CrowdCoin

The one-stop platform for the world of cryptocurrency

White Paper

Creating an environment for crypto-investors, users and residents of the cryptocurrency world to come together and invest,
innovate and educate as part of a tangible movement for change

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Disclaimer

The purpose of this White Paper is to present CrowdCoin, its technology, business model and the CRC token to potential token holders in connection with the proposed Initial Coin Offering (ICO). The information set out below may not be exhaustive and does not imply any elements of a contractual relationship. Its sole purpose is to provide relevant and reasonable information to potential token holders in order for them to determine whether to undertake a thorough analysis of the company with the intent of acquiring CRC tokens.

All relevant legal information is contained in the Token Purchase Terms and the Token Purchase Agreement. This White Paper does not constitute an offer to sell or a solicitation of an offer to buy a security in any jurisdiction in which it is unlawful to make such an offer or solicitation. Neither the Swiss Financial Market Supervisory Authority nor the United States Securities and Exchange Commission nor any other foreign regulatory authority has approved an investment in the tokens. The CRC token can be categorised as a security as it entitles token holders to receive the profits from mining operations. The token is, as such, subject to certain restrictions under US security laws. The CrowdCoin ICO is compliant with these rules and restricts access for US citizens, Green Card holders and residents of the US to the category of 'accredited investors', pursuant to the US Security Act Regulation D Rule 506 (4).

Certain statements, estimates and financial information contained herein constitute forward-looking statements or information. Such forward-looking statements or information concern known and unknown risks and uncertainties, which may cause actual events or results to differ materially from the estimates or the results implied or expressed in such forward-looking statements.

This English-language White Paper is the primary official source of information about the CRC token. The information contained herein may be translated into other languages from time to time or may be used in the course of written or verbal communications with existing and prospective community members, partners, etc. In the course of a translation or communication like this, some of the information contained in this paper may be lost, corrupted or misrepresented. The accuracy of such alternative communications cannot be guaranteed. In the event of any conflicts or inconsistencies between such translations and communications and this official English-language White Paper, the provisions of the original English-language document shall prevail.

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Summary

Although cryptocurrencies have existed since the mid-1990s, it took until 2009 and the success of Bitcoin for the concept to be taken seriously by the general public. Bitcoin finds itself at the head of a recent surge in popularity – due in no small measure to the attention of investors. This has caused the price of the cryptocurrency to rise enormously, but not before starting many conversations about the viability of a digital currency across the financial world.

This conversation has been marked by a difficulty in assigning a financial value to these newly created cryptocurrencies. This has caused the trading public to treat these coins more like stock than like real money – investing in them for the short-term viability, and then selling them on as the commodity, not using these altcoins as a means of payment for other commodities. This is in some part due to the fact that most cryptocurrencies are pegged to large, more successful coins that have a fiat value. This requires users to trade their coins for *other* altcoins that must then be sold on in order to convert them into cash.

Because of the intensely convoluted system that has sprung up in the wake the Bitcoin success story, CrowdCoin aims to provide a comprehensive platform for investors and enthusiasts that not only simplifies the complex chain of trading, while providing bespoke investment services to community members, but educates the community at large. This will move the cryptocurrency community towards a sustainable, responsible future and introduces a profound change for good in a financial ecosystem that has been renowned

primarily for its volatility. This paper aims to set out the goals of the CrowdCoin platform, as well as a look into the *masternode* technology that will power it.

In the spirit of the community of which the CrowdCoin ideals form an integral part, we are a crowd-sourced initiative. This means that we will draw on the expertise of the many, not the few and use the ideas of the people who use our platform to drive it forward and make CrowdCoin the greatest success that it can possibly be. By doing this, we can bring our platform to its maximum potential.

Development Phases

The CrowdCoin platform has a concrete road map for success, laid out here. Before CrowdCoin can achieve these goals, however, real funding is required in order to help implement these changes. The first step in the CrowdCoin journey is to continue to work on implementing a truly world-class and community-defining platform for users. Once this platform is operational, further development of the masternode and blockchain systems (derived from the proven and successful DASH model) can take place. Once the masternode system is working efficiently, development can turn back towards refining the platform, as well as providing ancillary services that CrowdCoin seeks to provide.

This sensible, sustainable and methodical approach to cryptocurrency is backed by recent international responses to investment and concerns from governments about investing in cryptocurrency. With some concern that China's recent clampdown on mining operations will cause Bitcoin to become unsustainable, it is time that the responsible crypto-community at large took concrete steps to prove the viability and responsibility to users to prevent nervous regulators from clamping down.

Our road map to achieving the sustainable future of digital currency, in which goods and services can be paid for entirely in cryptocurrency, is as follows:

Phase 1: A Platform for Initial Coin Offerings (ICOs)

The first phase of CrowdCoin development is to create a platform that will allow for the crowdfunding of ICOs. ICOs have proved a popular and effective alternative to traditional fundraising methods, and in a truly global effort, they can help bring together dedicated and likeminded investors and users from all over the world in a manner that traditional finance cannot. Additionally, the investment of capital into an ICO provides a user base that can help the coin grow in value (and therefore in stability) by spreading the coin itself.

Problematically, ICO investment is difficult for residents of the United States, as the due diligence for investors required by the US government is very difficult for coin start-ups to comply with. With China and South Korea also looking to implement bans on ICO investment, CrowdCoin will provide a solid platform for all investors who would like to contribute to ICOs without having to deal with the initial roadblocks, which is of enormous benefit to investors and ICOs alike. Using the CrowdCoin investment platform, registered users will be able to co-invest in new coins by aggregating their demand, this gives them a better discount, as they are buying in larger quantities. This service will provide a safe, viable alternative for potential investors who up until now have been excluded from the process by restrictive governmental regulators.

By offering this service, CrowdCoin will attract users who are interested in investing in ICOs. The team at CrowdCoin will undertake an extensive vetting process to ensure that any ICOs in which the community participates are entirely proper, which will help to reduce the risk

of falling victim to unscrupulous schemes designed to steal large amounts of cryptocurrency from participants. It is hoped that this approach to ICO investment will bring in a considerable volume of users who are looking to get into a difficult market and facing controlling interests with higher amounts of capital.

The registration system in place on the CrowdCoin platform will also reduce the likelihood of manipulation. Some ICO offerings can be inflated by controlling interests dumping money, and therefore making the currency appear more popular than it actually is. The co-investing nature of CrowdCoin will prevent this to a large extent, meaning that the ICOs that users take part in will be a much fairer reflection of the true value of the coin, and not a baseless value that may or may not be the result of cryptocurrency manipulation.

