Peerity Whitepaper v0.1

Tuan Pham Anh, Forrest Alcamo, Brenn Hill, Jan Schets, Paul Valencourt

Note: The following is subject to revision and refinement based on the evaluation of professional cryptographers and economists as well as tweaking based on post-alpha testing. This is not a complete document, but rather a work-in-progress while we finish the development of the Peerity platform.

Peerity Overview

The current crypto-currency landscape is riddled with well-intentioned but ultimately failed projects. Even the big players in the current market struggle with mainstream adoption, price stability, and technical limitations. Peerity is a next-generation blockchain, crypto-token, and community platform based on the Tendermint consensus engine. It allows for high-speed, high-volume transactions on the Peerity network.

Peerity is an "Activity Network", providing access for screening and cognifying content across multiple areas of interest. On this platform, there is almost nothing we can think of that cannot be made new, different, and more valuable by infusing it with broader knowledge and greater creativity. It is this creative process that Peerity hopes will lead to enhanced interpersonal connections both on screen and in person. The Peerity team believes that current social networks and many web applications are fundamentally broken. Despite people being more connected than ever, they nevertheless feel *more* disconnected and alienated. This is because the existing social networks treat their users not as the *customer* or *partner*, but rather as a product.

"People as product" is what drives the alienation that people experience. Companies reap massive profits from extracting, selling, and abusing their users' personal information and activity. But it does not have to be this way. People naturally desire connection - especially positive connection - and there is no need to abuse users if the incentives for the users and the company and the network are aligned.

User-friendly and useful community building portals are hard to come by. And the ones that are out there are clunky and expensive. Peerity.io is a platform where communities can be created, discovered, nurtured, and come to life. Users and communities will get rewarded for their activity with the Peerity crypto token. This puts our crypto coins straight in the hand of the users and communities that use the platform, solving the issue of token distribution in current cryptocurrencies.

Tokens are awarded based on the amount and quality of the activity. Users can post content online either as themselves or as part of a community. Allowing people to earn rewards based on off- or online activity on Peerity.io provides an incentive for new users to try out the platform, ultimately increasing the user base and market cap of Peerity.io.

Peerity.io community platform

The Peerity website is a gathering place for communities looking for members, individuals looking for human connection, and groups looking for tools. We feel there is a distinct lack of useful and efficient community-building websites. Peerity.io aims to be the all-in-one platform for communities to grow and foster.

Communities

The website uses a hierarchical model of system communities and user-created communities. The upper layer is composed of the system-created communities. These will be broad and general interests. Users can create posts directly in these communities, or they can create sub-communities in these system categories.

To give these user-created communities all the tools to succeed, we allow members and admins to create different post types to enhance the community experience on the platform. Users and groups will be able to organize events and crowdfunding campaigns using our built-in crypto-tokens, sell digital or physical items through e-commerce integration, and post any kind of multimedia content, blog posts, and comments on the platform.

User-created communities can be topic based, region based, or both. A purely topic based community is international/location free. Members of Peerity can be part of and participate in any number of communities. If a member of Peerity lets Peerity know they are in a particular location, they will automatically be added to the built-in group for that area, if one exists. Location-based service will come as an optional feature. We value each user's privacy and will not store any location data if the user does not opt-in to our location services.

We want to make a distinction between groups with a commercial goal and non-profit communities. For this reason, we allow user-created communities to choose their own governance and token payout scheme. Communities that use the default activity-based token reward system will be able to be created free of charge. User-created communities that wish to use one of the other governance arrangements will be charged a creation and maintenance fee.

We want everyone to be able to create communities, regardless of personal financial input. Unlike meetup.com, where you have to pay a substantial amount of money to run ANY kind of community group, we will allow users to create free user communities that use the default governance system.

Users

Peerity.io will have multiple tools for users to discover and be active in communities of their interest or location. Through an intuitive user interface, users are able to set location-specific topics and get automatically notified of existing communities, events, and posts. A built-in messenger system allows for secure communication between Peerity users and communities.

The quality of content in a social network depends heavily on its user base and the incentive it can provide to its users. Social networks such as Facebook or Twitter use your data for their own gains. Because of this, on Facebook and Twitter users tend to not put in the effort to produce quality content.

