Redstone Whitepaper

Vision

"Redstone - the first and largest decentralised marketplace for the dApp and web service economy."

The goal for the Redstone economy is to incentivise the development and operation of valuable dApps and web services. Using the Redstone platform & coin will allow for the creation of decentralised communities, empowering anyone anywhere to earn a living or additional income, where the profits go to those that do the work, not the shareholders or company owners.

Web services deliver flexibility and scalability for the development and deployment of service-based applications by adopting a web service architecture that allows individual services to be developed and deployed independently and dynamically. What this means in practice is that web services along with serverless computing only spin up when needed - which means that it is a very economical way to build scalable applications.

With web services, changes have become simpler as it is only necessary to deploy the updated web service, which also reduces or eliminates downtime, reduces complexity and improves support whilst reducing risk.

Redstone will initially focus on open source software as it fits well with the blockchain community and Redstone roots - but is in no way limited to the open source marketplace.

What is Redstone (XRD)

In the Redstone economy, there are a number of roles that participants can play - each with a unique skill set, and they are incentivised to participate:

Initiator - any member of the community with an idea for a new dApp or web service

**Consumers** - the end users (a developer, dApp or another web service)

Developers - build and test the dApp or web service

Operators - deploy and maintain availability of the dApp or web service.

Miners / Minters - secures the platform by completing POW / POS.

Redstone provides an incentive for the community to operate dApps and web services

- Anyone from the Redstone community will be able to **Operate** a dApps or web service by staking a minimum of 10k **XRD**. The **Operator** will receive boosted POS **XRD** rewards based on the key metrics including dApps or web service availability, popularity and reputation.
- This provides an incentive for the community & investors to make these dApps and web services available. The more popular the service the bigger the boost and the higher the **XRD** rewards the **Operator** will receive. This will encourage more **Operators** of popular dApps and web services.
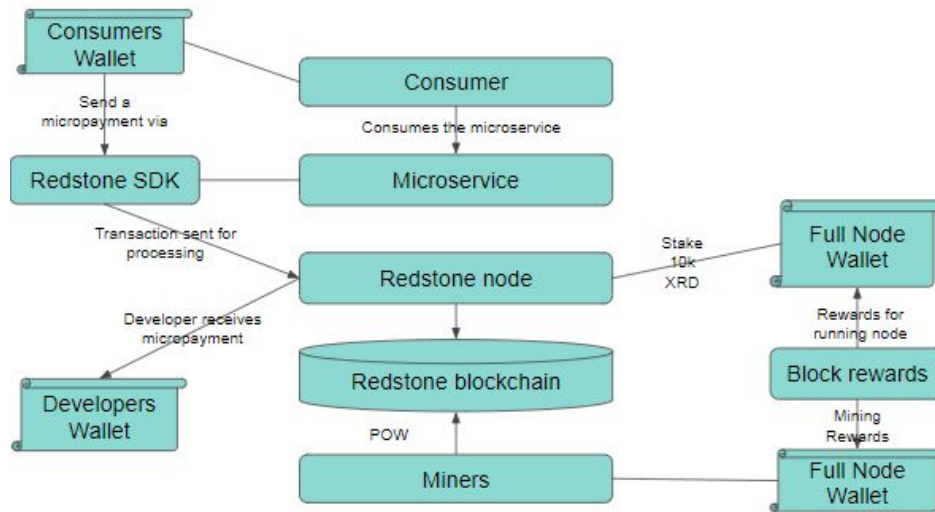
Developers can monetise their efforts

- The **Developers** will embed the Redstone SDK into their service enabling **Consumers** to send micropayment for use of the dApp and web service.

Redstone (XRD) provides the mechanic for Consumers to make micropayments to allow them to use the dApp and web service

- The **Operator** sets the fee in the Redstone native currency (**XRD)** and when a dAppsor web service is consumed a micropayment is automatically transferred to the **Operators** wallet

A Marketplace & Service Registry for the discovery and support of web services

- Using the Redstone SDK, the **Developer** registers their dApps or web service in the Redstone Service Registry.

- The Redstone Service Registry enables **consumers** & **operators** to identify dApps and web services by popularity and price in **XRD**.

- The Redstone Marketplace will display the services within the Service Registry & provide simple community features allowing the development team to interact with the community and crowdfund new features, dApps and web services.

- It will also allow the community to post feedback about the dApp and web service, developer and operators - which in turn will help to power the reputation system.

- Finally, where appropriate it will allow for governance features using either the Redstone Chain or a side chain if applicable.

A marketplace for crowdfunding the development of new dApp or web service

- The platform will allow for an **Initiator** to register their request for a new dApp or web service & facilitate crowdfunding of the budget in **XRD** via a smart contract.

- The **Developer**(s) will stake **XRD** confirming their commitment to the project. The platform will enable the details of the dApp or web service to be iterated between the **Initiator** and **Developer**(s).

- The **Developer**(s) will build and test the dApps or web service and once declared complete by the **Developer**(s) a vote will be called and the **Initiator** will give the go ahead for the crowd-funded budget to be distributed.

