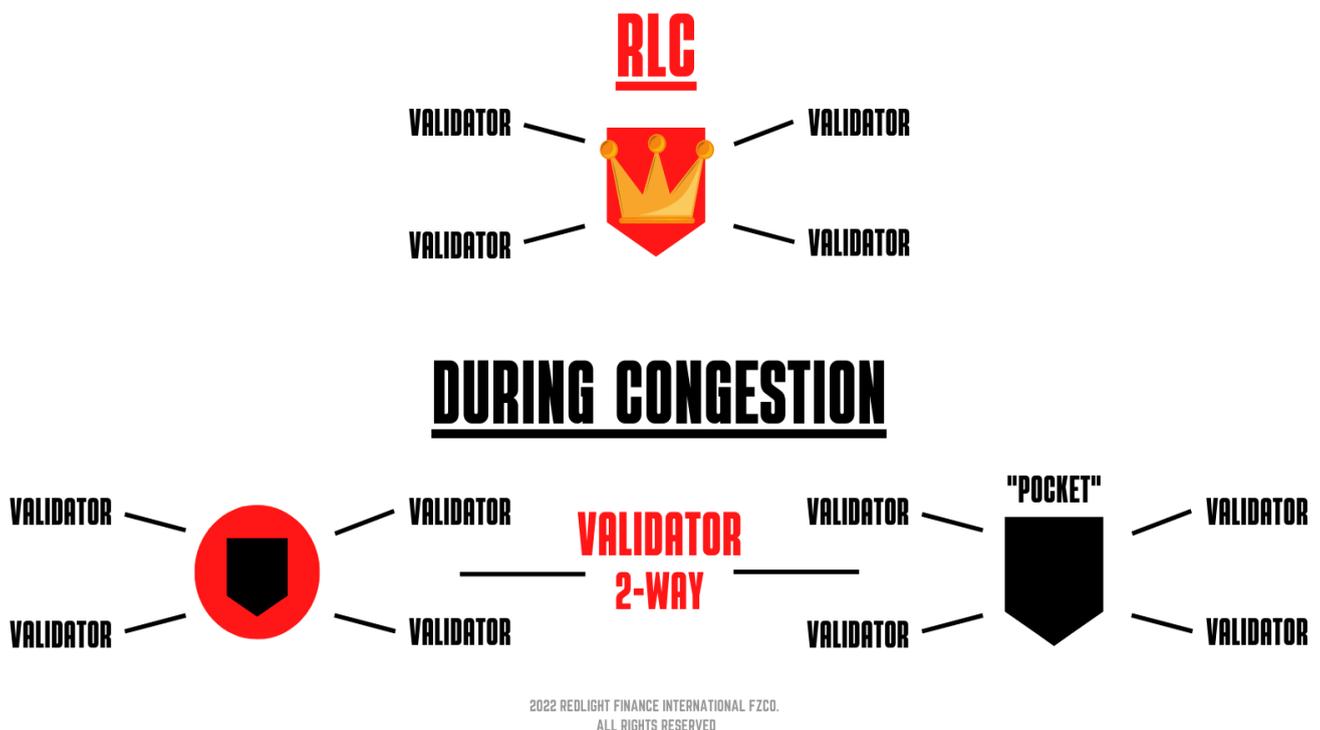
The Future of Crypto: Gasless

Redlight Finance has achieved the solution to having a truly gasless blockchain. Unlike other proclaimed gasless blockchains, $RLC does not require users to stake the governance coin to receive a governance token to use for gas (which is still "technically free"), or have the gas fee as low as 0.0000001/transaction as an example and label this as gasless (which during times of congestion can and do increase). We have a truly gasless blockchain that requires 0 gas per transaction. This is 0 as in free. Free like oxygen and free like the sunshine.