Peerity will create incentives for users to put time and effort into creating high-quality content and create meaningful groups based on the topics their content. We will use content to pair together like-minded users and groups for the gains of groups and individuals. Since Peerity token rewards are based on social activity rather than a voting system, we expect the users to create meaningful content and activities in their communities.

The Peerity Network

Peer Servers

Peerity employs a hybrid technical model that combines blockchain and traditional technology to create a fast and scalable platform. Operations that require trusted consensus (such as token movements, payments, etc) take place on the blockchain. For other operations (rendering web pages and other business logic), Peerity runs more like a traditional web application.

In other blockchain-based applications, there are "miners" for Proof of Work (PoW) blockchains or "witnesses" for Proof of Stake (PoS) blockchains that handle updates to the blockchain. Proof of Work has been heavily criticized as being wasteful and hard to scale. Millions of CPU and GPU cycles are being dedicated to the creation and maintaining of these chains. By using Tendermint, we can drastically reduce our computing requirements. The Peerity consensus engine is based on the sound principles of Tendermint, with an added layer of PoS to allow for the minting of the Peerity token. The Tendermint consensus algorithm has shown to be robust even under extreme conditions with an extremely high transaction throughput.

The Tendermint and Peerity consensus engine consist of a network of connected nodes. All of these nodes work together to validate the integrity of the Peerity blockchain. Nodes that own a registered private key are called **peer servers** and are tasked with signing votes. All nodes (not just registered peer servers) carry an associated state (current height, round, and step) and contribute to the committing of new blocks on the Peerity chain.

Peer Servers/Validators are secure, dedicated machines that are responsible for committing blocks. Peer token holders can delegate their staking tokens (called "peerity") to any validator to earn a portion of block fees and Peerity rewards, but they incur the risk of getting punished (slashed) if the delegate validator gets hacked or violates the protocol. The proven safety guarantees of the Tendermint BFT consensus, and the collateral investment of peer server operators/validators and delegators–provide precise, quantifiable security for nodes and light clients.
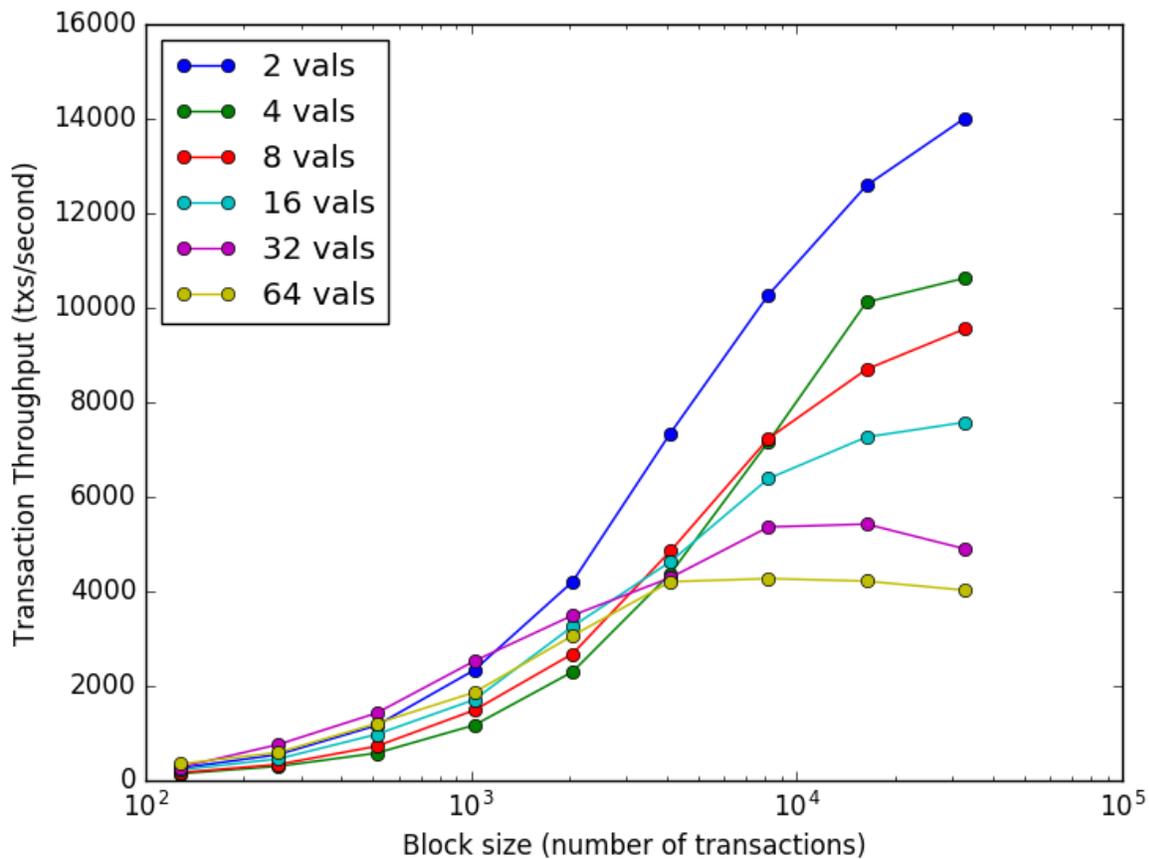
Picture courtesy of Tendermint. For more information on the Tendermint consensus, engine see the Tendermint Whitepaper

