



Primary Report

This is an exciting time for QRL

The next few months will see the culmination of work which was started in 2016 and published as a roadmap the following year - the creation of a decentralised quantum-secure proof-of-stake network.

Introduction

I would like to use this opportunity as the recently appointed Operations Manager of QRL to outline the situation as I see it and give an indication to the community of how I believe we can rapidly become the pre-eminent QR L1 chain of the future.

Central to the success of any crypto project is the community which adopts it. I want to thank each and every person reading this, and more besides, who have joined the QRL community during the past few years.

There have been significant trials and tribulations along the way, but I firmly believe this is a new dawn. The momentum will now shift from technological and scientific development to a more human-focused one. Community, partnerships, widening access, educating potential new users and developers will be the main effort.





Goal is decentralised governance

That is not to say technical efforts will cease - there is room for optimisation and the design of QRL will allow for future QR signatures to be incorporated as they are created and proved secure.

I am acutely conscious of the paradox in which I am taking part.

On the face of it, my appointment flies in the face of increasing decentralisation. I want to be clear from the very start that the end goal of QRL is ultimately to enjoy decentralised governance which gives executive powers to QRL holders.

There are some legal and technical impediments to that at the moment, but that is where we are heading. In the interim, I will seek to engage constructively with the community as we steer ourselves towards the end goal - and ensure QRL lives up to its enormous potential.

Situation Analysis

QRL was conceived against a future threat; that of Quantum Computing (QC) disrupting the nascent blockchain technology which was, and remains, heavily reliant on quantum-insecure cryptography.

The threat posed by QC is difficult to convey, with experts disagreeing widely about any number of crucial factors; from the number of logical qubits required to render existing elliptical curve cryptography obsolete (via Shor's algorithm), to the number of practical qubits required to provide a logical qubit and to timelines of development.

And then of course there was the unwillingness of the blockchain and cryptocurrency sphere to even engage with the QC threat

which potentially could be an existential threat for many projects - including bitcoin.

It is against this backdrop that this niche project has been developed. The whitepaper written by Dr Peter Waterland in 2016 provided the framework and roadmap by which the Quantum Resistant Ledger would be developed and introduced to the world.

The goal is a hedge against future QC uncertainty; a future bedrock for as-yet-undetermined technologies which come into existence in the Quantum Age. Fast forward to 2024 and what do we have?

A Quantum proof, Proof of Work Mainnet functioning as a Store of Value

With:

1. A genesis blockdate of 26 June 2018
2. An uptime of more than 2000 days
3. A regular 60s blocktime
 - a. A network approaching its 3 millionth block.
 - b. More than 77 million coins mined, yet still over 25% of the total emission as yet unmined
 - c. More than 12,000 wallets with non-zero balances.
 - d. Typically 250 miners divided among 8-12 pools at the current price and difficulty
 - e. A market cap of \$17 million, fully diluted to \$22 million



A Quantum proof, Proof of Work Mainnet functioning as a Store of Value

And of course we have already taken that further step into the future: a **Public Beta Testnet for Project Zond - a Proof-of-Stake, Level 1 Blockchain** which is undergoing thorough community-facilitated testing as I write.

Access: Arguably, QRL's availability to new adopters has been the greatest challenge QRL has faced since its inception and its availability on exchanges has been a crucial part of that.

It is easy to forget just what a nascent field crypto is, but the landscape has changed several times in the course of the last six years.

In 2017, Poloniex and Bittrex were among the rising stars. Bittrex listed QRL as an ERC-20 token and then supported the change to native token.

QRL's unique selling point of being a QR chain using stateful signatures was a double-edged sword.

QRL was available for people to acquire, but the complexity of listing it was a disincentive for other exchanges. QRL found itself in a vicious circle of having low-trading volumes and only one or two exchanges.



Bittrex Global closure repercussions

The regulatory landscape became increasingly unclear during the course of 2019-2021, particularly in the US, which led to Bittrex enforcing a geo-fence, precluding American citizens, a key demographic, from accessing QRL other than by mining it.