Phase 2: Adding Financial Advisory and Due Diligence Services

The second stage of the expanded platform is, in effect, a 'cryptoguru' service that will be able to offer sound financial advice to investors. With so many ICOs and rival coins currently competing for the attention of investors, it is difficult for many users to find the best place to invest their money. With a dedicated team at CrowdCoin, guidance will be available to help the community find the best possible use for their funding.

A dedicated team is necessary because at this stage in the development cycle of cryptocurrency, there is too little understanding of the potential risks and pitfalls of investment. This lack of fundamental knowledge extends to professional investors in traditional fields, who are confronted by a complex, fast-moving economy that requires in-depth education. The fact that the field has opened up to allow almost anyone, regardless of qualification or financial means to invest, means that many people are blindly throwing their money after clickbait tips, and subsequently losing significant amounts of money to scams.

The due diligence services offered by the CrowdCoin platform will be provided by financial advisory and law firms that will be partnered with us. The services of these firms will be directly reachable through the CrowdCoin platform, and payment will be made entirely through the use of CrowdCoin. Providing these links between our platform and real businesses is an important step in helping cryptocurrency to gain the prestige and legitimacy of fiat currency.

The CrowdCoin platform will also offer bespoke investment services to users. The performance of these managers will be tracked by the platform on a monthly basis, meaning that the data collected can be shared with platform users in order to provide information on who offers the best performance as a fund manager, based on accurate and verifiable data. This is an ideal addition for investors who do not actively wish to manage their own funds, either for reasons of time or knowledge. All that will be required is for investors to select a fund manager, make the payment in CrowdCoin and then allow the fund manager to do the rest.

All fund managers will be affiliated with the platform by registering as a fund manager directly with CrowdCoin. This will allow us to perform due diligence, and only provide

services for properly accredited managers, reducing the possibility for malicious actors taking advantage of the system.

Allowing CrowdCoin to provide a team of experts will improve the health of the crypto-economy as a whole. As full-time professionals, they will be tasked with performing due diligence, ensuring that the user base is better informed and able to avoid losing capital not only to blatant scams, but also to inexperienced ICOs that have vastly overestimated the value of their currency. Coupled to the co-investment scheme, the platform should help to stabilise and support the wider crypto-community by providing a form of self-regulation that a decentralised system otherwise struggles to provide.

Phase 3: Providing Educational Information, Classes, and Tutorials

Once a sound advisory body has been created, the platform will expand to become an education resource centre that aims to educate the user base to be able to better understand and invest into cryptocurrency in its own right, not only by focusing on strategic investment, but by teaching them about the technologies and the evolution of cryptocurrency. While the need for a dedicated team of experts will remain – as it is simply not feasible for part-time enthusiasts to be sufficiently immersed in the fast-moving crypto-environment to remain fully informed – increased education on the topic of cryptocurrency and the wider digital economy can only benefit the community.

This will take the form of several different branches of the CrowdCoin platform:

- **An educational service**

The first is perhaps the easiest to implement. The platform will provide instructional courses and cryptocurrency news for its users, who will have a centralised aggregator service designed to help investors, both new and old, to gain a deeper understanding of the complex world of cryptocurrency.

This service, which will be easily accessible, will help increase public understanding of not only the CrowdCoin project, but also of the global economy, which is rapidly changing in the face of a new wave of digital investment and technology. With increased education, comes increased responsibility, thus fulfilling a key pillar of the CrowdCoin ethos.

Teachers who actively teach these classes will be paid in CrowdCoin. This provides an incentive for members of the community to take the lead – so education on cryptocurrency can be taught in an effective and pedagogical manner. The use of CrowdCoin as a payment method will also bolster the stability of the coin, by expanding its use as a practical currency.

- **Community driven learning**

Many of the best educational resources are crowd-driven. Reddit, in particular, has enjoyed enormous success with its crowd-driven learning system, which allows experienced users to educate newer ones, creating an enviable collective knowledge base. By allowing user input

to our educational programmes, CrowdCoin will look to recreate this kind of success, helping the inexperienced learn from the best, and to do so in a manner that promotes responsible investment and sustainable growth. This will help deliver what CrowdCoin hopes will prove to be the best and largest library of crypto-related information in the world. Our community library will include literature, videos and podcasts on all relevant sources of education to create a unique and fascinating digital archive of crypto history, education and growth. With education on our masternode system, platform users will be able to understand exactly why CrowdCoin is the best option for the wider community to embrace.

- **Intelligent indexing**

A knowledge base is only as good as its indexing service, and with CrowdCoin's intelligent search index, retrieving knowledge and furthering personal development will be extremely simple, fast and effective. Combined with our extensive digital archive, the ability to deliver information will be easier than ever before. Using an easy-to-use, effective archiving system, storing and retrieving knowledge on anything and everything to do with cryptocurrencies will become an integral part of making learning about the world of crypto fun, easy and accessible.

It is the goal of CrowdCoin to provide an affordable, transformative education to everyone, regardless of location or personal circumstance. Using our blockchain technology, delivering this education will be well funded and provided only by people who have a real understanding of the topic. Delivering a strong platform, with education and information as the centrepiece is a key part of the CrowdCoin mission.

Phase 4: Expand Platform to Offer Crypto Exchange Services

We will aim to offer a cryptocurrency exchange service, with every transaction written on to the blockchain in order to increase transparency and create awareness of what transactions have occurred in order to prevent fraudulent transactions and manipulation.

In order to have a reliable source of information, we need our own exchange in order to be able to collect this information, so we are not reliant on third-party information, as it can be easily manipulated. Having a dedicated exchange service at CrowdCoin will allow us to provide accurate information about the performance of the fund managers, and to be able to accurately chart the performance of various managers over time.

Transparency is an important part of CrowdCoin's mission, as it is integral to maintaining a safe, responsible and sustainable digital economy.

As an optional feature in Phase 4, we will look to integrate the platform with an existing exchange in order to create virtual orderbooks with bigger liquidity into a single location.

Market Environment and Platform Dynamics

Market Environment

After a period of turbulence, the market for cryptocurrency is finally showing signs of stability, in no small part thanks to almost 18 months of sustained investment. There is sufficient evidence to prove that most investors react positively to speculative, wild suggestions at ICOs, rather than on fact-based, well-presented analysis.

It is important for CrowdCoin to demonstrate its commitment to providing a legitimate and well-designed platform, so that maximum trust can be established between the CrowdCoin team and investors at this early point.

There is very little in the market that offers the kind of collective services that CrowdCoin has to offer. This puts the platform at an advantage, as we are able to fill an existing gap in one of the fastest-emerging markets in the world, and the most talked-about sector of the digital economy.