The Peerity Token

One of the biggest issues halting the widespread adoption of cryptocurrencies is the hurdles users have to take to be able to obtain the coins. This is a limiting factor on the usability of cryptocurrencies in general. By distributing Peer tokens to the active users of the Peerity platform, we lower the barrier for the average person to obtain crypto tokens.
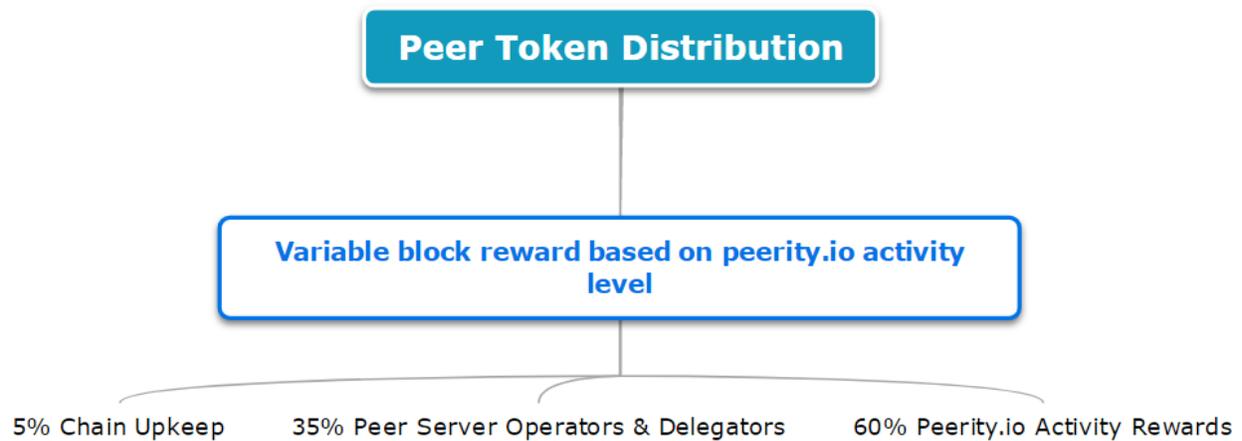When it comes to new users entering the cryptocurrency world, there is a mental barrier to entry where people assume they don't have the required knowledge to effectively and efficiently use crypto tokens. For this reason, we aim to provide an intuitive user interface and tutorials and guides for our users on how to use our tokens. We have seen in other projects that once tokens are obtained by users, they educate themselves on how to use them. We expect to see the same with Peerity.

When users generate social activity on the platform, they are rewarded with Peerity tokens based on the quality and value of that action. Different activities will be scored differently as online and real-life behaviors have different ways of being measured.

With Peerity we hope to bridge the gap between mainstream social media users and cryptocurrency users. We will do this a few different ways. First, we give the token intrinsic value because the Peerity token will be able to be used to purchase site features (such as a custom domain or form private groups) as well as for use in e-commerce and crowdfunding projects.