We have achieved this by utilizing a proprietary Proof of Authority system as depicted in the graphic below:
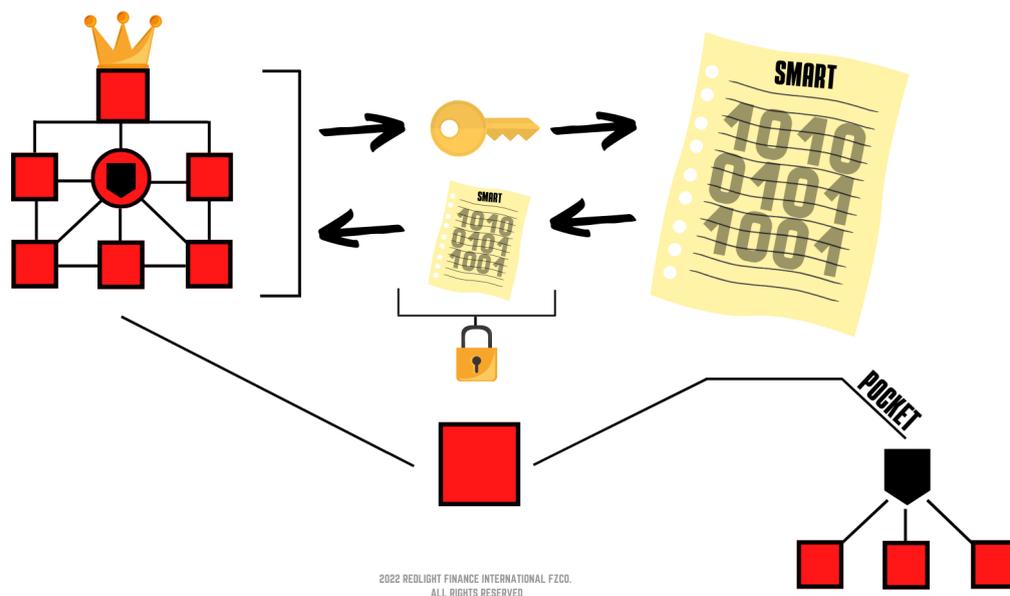
Technical Specifications

Blockspeed	During testing <= 2 Seconds
Gas	0
Optional Gas	Users have the option of paying gas if they choose. I.e to speed up your transaction. This will get burnt.
Starting Supply	210 Million
Goal Supply	21 Million
Max TX Size	2 MB

Burning

In order to continue growth in the crypto market, we felt it was important to grow outside of crypto market conditions which are typically heavily linked to the market movements of BTC. We aim to achieve this deviation of the norm through our innovation, in particular through our burn plan.

This burn plan consists of starting with a total supply of 210 million $RLC, and eventually burning down to 21 million as a total supply.

How can $RLC be burnt?

$RLC can be burnt in numerous ways, to start off the main way will be burning via our optional gas feature.

Although our blockchain is technically gasless, we have included a feature that allows you to opt in to paying gas in order to potentially speed up your transaction.

With current technology in place, most crypto ecosystems have already built around the establishment of paying gas. Restricting to 0 could limit the onboarding of a big part of the crypto industry.

Instead of gas going anywhere else, we decided it would be best to have it burnt in order to better feed the entire ecosystem. While gas is optional, we highly recommend maintaining 0 gas for day to day transactions, however, using optional gas can be considered a tool to "skip the queue". For example, if there is an NFT minting coming up that you really don't want to miss, you will always have the option to pay a gas fee to speed up your transaction, giving you more of a chance of minting the NFT if it is likely to be a "gas war"[6].

Keep in mind, when users do opt to pay the optional gas fee, this does further help the entire $RLC ecosystem in the long run by helping to reduce circulating supply which in turn economically speaking should increase the value.

The optional gas feature will be the sole way of burning $RLC to begin with, however we at Redlight Finance will be implementing features to assist this in some of our future projects which will be launched on $RLC.

What happens when supply reaches 21 million?

Users will still be able to use optional gas, however this will no longer be burnt. Instead it will be awarded to users who own and operate $RLC validators.

Conclusion

By being completely and truly gasless it allows $RLC to be the first Blockchain that can be mass integrated into real world businesses whilst simultaneously being operated on in the traditional EVM sense with smart contracts and NFTs.

Real world businesses will not have to worry about the need to pay gas fees for every transaction, the issues that congestion can bring (thanks to the Pocket System), or be concerned with security and/or dependability of the Blockchain due to its decentralized nature.

We at Redlight Finance are striving to build an ecosystem that allows us to open up the world of crypto to anyone and everyone wanting to find a secure, decentralized and scalable solution to their problem, whilst simultaneously showcasing the true abilities and benefits of Smart Contracts and NFTs.

For more information on how you can develop on $RLC you can visit our website at https://Redlight.finance

For more information on how you can integrate your real world business into our Blockchain please email us at business.development@redlight.finance

References

[1] = "Ethereum Virtual Machine", https://ethereum.org/en/developers/docs/evm/, 2022

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https://www.ledger.com/academy/what-is-the-blockchain-trilemma, 2021

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[6] - "What are Crypto Gas Wars?",
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