With 211 ICOs in 2017, raising a total of over $5.6bn[1], and with the first quarter of 2018 more profitable still, with over $5bn raised across the board via new ICOs, we can clearly see that the market for ICO hosting facilities is increasing exponentially.

ICOs by Category 2018

- Communications 21.8% ($969,953,600)
- Finance 18.0% ($799,701,539)
- Trading & Investing 13.9% ($617,237,136)
- Gaming & VR 9.4% ($416,049,113)
- Commerce & Advertising 6.2% ($275,965,500)
- Payments 5.4% ($240,025,329)
- Infrastructure 4.3% ($190,628,000)
- Machine Learning & AI 3.4% ($149,931,776)
- Energy & Utilities 2.3% ($101,500,000)
- Mining 2.3% ($100,000,000)
- Supply & Logistics 2.0% ($90,166,668)
- Drugs & Healthcare 2.0% ($89,178,011)
- Data Storage 1.6% ($69,000,000)
- Privacy & Security 1.5% ($66,793,221)
- Social Network 1.4% ($60,057,000)
- Data Analytics 1.3% ($57,017,078)
- Compliance & Security 0.9% ($39,544,101)
- Transport 0.7% ($29,500,000)

A pie chart showing the major categories of ICO of Q1 2018, and the amount of money raised by each sector.

1 http://uk.businessinsider.com/how-much-raised-icos-2017-tokendata-2017-2018-1

Platform User Engagement

As discussed more widely throughout this White Paper, CrowdCoin aims to have a team who will be able to vet potential investment opportunities. This means that only accredited, legitimate ICOs will be offered on our platform.

As the ultimate aim of the platform is to provide a hub for the crypto-community, we anticipate that there will be a sizeable market that is directly reachable through membership, which is an immediate group of around 3,000 (a number which the platform anticipate will rise to between 100,000 and 1,000,000 people over the course of 18 months) as well as the potential to attract investors from outside of the platform. This is an advantage for CrowdCoin, as it will attract people who are looking to take part in ICOs and convert them into registered users, building the number of visitors to the site on a daily basis.

Demonstrating the presence of a strong and active user base boosts the credibility of CrowdCoin as a platform, which will allow it to recruit a higher quality of ICO than competitors. As the demand for ICO-hosting capabilities is growing, in the face of an unprecedently strong Q1 for 2018, the platform is emerging as the only true integrated exchange and investment service available.

Platform Revenue Model

It is the expectation that the CrowdCoin platform will hold between 12 to 20 ICOs in the first 12 months of operation. The platform will derive revenue by charging to host these ICOs, as the name, network and support structures of CrowdCoin will be made available to the ICO when they choose to host it on the platform.

The fee will be in the region of 5% to 10% of total fundraising. While this has the potential to raise significant amounts of funding for more successful ICOs, it is hoped that the strong crypto-community generated by the platform will prove a draw for developers wishing to prove that their idea is secure and viable.

For investors, the draw is similar – with the team at CrowdCoin vetting all ICOs before they launch, investors can be as well assured as it is reasonably possible to be that they are not investing money in a scam, and that malicious actors cannot take part in raising money through the platform. This will run in tandem with the other services offered by the platform, hiring the resident team of experts retained by CrowdCoin in order to help support new ICOs and provide advisory services for businesses entering into one of the most competitive business environments on the planet.

Realistically, the best case for a total number of ICOs per annum is 20, which is projected to generate revenue of circa £20m for CrowdCoin. It is expected during the formative period, in which CrowdCoin is establishing itself as a viable platform that the number will be half that, at 10, bringing in revenue of £10m for the platform.

As the success of the platform grows, it will be possible to scale up the number of ICOs held annually in accordance with this success. This provides security for potential investors who

will be able to see that CrowdCoin has a comprehensive growth strategy ahead of it that is designed to help it become the dominant force in the cryptocurrency market. CrowdCoin also has an additional revenue stream reselling critical advisory administrative services (legal, technical and white paper assistance) to ICOs

Platform Revenue Allocation

As described in the road map section, the CrowdCoin platform will be constructed in four phases. Keeping up with the rapid speed of progress is vital to stay relevant and competitive in the ever-changing world of cryptocurrency. This means that we will invest our revenue from the previous successful stages into additional development in order to maintain our place at the head of the pack, until the platform is completed developed, having all aforementioned functionalities available.

The core development team is currently focused on launching the platform, so that operations can begin in earnest. After the platform has hosted its first three ICOs, projected to be before the end of Q3 of 2018, the team will take on new members in order to double in size and ensure that the next three phases of development can be executed as quickly as possible.

Primary revenue allocation falls into the following sectors:

1. **Platform development (ca. 45%)**
2. **Cyber security (ca. 25%)**
3. **Legal (ca. 10%)**
4. **Marketing (ca. 10%)**
5. **Other operations (ca. 10%)**

Competitive Environment

General Crowdfunding Sites

A crowdfunding approach is perhaps the most quintessentially 21st century form of finance available to businesses. From an investment perspective, crowdfunding offers the opportunity to fund projects that cannot gain investment via traditional means, by proposing your ideas directly to the public. It is normally made explicit that without the public backing your project, there will be no alternative way to fix a specific function, or to create the specific service, with the promise of eventually delivering the product to the backers upon conclusion. The following sites offer a pure crowdfunding approach, without the focus on cryptocurrency and blockchain-related technologies that CrowdCoin brings to the table.

Their unsuitability for the specialised requirements of ICO make them unlikely to prove a serious challenge to CrowdCoin over the long term, as they occupy different sectors of the digital investment community.

Crypto-focused Platforms

There are a number of crypto-focused sites that offer parts of the flexible and valuable service that CrowdCoin is seeking to introduce. None, however, truly offers the same total experience, as each of the following competitors is lacking sorely in a clear mission statement and an all-encompassing execution of their ideas – meaning that some sites offer great ICO facilities, others strong exchanges, but that overall, none are as comprehensive a platform as CrowdCoin.

There is clearly room for an exchange and crowdfunding platform combination in the market. Of our existing competitors, the UK, EU and US (probably the three richest sources of investment), all remain chronically underserved, leaving a gap in the market for CrowdCoin to fill.

CrowdCoins Fit

There is a significant market for platforms looking to offer new tokens and coins to investors around the world. This is a gap that CrowdCoin is poised to perfectly fill through its innovative and creative platform.

As our non-investment driven user base grows, it will present the platform with an increased number of users who can be directly contacted about ICO opportunities – and as the number of registered investors grows, the more knowledge and traffic the site will generate, helping CrowdCoin to drive success through an organic cycle of user interaction that most similar sites cannot offer. Furthermore, by making sure that all the different facets of our approach are properly fulfilled, CrowdCoin can avoid a situation like Tokenmarket, where the site appears mostly empty outside of the specific homepage (and without the lingering problems that Tokenmarket brings with it).