Token Distribution

Every block, a certain amount of Peer tokens get created, based on the activity level on Peerity.io. These coins will get distributed as followed:

Peer Token Distribution

Variable block reward based on peerity.io activity level

5% Chain Upkeep   35% Peer Server Operators & Delegators   60% Peerity.io Activity Rewards

Chain upkeep

5% of the created tokens will go towards the upkeep and maintenance of the chain and website. This includes, but is not limited to, staff wages, server costs, advertising costs, and general expenses of running the platform and blockchain. This will NOT be used to pay a salary to the founding members. The tokens reserved for the chain upkeep will be kept in an entirely transparent wallet, and details of all the transactions will be made available on request. We aim for full transparency in this area.

Server operators

Peer server operators are nodes on the Peerity network that have a legitimate private peer server key. These nodes are responsible for validating and committing the blocks on the Peerity blockchain. Since these peer server operators play such a hugely important role in the Peerity network, a strong incentive is needed for these operators to maintain the highest level of service towards the Peerity network. Therefore, 35% of the daily created tokens are distributed among all the non-penalized peer server operators.

Unlike Bitcoin or other proof-of-work blockchains, a Tendermint blockchain gets slower with more validators due to the increased communication complexity. Fortunately, the team at Tendermint made it so we can support enough validators to make for a robust globally distributed blockchain with fast transaction confirmation times. As resources increase, we will be able to accommodate more peer server operators to strengthen the network.

Year 0: 50 Peer Server Operators
Year 1: 100 Peer Server Operators

From year 2, the number of operators will increase by 13% yearly.

Year 1: 100
Year 2: 113
Year 3: 127
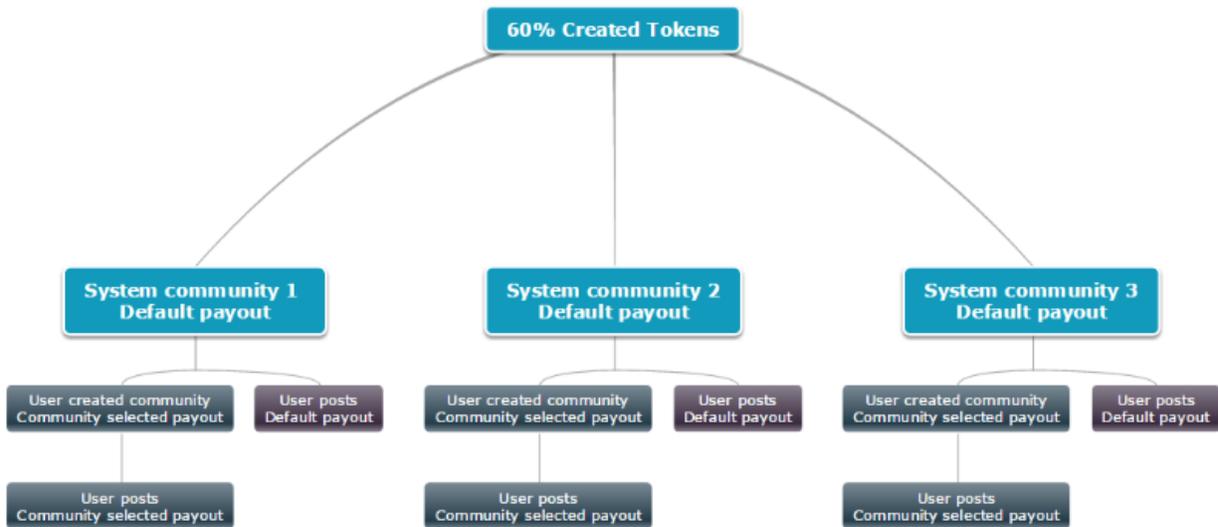Year 4: 144
Year 5: 163
Year 6: 184
Year 7: 208
Year 8: 235
Year 9: 265
Year 10: 300
Year 11: 300

Activity rewards

The majority of the daily created Peer tokens will be distributed among the communities, based on the sitewide activity level. This is where the hierarchical model comes into full swing. At first, the token rewards will be split among all the different system communities using our default payout system based on activity level. To counter the possibility that individual system communities take all the rewards, minimum and maximum percentages are used. A community can only receive a maximum of 5% of the total token reward supply. If there's no activity in a particular system community, no payouts to that community will be made.