A listing with CoinTiger, and latterly Dex-Trade and MEXC somewhat alleviated this choke point, but QRL remained highly vulnerable to external shocks relating to a very small number of centralised exchanges. As I write this, the repercussions of Bittrex Global's closure are still being felt as long-dormant holders try and retrieve their coins.

The difficult decision taken to cut the mining rewards should also be noted here. This decision was taken in order to reduce the significance of RandomX profit-mining pools that were shown to not assist effectively with network security and yet depress the market value of the coin to the detriment of many. While it achieved the desired effect, that was not without a negative impact on long-term miners of QRL and also reduced the attractiveness of mining to smaller-scale participants.





Market penetration

Despite now being one of crypto's 'OG's,' market penetration remains poor. The hurdles posed by the exchange situation and niche technological focus have meant QRL has struggled to attract the attention of large numbers of users to date. In a field which flirts with the absurd - with animal and meme coins created overnight, QRL is proud of the fact it is a serious project and has always striven to position itself as 'enterprise-grade,' offering something genuinely useful to the market.

This remains the case today. QRL exists as a next-generation foundation for both a QR store of value and a chain on which future secure Apps can be built.



Partnerships and grants

These will continue to be a fundamental part of how QRL will continue to influence the crypto and blockchain space and determine how the QRL ecosystem grows. 2023 saw the award of substantial grants across the whole spectrum from purely scientific and technological developments, to some incredibly slick UI products for QRL directly. The grant system will continue to remain open and we welcome any proposals as we continue.



QR Contenders, Competitors and Companions

A remarkable feature of the present blockchain/crypto space is that, despite security being of fundamental importance to the trustless nature of public blockchains, there is a vast amount of ongoing vulnerability to the impending arrival of Quantum Computers, a technology certain to have a drastic effect on the blockchain landscape.

More remarkable still is the apparent lack of urgency for developing quantum resistance that many chains display. Nonetheless it is pleasing to see there are a small number of projects which are pursuing QR in an open source manner. QRL welcomes the honest development of all such technology and hopes to encourage ongoing collaboration in the field.

As Quantum Computers develop along differing lines of photonic, superconducting, trapped ion, neutral atoms etc, it is highly likely different QR blockchains pursue different lines of inquiry and progress. The future should be fascinating, and synergies are certain to occur.



Community

Without a shadow of doubt, the QRL community is the jewel in the decentralised crown of QRL. While it is small by many standards (just shy of 3,000 in the Discord, 16,000 X followers; >1,000 YouTube subscribers) it more than makes up for its small size by its fierce and well-informed passion. The Discord (despite the recent issues) remains the hub of all activity and is incredibly welcoming to newcomers; it is also frequented by some highly QC and blockchain-literate men and women who are incredibly generous with their time and expertise. The calibre of discussion is extremely high and usually resembles more of a dinner party conversation than a bar brawl.

Preserving a welcoming, pleasant, entertaining and educational venue is of paramount importance and the moderation of such places is no mean feat. The community as it stands will form the seedcorn from which a much larger QRL community will grow.

And now to the future

Mission:

QRL is to become the pre-eminent QR blockchain on which developers choose to program and will penetrate all global markets - including those of the historically 'unbanked.' QRL will become increasingly decentralised until the point where all governance and decisions occur entirely on-chain.

Strategic Enablers

In order to achieve the goal, there are four Key Lines of Development (KLOD):

1. Increasing Decentralisation
2. Enablement of L2/3 application development
3. Establishment of QRL fora as the hubs for QC/Blockchain exchange of ideas and expertise
4. Exploration of legal options for decentralised governance

All future actions will directly contribute to one of the four KLOD identified above.

Strategic Enablers

1 Increasing Decentralisation

In order to increase decentralisation more people need to know about QRL; more people need to believe in the prospects of QRL; more people need to hold QRL; more miners, nodes and, ultimately, stakers, will be needed.