Technical Information

Before delving into the complex world of cryptocurrency, and the benefits of the CrowdCoin platform, it is worth laying out all the technological information on CrowdCoin in a simple, readable format.

Technology Basics

Cryptocurrencies

Modern cryptocurrency (unlike fiat currency) is a form of digital money that exists only in the form of code. Thanks to the blockchain, which uses cryptography and distributed networks, we can avoid the need for a centralised bank, as the information is securely encoded and can then be stored remotely. The best known decentralised cryptocurrency – meaning one that has been *minted* across many different locations, rather than being minted from a central source – is Bitcoin. Bitcoin is powered by a publicly available ledger, which records and then validates every transaction in a chronological order. This is known as a blockchain or a distributed ledger and adds the principle of accountability for every transaction, reducing the risk of theft by merchants, as once the transaction has been made, it is permanent and cannot be voided.

Tokens

A token is a representation of a specific asset, equity, or service, which resides on the top of another blockchain (such as in EOS, Ethereum and Waves). Creating new tokens is a much easier process than creating a blockchain, as the service has been offered in such a manner that you do not need to modify the codes and protocols to do so. All that is necessary to create a token is to follow a standard template that already exists on the blockchain. These templates, like the ones used by the Ethereum platform, then allow users to create their own tokens. The process of token generation has to be encoded and due to the fact there is an underlying blockchain, it does not need *mining* power as it relies on the power of the underlying blockchain. The token generation event is an event created by writing a programme for it, and the distinction between blockchain, in procuring coins and token is that coins are achieved by the computer calculating a difficult solution, while a token is created by a token generation event. This means that, in reality, there is much smaller, one-time expense involved in creating a token. This means you can effectively create tokens out of thin air.

New coins are continuously minted, but all tokens are created at the creation of the coin. In order to transfer a token, they rely on the blockchain, meaning that the cost of the transactions needs to be funded.

Proof of Work (PoW)

PoW is a mechanism that allows the entire system to prevent two different things. The most important feature of the PoW mechanism is that it prevents *double spending* of coins. Double spending is where malicious activity can, in effect, allow a coin to be distributed to two different locations, and used as if they were two separate coins. PoW prevents this from happening by making it more difficult for a single source to take control of 51% of overall mining power.

It is used to define the extensive system of calculations which constitutes mining – the sequence of events that occur on the blocks – to the blockchain. This provides evidence to the blockchain that the computer doing the mining has in fact completed the sequence of calculations necessary to complete the transaction legitimately.

This system also provides the economic reward to recompense miners for the energy spent in mining the coin. This is obviously beneficial for the spread of the network and beneficial for the total amount of mining power available.

The major downside of a PoW operation is that it requires an amount of energy that gets exponentially larger in order to complete. It normally requires the use of a dedicated graphics card or Application Specific Integrated Circuits (ASICs) to complete the mining operations.

This mechanism is used to make it more predictable and stable across the entire system and can help prevent inflation. Due to CrowdCoin's halving procedures, every year the quota of new minted coins is halved. After a few iterations of this halving, the supply of new coins will become zero. After a while, this means the total amount has been minted and mined, so the miners will have only the transaction fees.

Another useful feature of the PoW system is that it prevents an increase in power from contributing to an increase in mining ability. In effect, the more the power of a mining operation is increased, the more difficult the algorithm becomes. This is because the number of coins minted in a day is fixed at the code level, meaning that there is no way that new coins can be released by the network. Preventing more powerful operations from effectively strip-mining the network quickly is an important step to ensuring a safe and sustainable network for all users.

Technology of CrowdCoin

CrowdCoin's Unique Blockchain

CrowdCoin is a unique PoW-based cryptocurrency evolved from the best parts of DASH with its own blockchain built from the ground up.

The advantages of this are that the CrowdCoin development team is always able to improve on the technology on which the platform is built, as well as being able to quickly implement changes and possible fixes without requiring majority consensus. It also prevents CrowdCoin from being limited by the capacity of a different blockchain due to the fact that it is not a token. An example of this limitation can be seen with crypto-tokens such as the ERC-20 tokens on the Ethereum blockchain, which have caused network congestion due to over usage/implementation.

In addition, CrowdCoin utilises DASH's masternode system in order to provide added stability, flexibility and security to the coin's network and the added masternode governance system, allowing masternode owners to take votes on the future progression of CrowdCoin.

CrowdCoin and Masternodes

CrowdCoin masternodes are computers that run a CrowdCoin wallet 24 hours a day, keeping the network steady and secure, as well as improving the bandwidth, which allows for better synching across the network. Masternodes are owned by different people in CrowdCoin's community and they only require a modest collateral, a public IP address, and continuous uptime. Masternodes will be fairly and randomly chosen to receive a 50% award from every mined block.

Safety also plays a part in masternode ownership. In order to conduct a 51% attack, you need 51% control of the nodes. As the masternode has a stronger vote than a standard node, this requires fraudulent users to have a 51% stake in the masternodes in order to conduct a double-spending attack. This large stake makes it significantly more difficult, as it requires having the collateral to carry out the task.

AML/KYC Protocols on CrowdCoin

All platform users will need to register with CrowdCoin. This registry process will only need to take place once, then their user data will be retained by the platform. Once a user has registered, they will be able to participate fully with the platform, and the information can be passed on to ICOs where the user has become a co-investor, to become compliant with AML and KYC.

CrowdCoin Tech Specifications

The basic specifications, and the functionality for CrowdCoin are as follows:

Coin Specification Ticker: CRC

Algorithm: Neoscrypt

Block Time: 2 min

Reward 20 CRC

Block Confirms for Mined Blocks: 100

Block Confirms for Sending/Receiving: 10

Block Max Size: 10 MB (4x faster than sane Bitcoin and 10x more capable)

Max coins: 10900000 in 2038

Pre-mine: 400 000

Halving of 50% every year

Masternode specifications

Min. coin age: 24 hours

Collateral: 1000 CRC (one input)

The coin can be used as a payment mechanism for the services on the CrowdCoin platform.

CrowdCoin's Planned Token ICO

In order to make our investment more attractive to investors, we have added the option to hold an ICO in order to award more funds, instead of seeking a second round of investment. This ICO will be held before the end of 2019. This investment opportunity will be taken by equity investors who have participated in Round A of funding.