60% Created Tokens

System community 1
Default payout

System community 2
Default payout

System community 3
Default payout

User created community
Community selected payout

User posts
Default payout

User created community
Community selected payout

User posts
Default payout

User created community
Community selected payout

User posts
Default payout

User posts
Community selected payout

User posts
Community selected payout

User posts
Community selected payout

Activity level reward system

Our default payout system is based on activity levels both on and offline and follows the following rules:

Online actions/content will be evaluated for the following:

1. Traffic/views generated and length of interaction with content.
2. Number and quality of comments and interaction.
3. "Quality" of content as judged by the system. We are considering both a meta-moderation system as well as machine learning systems. The final system will be a combination of both. Quality is meant to be a measure of how well-written, thorough, and clear that content is.
4. "Pro-Socialness" of content as judged by the system. Similar to quality, this is more about tone and approach. Pro-Socialness will start as the least powerful metrics but as it is refined will become one of the most critical. In essence, the pro-socialness score is the "anti-troll" system. Being a troll will, therefore, cause rewards based on activity to decline or cease entirely. Peerity will be implementing both machine learning based pro-socialness system as well as a human-driven meta-moderation similar to that used by slashdot.org.
5. Reputation. Once an appropriate system for tracking this is developed, the reputation score of a user both globally and inside a community will help the system decide content placement when necessary. While it has no direct effect on the token payout, having a poor reputation will cause low content visibility and that in turn will have an impact on payout through traffic and interaction.
6. Originality. Content that is just copied and pasted or that are essentially rehashed copies of content already available online will have the user's payout reduced or even be reduced to zero. This is an anti-spam and anti-copyright abuse measure.
7. Veracity. If Peerity can develop an algorithm to detect inaccurate or baseless data across the network, this will also be penalized. This is to fight false advertising, spam,

manipulation, propaganda, etc. If Peerity is able to develop such a system, content veracity standards will be published.

The overall goal of the online token reward system is to reward helpful, high-value content while diminishing spam and hostile behavior. Users who post helpful, courteous, friendly content will be rewarded. Users of hostile content will find their content payout reduced, and the visibility of their content hindered. Combined with the reputation system, continual offenders (trolls, provocateurs, etc) will find that their content is neither seen nor rewarded.

That said, personal blogs/content spaces will not have their visibility affected. Someone using Peerity for their own personal speech outside of a community will not have that content impacted by the rating system provided it does not contravene Peerity's content standards (e.g. no child porn, incitements to violence, or other content generally against the law). Because laws vary, Peerity will only be hosting servers in areas of the world we feel have appropriate online free speech safeguards.

OFFLINE Actions/Content will be evaluated for the following:
Offline activities are less easy to measure than online actions. Still, some measurement is possible.

1. For a meeting or event, users can use their mobile phone to check into the event and have their location validated by GPS.
2. Organizers of events can provide a code to users - either all users or only those who "complete" an event. For instance, for a paid event such as a seminar, the organizer could provide the code at the end only to those who paid and attended.
3. Value of events. For paid events, users are expected to pay through Peerity, allowing Peerity to directly measure the value of the event and reward attendees and the organizer for participation
4. Sales from events. For events such as a happy hour, if organizers hold their event at a Peerity partner location, the value of drinks, etc, sold as part of the event are used to calculate the value.

The Activity-Value Stream

The total online and offline activity will be available in a data stream. The Peerity application will produce this data stream and make it accessible to all nodes. This data stream will include the user/wallet and the set of values (positive and negative) that come from their activity on Peerity.

Payout change when activity level of the platform is unusually low

To battle the issue of having to payout newly created tokens to an unusually low level of activity on the site and chain, a minimum activity-stream threshold has to be reached for the full 60% of the token rewards to be paid out to the communities. If this threshold is not reached, a portion of the token reward pool is used to level the average payout for the peer

server operators, chain upkeep, and stake pool. This ensures a minimum degree of payout towards the maintenance, peer servers, and stake pool while making sure we don't have to payout a substantial amount of tokens when only a small amount of activity is being generated on the peerity platform.