A multi-pronged approach is required to address those needs. An outreach and education programme will be established and funded. Barriers to entry will be reduced by increasing the number of exchanges that QRL will be available on. Technical aspects of the forthcoming PoS network will be refined to ensure the minimum stake is as low as possible yet still retains a functioning and stable network. Staking pools will be supported with technical assistance and grants where required.

Until PoS arrives, there is still a PoW network to maintain, encourage participation in and enhance. Options will be scoped to make the leap from coin-holder to coin-miner as easy and as rewarding as possible.

Strategic Enablers

2 Enablement of L2/3 application development

Grants and collaborative options will be available during the coming months so when the chain moves from PoW to EVM-enabled PoS, there is a growing suite of quantum-secure Apps available in the ecosystem. A hackathon will also be organised to attract both people already familiar with QRL and also those who want to build products with longevity on a QR chain.

3 Establishment of QRL fora as the hubs for QC/Blockchain exchange of ideas and expertise

QRL has long prided itself on producing and hosting events that have both academic integrity and are of an enduring nature. We plan to evolve this line of academic, social and entertainment production to attract experts in the QC and blockchain fields. Further collaborations on YouTube, X and other venues will help to cement QRL at the nexus of quantum cryptography and cryptocurrency.

4 Exploration of legal options for decentralised governance

The end state of QRL is to employ a completely decentralised, on-chain governance structure. Recent history shows such governance structures are not without vulnerability from exploitation though and it is likely the development of a robust, safe and fair structure will take many months, or even years. Nonetheless, this direction of travel is to be pursued, and methods for enacting decentralised governance will be explored in due course.



Financial Transformation Roadmap

After another successful year of grant awards, The QRL Foundation continues to steward its reserves in a responsible manner in line with its founding objectives and remains well funded to continue development of the roadmap into the future.

The QRL Foundation exists to further develop quantum-resistant blockchain technology and is equipped to continue this development for many years yet. In order to create as much transparency as possible around the other areas of activity, it has been decided to fund a separate legal entity which will be responsible for developing the growing QRL Ecosystem. Quantum Future Limited is a Gibraltar-registered Limited Company which will allow for great flexibility and independence.

Working capital will be disaggregated into fiat, Bitcoin and quantum-secure cryptocurrency. Addresses will be published as necessary and annual reports made.



From this working capital there will be significant expenditure in order to pursue the four KLOD above. In many respects this expenditure will be front-loaded. By generating increased awareness and a growing community it is hoped that at QRL, we enter a virtuous cycle of its growing stature attracting increasing interest, expertise and discussion.

The next year

Growth of the community is the order of the day for 2024. In order to grow the community there will be a number of activities which take place. These include, but are not limited to: Increasing the access to QRL; awarding further grants as appropriate; a well-designed and enacted awareness campaign; conference attendances by members of the team and importantly, another hackathon - beneficial for both product development and community identity.



Management/Community Alignment Plan

Blog updates are very useful for keeping a record of progress, but they are inherently retrospective. QRL will hope to provide a more prospective format of communication in the future. This is likely to be in the form of a verbal briefing/AMA over Discord or X which will take place on a monthly/bi-monthly schedule.

The team will continue to meet virtually several times a week and as the project grows in complexity, there will be an increased amount of choreography employed to maximise the benefit of the ground-breaking work that takes place behind the scenes.

Organisational alignment

As this non-developmental aspect of QRL grows, there will be a need to align staffing to tasks. This is likely to entail appointment of more outward-facing employees and comprise both direct appointments and outsourcing of activity.

Summary

In short, QRL has consolidated itself as a unique project that has delivered on what it set out to achieve - a blockchain secure from genesis block against future developments in the quantum computing realm.

The future of QRL requires a fork of sorts - ongoing development on the one hand, which remains the focus of the foundation and on the other, a move towards delivering on the decentralised aspect of a public blockchain.

Whilst this will not happen overnight, I am confident that the team and community can deliver on this fundamental task.