Token Specification: ERC20 Token (based on the Ethereum blockchain)

Max coins: 100,000,000

Use of ERC20 tokens

30% of monthly net profit will be used to buy back tokens, in order to ensure a scarcity and keep demand at a constant level to create a store of value.
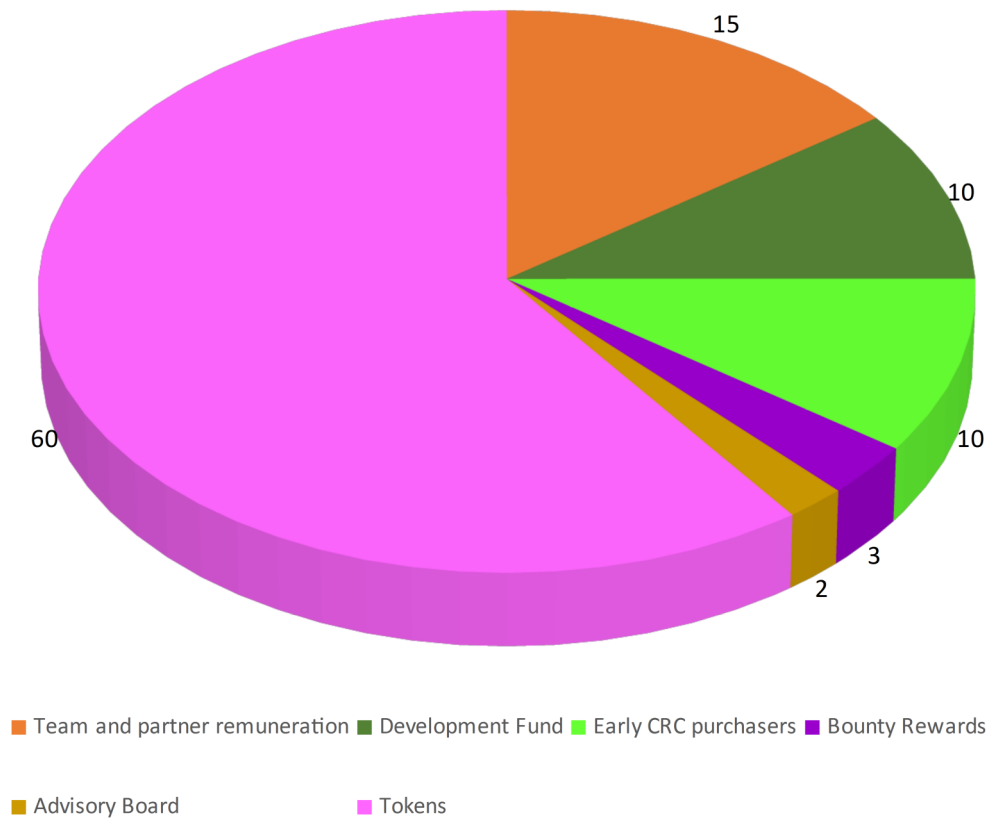
At the TGE (Token Generation Event), distribution of tokens will be operated via a smart contract. All funds raised will then be put towards launching the platform, promotion costs and token integration.

CrowdCoin has a number of goals, which will ultimately be dependent on the amount raised by the token sale.

Soft Cap: 5,000,000 GBP

Hard Cap: 25,000,000 GBP

The tokens will remain on sale until the platform has reached its hard cap.

Legend:
- Team and partner remuneration
- Development Fund
- Early CRC purchasers
- Bounty Rewards
- Advisory Board
- Tokens

As illustrated by the above chart, the vast majority of the tokens will go to those who directly invested in the token sale.

15% of total tokens are reserved for the developing team and associated partners. These tokens will only be released from escrow as each phase of the project is completed, and as individual funding targets are met by the campaign.

10% of the amount raised will be reinvested into the further development of the CRCT token and the wider platform. This will ensure that the essential portion of research and development work on the CrowdCoin platform is funded by users.

A further 10% of revenue will go to creating a reserve of CRCT tokens. The rest will be split between various other running costs.

The exact percentage of the remaining portions of the chart can be renegotiated as the market demands.

The distribution method employed by CRCT will take into account that there is an inherent risk of oversupply. This means that steps will be taken to protect the rights of all CRCT First Purchasers in order to ensure they are properly rewarded.

Become a Campaign Member

To join our campaign, and become part of the CRC First Purchasers scheme, you will be required to purchase CRCT tokens. To do this, you will need to make an ETH transaction to our smart contract address. **Only ETH transactions made from wallets will be accepted.** Please be aware that transactions made using ERC20-incompatible wallets or from cryptocurrency exchange accounts will not be accepted and may potentially lead to you losing control over any tokens you might otherwise have attempted to purchase.
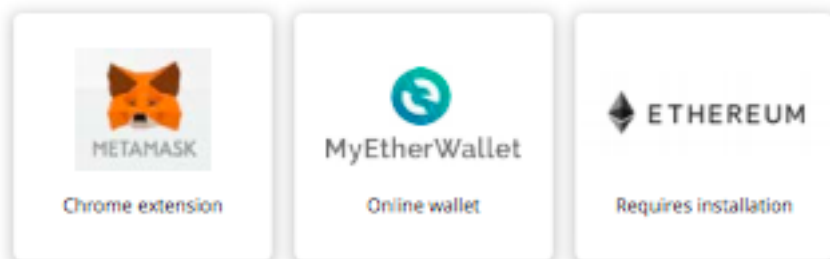
The following wallets cannot be used to participate in the Token Sale run. Do not use any of the following wallets to buy STQ tokens:

- **Exchange markets for BTC or ETH purchase**
- **Jaxx**
- **Exodus**
- **Coinbase**
- **Poloniex**
- **Kraken**
- **Bitstamp**
- **Bitfinex**
- **Bittrex**
- **cex.io**

The CrowdCoin Road Map

CrowdCoin has undergone rapid development since its inception in the final quarter of 2017. These changes form only part of the future development of the CrowdCoin platform. The development road map, as laid out here, is designed to take the platform from its current point, through to the stages laid out in the introduction of this White Paper to become a hub for the crypto-community.

Q4 2017

The CrowdCoin idea was first conceived, and the design specifications for the platform were initially laid out. The CRC Wallet was created at this time.

The Wallet, Explorer and Mining Pools were all created. This also marked the first listing of the CRC coin on exchanges. Work began on the pitch deck and White Paper in this period.

Q2 2018

The CrowdCoin coin will be listed on more exchanges, and the Minimum Viable Product for the platform will be officially launched to the public. This is the first real stage in bringing CrowdCoin into the community spotlight. The White Paper will be completed and released and crowdpool.site will be launched.

The platform plans to have held its first ICO by the end of **Q2**.

Q3 2018

The due diligence services will be fully functional, providing support to new clients on the platform. The due diligence service will be available in a basic, free form for all members of the public, but investors who would like to make a significant contribution to ICOs can request a premium paid service that CrowdCoin will provide, ensuring that all aspects of the ICO are properly vetted. The Venture Capital tracker will be completed, and the platform will move into Phase 2 of the plan, detailed at the start of this White Paper.