Peer token supply

The creation of the Peer token is based on different variables. Blocktime, site-wide activity stream, and the amount of volume on the transaction ledger play a huge role in the variable creation rate of the Peer token. Every time a block is created new coins are minted onto the chain based on an open source algorithm. We aim to achieve a variable token creation rate between 0.5 and 1.5 peer tokens per second, based on site-wide and transaction ledger activity. This results in a yearly supply rate that can vary between 15,768,000 and 47,304,000 tokens.

Cryptocurrency stability issues

Peerity.io tries to solve the price stability issues that are plaguing a lot of today's cryptocurrencies in a variety of ways.

1. Variable issuance rate
   - By issuing tokens in accordance with activity, we avoid adding new tokens when the price is already low, helping to mitigate crashes
   - By issuing tokens when activity is high, we also avoid extreme price spikes and create some price consistency while also allowing for a smoother gradual rise in value. We feel this rewards token holders and users while also providing value to currency investors and speculators.
2. High token usability

- Pay for site services
- Buy and sell items through built-in e-commerce posts
- Crowdfund projects and events

Peerity Partner Locations

Peerity Partner Locations (PPL) will be any venue that hosts Peerity user groups. We want to reward not only the users but also any PPL that welcomes Peerity groups. The venue will receive a portion of the token distribution awarded to the event. PPL's may or may not accept Peerity tokens in return for goods or services. PPL's may or may not offer discounts e.g. "$1 beers if you pay in Peerity token."

How to become a Peerity Partner Location

To become a PPL all that needs to be done is to create an account and register your geolocation and/or business as a PPL. You will then be listed on our site as a PPL host, which can benefit your business in many ways other than the free ad that comes with being a listed PPL. We encourage PPL's to come up with new ways to use Peerity that will augment flow their business and enhance their customer's experience.

Governance Structure

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of the Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.
- John Perry Barlow, A Declaration of the Independence of Cyberspace, 1996

Human history seems to have a proclivity towards centralized voting and governance structures. Power in the hands of absolute rulers has almost never resulted in prosperity and progress. Much of our societies today are still using a representative system of governance that dates back to Roman times.

We see a variety of governance models being created within the blockchain community, OUT OF INSPIRATION HERE COULD USE SOME FLUFF ABOUT CRYPTO GOVERNANCE BENEFITS

The Peerity governance will be two-fold. During our alpha and beta stages, we will be using a 'benevolent dictatorship'. After the official launch, the Peerity governance system will come into action.

1. Benevolent Dictatorship

For a project such as Peerity to succeed, clear and direct leadership has to be present at the start. While we are completely in favor of a decentralized governance structure, our developers need complete freedom during the alpha and beta versions of Peerity.io, and a centralized decision-making structure is necessary to achieve the fast growth we are aiming for.

During the Peerity.io alpha and beta, Peerity LLC will have full control over all the decisions made on the Peerity website and blockchain. No decentralized governance is in play at this time.

2. Peerity.io governance structure

The governance system for peerity.io will be decided at a later date. Development is focusing heavily on our core features and the security of the peerity network. We will announce our governance plans after we release the beta. We aim to have a decentralized decision-making process in place where staked users can vote on changes and proposals by the time Peerity launches officially.

Token Crowdsale

The current scene for fundraisers in the crypto world is under heavy scrutiny from both professionals and pundits alike. One of the main grievances with token crowdsales is that tokens are only created for the sole purpose of being able to launch an initial crowdsale of the tokens.

Peerity wants to break with this trend. Our token will be heavily integrated into our platform, providing a real-world use for the token from the day we launch the Peerity platform.

Another common consequence of the traditional coin offering model is that it is not a sustainable model. Companies and organizations gather a substantial amount of funding from a single investment round and have limited potential to find follow-up funding.
Peerity does not need follow-up investment rounds, as we aim to use the initial funding from the crowdfunding round to build the platform. Once the platform has been constructed, the Peerity development team will be funded by the continued payout of a maximum of 5% of the total daily created Peer tokens. This eliminates the need for additional funding rounds and ensures the indefinite continuation of the Peerity platform.
More details on our fundraiser events will follow soon.