- To ensure a fair distribution the **Developer**(s) will vote on the distribution of the funds between all the contributing **Developers**(s).

A treasury for ongoing Platform development

- A **Redstone** treasury fund will be used to build the platform & community. This will included the marketplace & ongoing platform development. The fund will also be used for marketing the **Redstone Platform** through a number of airdrops to get developers to register their services on the system

- Reserves for bounties
    - White paper translations

- Exchanges (although we may consider donations from the Redstone community as method for listing on exchanged, at least initially)
- Marketing & Advertising
- Community managers & support - discord, telegram, twitter
- Reserves for crowdsourcing the roadmap beyond MVP
- Reserves to resolve issues as they arise

We will also explore partnerships with a consultancy utilising the Redstone economy to support enterprise clients.

Redstone Nodes

The **Operator** of the Redstone node will host and manage an existing dApp or web service, these can be open source or proprietary. By way of compensation, the **Operator** will be rewarded with a boosted POS block rewards. Each operator will receive **XRD** payouts based on their Proof of Value. The payouts will be based on key metrics including the availability of dApps and web services as well as the value provided by the node to its consumers.

- **XRD locked** will influence the payout, the minimum collateral will be 10,000 XRD.
- **Availability** will be based on the nodes ability to be "seen" by other Redstone nodes
- **Value** will be key component of the reputation and will be based on the value of micropayments received

There will be a small micropayment collected by the **Operator** on behalf of the **Developer**; this micropayment is designed to protect the platform by reducing the potential for **Operators** to game the system by automatically generating multiple calls to the dApp or web service to increase the reward payouts. It also acts as an ongoing source of income for the **Developer** and a gauge of value for the dApp or web service.

Proof of Value (PoV)

Redstone is the first masternodes platform where the **XRD** payments will be variable using a unique Proof of Value formula.

If you operate a dApp or web service and lock-up 10k XRD as collateral you will qualify as a Redstone Node. As a Redstone Node you will be compensated for supporting the network with a portion of the block reward. The **PoV** boost will be applied and will determine how quickly your node progresses through the Redstone node queue.

The **PoV** multiplier will be determined by calculating the total **XRD** earned by dApp or web services across all Node operator's. Depending on the total amount of **XRD** earned by the node a different **PoV boost will be applied as follows:**

1. > 75% a x3 **PoV** boost will be applied
2. 50-75% a x2 **PoV** boost will be applied
3. 0-50% a x1 **PoV** boost will be applied

The larger the **PoV** boost the quicker your node moves through the queue and therefore how frequently it is that the node will receives the relevant portion of the block reward. The **PoV** boost will be dynamically reviewed on a regular basis (24 hours).

Together, the Redstone Service Registry & Node framework will help mitigate against Sybil and whitewashing attacks by providing an incentive to participate in an honest way within the Redstone economy. They will do this by introducing an economic and computational cost to participation, and also by providing a metric for reputation to maintain optimal availability.

Redstone SDK

The **Redstone SDK** will be installed as a library and be called by the **Developers** dApp or web service.

By logging in for the first time the **Consumer**, via the **Redstone SDK** will (silently) sign a transaction which will be passed to the **Redstone Node**. The **Consumer** will have previously setup a wallet and linked it to the dApp or web service paid a usage fee paid using **XRD**.The **Redstone Node** will validate the transaction and pass back a key which can be used in subsequent API calls until the usage fee expires.

The **Redstone SDK** will be used by **Developers** to integrate their dApp or web service into the **Redstone** platform.

It will provide a number of capabilities which will allow the **Developer** to:

- Provide metadata about the hosted dApp or web service to **Redstone Service Registry** for discovery on the **Redstone Marketplace**
- Link with the Redstone nodes and set the **Developer** fee
- Provide the **PoV** metrics to the **Redstone node**

All communications will be signed and encrypted messages within the Redstone platform ensure authenticity, which protects against man-in-the-middle attacks and passive data collection**.**

Crowdsourced dApp or Web Service Development

The **Consumer** submits the requirement along with the acceptance criteria, based on best practice templates within the marketplace website. The **Consumer** + anyone from the community crowdfund the requirement by staking **XRD.**

The Redstone treasury will act as a **Consumer** as well as participate in the crowdfunding if the requirement helps in the development of the platform. If they want to participate, the **Developers & Validators** will also stake against these requirements. This crowdfunded **XRD** becomes the development fund and is held in a smart contract. Based on the service to be developed and whether a native coin is required the crowdfund could act as the seed for a sidechain security by the main redstone chain.