Q4 2018

The CrowdCoin platform will move into the third phase of development. This is the point at which the major leaps forward in our development will occur.

The information services will be launched as per the plans for Phase 2 – our aggregator service will be unveiled. There is also the potential to launch a dedicated crypto-news agency of our own.

We will also launch our educational section of the platform. This will include our crypto-courses and tutorials, designed to get new participants involved in the world of cryptocurrency and to increase global awareness of the crypto-ecosystem.
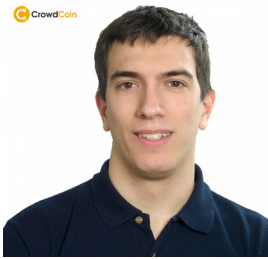
Q2 2019

The fourth phase of the CrowdCoin development plan will begin in Q2 of 2019.

We also expect our exchange (or an exchange partnership, should the development team deem it more appropriate) to be completed and fully functional by this time, and the rest of the platform will be complete and publicly available.

CrowdCoin Core Development Team

Luca Paterlini   CrowdCoin founder and technical lead, Luca has been a crypto-evangelist since 2012, getting others into the crypto-community. He has been working as a consultant since 2017. Previously, he worked in the cyber-security sector, with Tesla Consulting, as well as working for Digital London as a consultant for backend development. He is also a crypto-investor, having been involved with several different altcoins in the past. He was a national athlete in Italy for 10 years, competing in middle-distance running and brings the same strength   and stamina to his work with CrowdCoin.

Alberto Tartaglione   Alberto is our resident Fullstack developer. He has a Postgraduate Degree in Computer Science, with two years of experience in software development for an IT company back at home in Italy. He has a passion for software development, computer science, technology and 3D printing as well as UX and UI design. Alberto has a crippling addiction to sport.

Jonathan Patton   Jonathan (AKA MetaLMilitia55), is best known for his presence in Discord, Telegram and his work as a well-rounded community manager. He helps manage several communities and is also known through many of the announcements put out through them. Jonathan served nine years in the US army as a 25U (signal systems support specialist) and worked with many military technology signal systems. He can't promise that he won't look for you and that he won't find you.

Chris Barrett   Chris is a translator and technical writer who joined the CRC team during the White Paper process. He has worked with major international telecoms companies as a translator on a variety of technical projects. Chris wrote the majority the White Paper, as well as providing research and support for the rest of the writing process. He lives and works in East Yorkshire and spends most of his time talking to Luca.

Daniel Jones   Daniel Jones or 'The Handyman' as we call him, gets all the little things done. From assisting with masternode installation and troubleshooting within our social communities, to designing, marketing, editing etc. (you get it) ... let's just say he's the kind of guy everyone wants on the team and few can afford. Daniel is a post-graduate serial entrepreneur with vast experience in marketing, event management, business administration and community development.

Conclusion

In conclusion, the CrowdCoin platform introduces a number of significant safeguards to complement the rapidly evolving cryptocurrency ecosystem. Based on the proven, existing DASH technology, the masternode system that CrowdCoin employs offers a degree of safety and increased participation in a centralised hub for cryptocurrency users and enthusiasts around the world.

The platform, with its five -step map for success aims to be able to unify the crypto-community into a sustainable user base, using the CrowdCoin platform. With an open-source philosophy combined with the momentum from the crypto revolution of 2017, CrowdCoin offers the ability to solidify a decentralised system into a force for good. With the investment platform carefully designed to deliver an effective and secure method of ICO participation for users anywhere in the world, and a concrete plan for connecting the crypto-world to the real world of business in a manner that promotes the use of CrowdCoin both to and from companies, the opportunities to join us on this mission are incredibly exciting.

The use of a dual-tier model, rather than the more popular but potentially dangerous single-tier models popularised by platforms such as Bitcoin, is an exciting development. With a focus on education and increased awareness of the community around them, both through education facilities and a crowd-sourced investment scheme, CrowdCoin will help to unite the cryptocurrency community into a coherent force for change.

The increased sustainability brought about by CrowdCoin will provide a solid platform, with strong fundamental principles to bring closer the prospect of a usable and responsible cryptocurrency to compete with fiat money in the near future.

Appendix A – Major ICOs in 2017

Major ICOs from 2017

A selection of the major ICOs from 2017 show that there is inherent potential for the ICO function of the CrowdCoin platform to meet the targets that we have set out above.

2017 saw 435 successful ICOs, which, on average, raised around $12.7m USD each[2]. Of the total investment for the year, the 10 largest projects were responsible for 25% of total fundraising. Furthermore, the average investment has returned at 12.8 times the initial investment, in real terms. This is conclusive proof that if CrowdCoin can construct an integrated platform capable of attracting the highest tier of ICOs (and by extension, the highest tier of investor), there is a significant financial return to be made.

The major ICOs (and what became of them) is as follows:

1. **Tezos promised to revolutionise the governance issues faced by blockchains. It ironically fell prey to Its own governance issues after raising a staggering $232m in only 14 days[3]. Under the new board, they are finally releasing their much vaunted Tezos coin during Q2 of 2018.**
2. **Filecoin is pioneering file systems via blockchain. Their ICO was littered with technical issues (that largely still remain to this day) and with accusations of financial misconduct. However, this did not stop them from raising $200m in under an hour, thanks to the presence of major investors, including Sequoia Capital, Andreessen Horowitz, and Union Square Ventures[4]. While Filecoin went on to prove a failure, the interest generated in the new technology has proved that there is solid market for investment in pioneering ideas.**
3. **EOS is building a blockchain specifically for businesses and corporations. It plans to provide blockchain solutions that offer efficiency, security and data integrity. They launched their ICO in June 2017 and raised $183m, with the price rising to $700m by the end of the year[5].**

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2 http://uk.businessinsider.com/how-much-raised-icos-2017-tokendata-2017-2018-1

3 http://fortune.com/2018/02/22/tezos-coin-ico-launch-foundation/

4 https://www.coindesk.com/257-million-filecoin-breaks-time-record-ico-funding/

5 https://news.bitcoin.com/eos-raises-700-million-despite-tokens-affording-no-rights-uses-purpose-or-features/

4. **BANCOR aims to construct a decentralised exchange ecosystem that allows investors to employ P2P trading techniques with as small a risk as possible. Interestingly, they aim to support any token that has been successfully issued, regardless of the total number of users available (meaning every existing coin will be supported). They managed to raise $153m in June 2017.**[6]
5. **STATUS aims to work as a light, mobile-based chat and wallet application built on Ethereum. It managed $95m in June 2017.**[7]