Distribution of crowdfunding tokens:
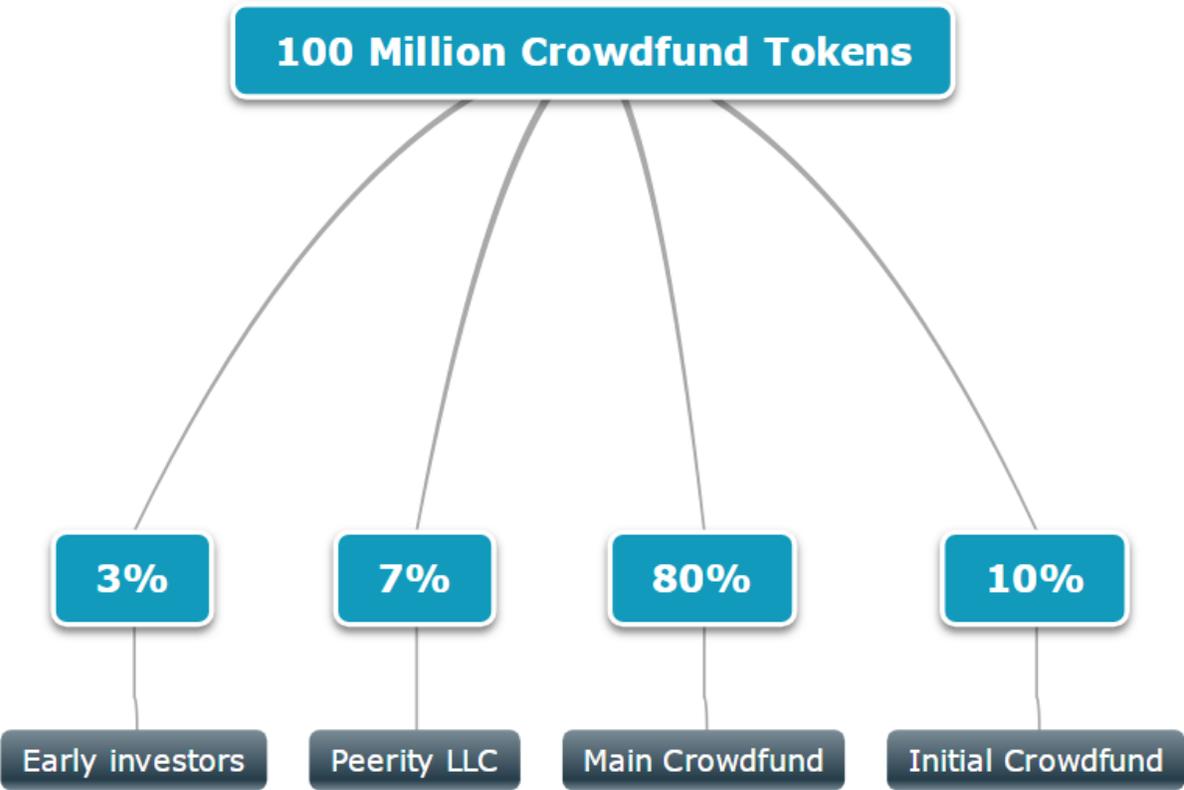
80% of the tokens will be made available in our public fundraiser event. Everyone will be able to purchase our tokens at that time. We will be creating a fundraiser platform where everyone can buy the Peer tokens with a multitude of different cryptocurrencies. We will be providing more information about this public fundraiser soon.

Please note that our token is not a security, is not listed, authorized, issued, or traded on any regulated market. We do not guarantee that the value of tokens will increase.

Fundraiser goals:

Fundraiser Event

>500 BTC

Launch Q1 2018

30% Marketing and PR
30% Legal
30% Development
10% Operations

>1500 BTC

Launch Q4 2017

25% Marketing and PR
20% Legal
50% Development
5% Operations

>3000 BTC

Launch Q4 2017

25% Marketing and PR
20% Legal
40% Development
3% Operations
12% Peerity Projects Fund

>4000 BTC

Launch Q4 2017

28% Marketing and PR
20% Legal
40% Development
2% Operations
10% Peerity Projects Fund