It is expected that poor requirements won't get **Developer** or **Validator** stakes, but may receive feedback to help iterate and improve the proposition. The participating **Developers** & **Validators** self organise to complete the dApp or web service build process. Once complete as defined by validation of the acceptance criteria, and with the consensus of the **Validators** - the smart contract distributes the coins to the **Developers** & **Validators**. It is expected that most of the software is developed under an open source licence.
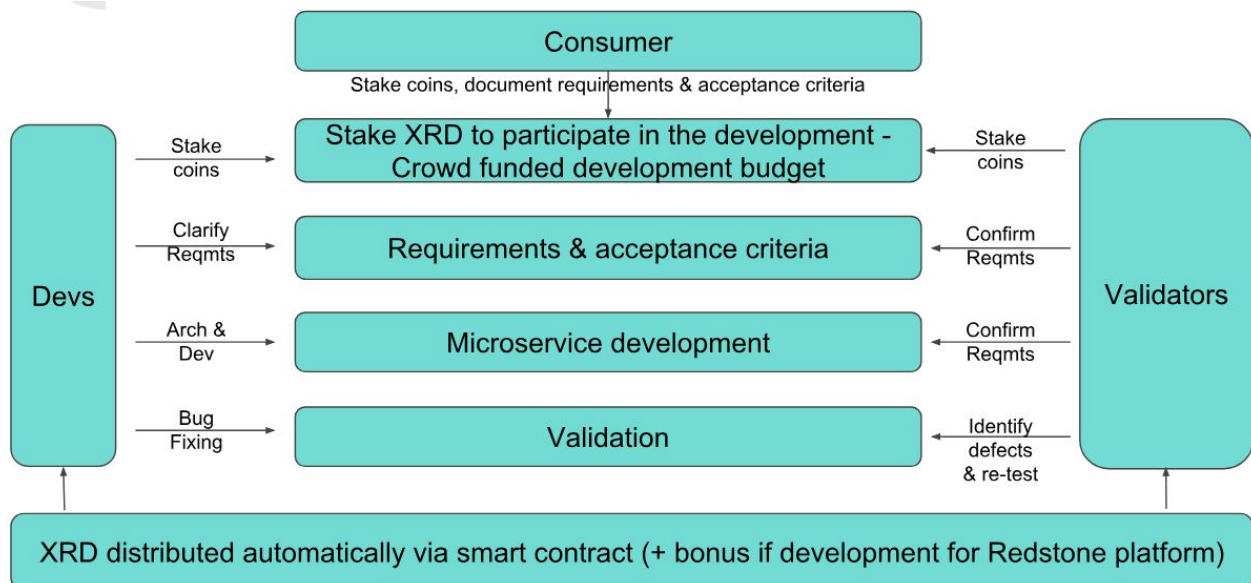
XRD Specification & Distribution

At the point the mainnet is launched, there will several phases designed to distribute XRD to help bootstrap the network and incentivise early adopters. The initial phases will be based on a proof of work (PoW) / Proof of Stake (PoS) hybrid consensus mechanism with the block rewards and then halfing at set block heights. The PoW phase will only last for around 3 months before distribution continues with a switch to PoS only and the block rewards will start to reduce by 7.5% per year.

Block Time: 60 Seconds with retargeting every block (approx. 1440 blocks per day)

Max Coin Supply: PoW=**2,916,000** & Total = **90,000,0000**

PoW Algorithm: X13

Premine: [block# 1-2] 5% Premine for founders

PoW Phase Period: Approximately 3 months from launch of mainnet

PoW Block Reward: [block# 3-129,600] 30 XRD

PoS Block Reward: [block# 3 -) 15 XRD, reducing by 7.50% each year until cap limit reached

PoW Rewards Breakdown: [block# 3-129,600] 100% miners / minters

PoS Phase Rewards Breakdown:

[blocks 129,600-] 65% Redstone Nodes , 25% Minters & 10% Redstone Treasury

Redstone Nodes (POV)

The PoV boost will be determined by calculating the total XRD earned by dApps and web services across all Redstone node operator's. Depending on the total amount of XRD earned by the node a different PoV boost will be applied as follows:

> 75% a x3 PoV boost will be applied

50-75% a x2 PoV boost will be applied

0-50% a x1 PoV boost will be applied

The Redstone treasury will run a number of Redstone nodes to support the network in the early stages - these will gradually be phased out as the network grows and becomes sufficiently decentralised. Any rewards for running these nodes will be placed into the Redstone treasury wallet for future development of the platform.

In order to increase initial XRD distribution, there are plans to complete a series of XRD airdrops to the community that register with Redstone these may include but aren't limited to; GitHub, StackExchange, BitcoinTalk, Telegram, Discord, Twitter & other social media.

Roadmap

- Launch Redstone on testnet (**complete)**

- Build Redstone SDK (**POC complete**)

- Develop the Redstone service node technology (**In progress)**

- Launch Redstone service nodes on testnet (**In progress)**

- Beta test Redstone SDK with sample dApp or web service (**In progress**)

- Launch Redstone, Service nodes & Redstone SDK on mainnet

- Build Marketplace MVP

    - Beta test Marketplace MVP testnet

    - Launch Marketplace MVP on mainnet

- Build crowdsourcing applications MVP with smart contract

    - Beta test crowdsourcing applications on testnet

    - Beta test crowdsourcing applications on mainnet

Go To Market Strategy

- White Paper, Announcements & Website launch

- Initial distribution for:

    - Website, community managers & white paper translations

    - Development of Marketplace MVP

    - Development of Crowdsourcing application MVP

- Launch bounty campaigns

- Build Discord, Telegram & Twitter communities

- Discord Bot for tips & airdrop

- First exchange launch + schedule subsequent exchanges