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6 https://www.forbes.com/sites/montymunford/2017/12/12/bancor-starts-to-deliver-on-its-record-breaking-153-million-ico/#6210fa8a3509

7 https://www.inc.com/brian-d-evans/status-ico-raised-over-100-million-for-ethereum-powered-dapps-on-ios-and-androi.html

Appendix B – CrowdCoin Competitors

There are several platforms currently available to investors that work in a similar way to the CrowdCoin platform, but without the same overall functionality. These platforms include:

General Crowdfunding Sites

A crowdfunding approach is perhaps the most quintessentially 21st century form of finance available to businesses. From an investment perspective, crowdfunding offers the opportunity to fund projects that cannot gain investment via traditional means, by proposing your ideas directly to the public. It is normally made explicit that without the public backing your project, there will be no alternative way to fix a specific function, or to create the specific service, with the promise of eventually delivering the product to the backers upon conclusion. The following sites offer a pure crowdfunding approach, without the focus on cryptocurrency and blockchain related technologies that CrowdCoin brings to the table.

Their unsuitability for the specialised requirements of ICO make them unlikely to prove a serious challenge to CrowdCoin over the long term, as they occupy different sectors of the digital investment community.

CrowdCube

Crowdcube is a UK-registered investment platform that uses a social media-driven approach to drive investors to their site. It allows anyone in the UK to raise money for any cause and, subsequently, does not have the focus and clarity that a dedicated crypto-platform like CrowdCoin offers. This forces potential ICO investors to have to wade through a not inconsiderable amount of alternative, less interesting products before finding what they are looking for.

Indiegogo

Indiegogo was one of the original giants of the crowdfunding scene when the format first rose to prominence online in the later part of the last decade. It has financed everything from beehive automation technology to cinematic sequels.

In 2016, the SEC required them to overhaul their KYC/AML protocols, as they had fallen victim to obviously fraudulent investors on a number of occasions. Due to their massive size, and the number of projects (as well as the sheer variety) available, Indiegogo has simply removed a disclaimer suggesting that their site was free of fraudulent activity.

This is a major problem for many investors and businesses alike.

The tightly-controlled number of ICOs being offered by CrowdCoin means that, in reality, this behaviour should not be repeated on the platform as it will be possible to comprehensively vet each individual project and maintain a higher level of control over what takes place under the CrowdCoin banner.

Crypto-focused platforms

There are a number of crypto-focused sites that offer parts of the flexible and valuable service that CrowdCoin is seeking to introduce. None, however, truly offers the same total experience, as each of the following competitors is lacking sorely in a clear mission statement and an all-encompassing execution of their ideas – meaning that some sites offer great ICO facilities, others strong exchanges, but that, overall, none are as comprehensive a platform as CrowdCoin.

There is clearly room for an exchange and crowdfunding platform combination in the market. Of our existing competitors, the UK, EU and US (probably the three richest sources of investment), all remain chronically underserved, leaving a gap in the market for CrowdCoin to fill.

Tokenmarket

For new investors, Tokenmarket's biggest drawback is that it lacks any real information about anything. There are a great number of pictures of Gibraltar, and functional looking text boxes, but if you are not already entrenched in the world of cryptocurrency, then you will struggle to use the site in a meaningful and impactful manner.

The other services offered by Tokenmarket (such as investment advice) appear to be ancillary at best, as they are simply a rehash of the Rock of Gibraltar/contact button combination that seems to make up most of the Tokenmarket site.

While the Tokenmarket platform clearly offers strong service for new ICOs, it cannot be considered a serious competitor unless it develops its platform to a level beyond simply 'functional'. The serious flaw in their business model is that they will list *any* coin brought to them, without any due diligence on their part, meaning that at any given time, investors are potentially exposed to malicious actors who may seek to take their capital in bad faith.

This is something that the CrowdCoin platform specifically sets out to address with our more robust business model, where creating a trust-based investment process is paramount to our mission.

Cryptonymous

Perhaps the closest competitor to the CrowdCoin platform (though far less ranging than the proposed version of CrowdCoin laid out here), Cryptonomous was launched in the face of the ICO wave of 2017. It offers investors the chance to buy into new tokens by paying with Bitcoin and Ethereum amongst others.

It has managed several impressive ICOs – including Giga Watt, ICOS, Horizon State and Rentberry. It offers an enviable number of services to prospective ICOs – from white paper writing, to PR to technical and analytical strategy. The entire project looks significantly more professional than Tokenmarket, and undeniably offers a range of useful services to clients.

This is where the issues lie for Cryptonomous, however. While it offers an excellent business platform, it is lacking in the vision and the additional features that CrowdCoin brings with it

– it is a fantastic platform for professionals and for the tokens themselves – whether it works as well (and as organically) as the CrowdCoin platform, however, may be open to some debate, as once an ICO is completed, the function of the Cryptonomous platform is completed.

KickICO

KickICO represents the most relevance to CrowdCoin of any site currently available. It integrates many of the features that CrowdCoin brings to the table, but without the overall vision and comprehensive platform that CrowdCoin proposes to bring with it. This means that, although the site is admittedly still in the beta stages of the development cycle, it has not advanced to the level required to sustain itself in the face of a more advanced and complete platform.

Appendix C – CrowdCoin Masternode Technology: An In-Depth Examination

As the masternode technology is based on the system employed by DASH, there are a number of technical similarities between the two systems. However, CrowdCoin has refined the system, and added a number of enhancements to the existing framework.

Transaction Costs

The decrease in the number of full nodes that had occurred on the Bitcoin network, prior to the speculation bubble in late 2017, was the lack of incentivisation by the platform. This did not motivate users to participate in the network by running their own nodes. Over time, the cost incurred in running a full node increases exponentially as the network gains increased amounts of traffic. This cost is exacted in bandwidth and costs the operator more money to maintain. To counteract this rise in costs, many operators will attempt to consolidate their services in an effort to save money or attempt to run a 'light' edition of the client. This negatively impacts the growth of the network. Furthermore, the reduced number of transactions has increased the cost of carrying out each one.

This is the main drawback of the Bitcoin system. As demand for the system grows, the costs incurred in actually using the network to complete transactions also grow exponentially. As only a limited number of transactions can be inserted into the following block, it is necessary to pay a fee in order to have that transaction request validated. The highest fees will see the transaction receive preferential treatment. This means that if you have not bid sufficiently high enough, your transaction will be delayed. This can theoretically continue indefinitely, until network usage has dropped to the point where there is sufficient network capacity to insert your transaction into the block. Effectively, the Bitcoin system requires that users pay increasingly high amounts in order to have their transactions processed.

If your transaction is inserted into the next block, due to the low demand versus capacity (and if the queue of waiting transactions is diminishing), it incentivises you to offer less and less as a transaction fee each time. If demand for transactions is low, then the network enters into a race to the bottom without the need to pay for the services. Inversely, when a network is popular, the price of fees goes up and up as you need to pay more in order to be inserted into the next block.

Bitcoin has employed a fixed minimum transaction cost as a result of these developments. CrowdCoin (and the DASH system on which it is based), however, do not. When there is additional capacity on the network, transactions can be completed free of charge. While this *can* run the risk of transactions being delayed, with a network capacity five times that of DASH and Bitcoin, this should not normally be an issue. This keeps fees (when required) low and can help prevent spiralling costs for operators.

Should the need to address this system become an issue, it can be addressed, but this is not projected to happen for around the next decade.

The Masternode Reward Program

As previously discussed, masternodes constitute a full node, just as in Bitcoin. The primary difference, however, is that a masternode must provide a certain level of service to the network. It also requires a fixed collateral in order to participate, for security reasons. As long as the masternode remains functional, the collateral is not forfeited. This will earn interest on the network for the investors, which secures the value of the currency.

The masternode stores the collateral. While it is active, the node provides service to the network and, in return, receives a randomly assigned share of each block that is distributed amongst all masternodes. This will fund the cost of running the masternode, as well as earning a ROI, as the rewards are a fixed percentage, with half of each mined block. As the number of operational nodes is in constant flux, the exact sum of the reward is subject to change in accordance with this figure.

The payment for a standard day of operation can be calculated by this formula:

$$\left(\frac{n}{t}\right) * r * b * a$$

Where:
n is the number of masternodes an operator controls
t is the total number of masternodes
r is the current block reward (presently averaging about 20 CRC)
b is blocks in an average day. For the CRC network this usually is 720.
a is the average masternode payment (50% of the average block amount)

C is the collateral needed for a single masternode

The ROI for masternode operation can be calculated as:

$$\left(\left(\frac{n}{t}\right) * r * b * a * 365\right)/C$$

C is the collateral needed for a single masternode

Assuming that the variables as the same as those above.

Trustless Quorums

As previously discussed, a trustless quorum prevents a 51% attack. With the addition of the masternode network and the collateral requirements, this secondary network can be used to conduct highly sensitive tasks in a trustless manner. This prevents any single entity from being able to control the outcome. By selecting N pseudo random masternodes from the total pool to perform the same task, these nodes can act as an oracle, without having the whole network do the task, thereby reducing the potential for malicious intent.

Roles

It is possible for malicious actors to misuse masternodes, by failing to provide the quality of service that is required for regular masternode operation. In order to reduce the likelihood of this occurring, nodes must ping the rest of the network in order to remain active. This is performed by the network selecting two quorums for every block. Quorum A is responsible for checking the service of Quorum B on each block. Quorum A is comprised of the closest nodes to the current block hash, while B is composed of the furthest nodes from the selected hash.

Masternode A (1) checks Masternode B (rank 2300)
Masternode A (2) checks Masternode B (rank 2299)
Masternode A (3) checks Masternode B (rank 2298)

The masternode network itself is responsible for all examinations of active nodes. Approximately 1% of the total network will be checked per block. This means that the entire network is checked an average of six times per day. In order that the system remains trustless, nodes are randomly selected by the quorum. It also requires six violations for a node to become deactivated.

As the six-violation rule is in place, this would require an attacker to be selected six consecutive times in order to circumvent the security protocols.

Attacker Controlled Masternodes / Total Masternodes	Required Picked Times in a Row	Probability of success $(n/t)^r$	CRC Required
1/2300	6	6.75e-21	1,000CRC
10/2300	6	6.75e-15	10,000CRC
100/2300	6	6.75e-09	100,000CRC
500/2300	6	0.01055%	500,000CRC
1000/2300	6	0.6755%	1,000,000CRC

Table 1. The probability of tricking the system representing one individual masternode as failing proof-of-service.

Where:
n is the total number of nodes controlled by the attacker
t is the total number of masternodes in the network
r is the depth of the chain

The selection of masternodes is pseudo random based on the quorum system

Masternode Protocol[8]

Masternodes on the network are propagated by using protocol extensions. These extensions include an announce message for each masternode, as well as a ping message, broadcasting the location of the masternode to the network. These two functions will be all that the network requires to make a masternode active.

Once a masternode has been created, this will then allow the node to propagate across the network. A secondary private key will validate communications by signing all subsequent messages to the network. This also allows the wallet to function independently when in standalone mode.

The use of a *cold mode* is also possible when the private signing key is used on two separate machines. The *hot* client – the primary user– signs the 1000CRC input by including the key in the message. This then allows the receiving *cold* client to include the details and operate as a masternode. Once this has occurred, the *hot* client can be switched off safely, without any possibility of an attacker gaining access to the 1000CRC after it has been activated.

The masternode announcement message will contain:

Message: (1K CRC Input, Reachable IP Address, Signature, Signature Time, 1K CRC Public Key, Secondary Public Key, Donation Public Key, Donation Percentage)

Every 15 minutes thereafter, a ping message is sent proving the node is still alive.

Message: (1K CRC Input, Signature (using secondary key), Signature Time, Stop)

After the expiry of a time-to-live, the network automatically removes all inactive nodes from the network. This will prevent the use of 'dead' nodes and prevent payment being made to them. Nodes also ping the network almost constantly, but if they do not leave their ports open to the network, they will become inactive and payment to them will be prevented.

It is for this reason that a public IP is a requirement for the operation of a masternode. This makes it unsuitable for users looking to run a masternode on a consumer-grade home network.

8 GitHub. (2018). *dashpay/dash*. [online] Available at: https://github.com/dashpay/dash/wiki/Whitepaper [Accessed 7 Mar. 2018].

Propagation of the Masternode List

New clients that join the network need to be informed of the location of currently active masternodes in order to make use of them. As soon as a new client has joined the mesh, a comment will be sent requesting access to a known list of masternodes from peer connections. Use of a cache object will facilitate the storage of this list, meaning that when a client restarts, the information can be simply retrieved instead of resending a request for the masternode list. This will improve the functionality of the network by reducing the need to wait for responses at every start-up.

Payments via Mining and Enforcement

When mining on the network, pool software (websites that merge the efforts of individual miners) use the RPC API interface to get information about how to make a block. To pay the masternodes, this interface must be extended by adding a secondary payee to GetBlockTemplate. Pools then propagate their successfully mined blocks, with a split payment between themselves and a masternode (GitHub, 2018). This prevents the system from being cheated by malicious actors.