



USING

**BLOCKCHAIN  
TECHNOLOGY**

TO

**ADVANCE EQUAL RIGHTS  
AND ACCEPTANCE**

FOR THE

**LGBT COMMUNITY**

**PINK PAPER**

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## Created in collaboration with Newtown Partners

This Pink Paper has been created in collaboration with **Newtown Partners**. Newtown Partners is a blockchain investment and advisory services company that specializes in token economics, token sale design and demand generation for both their portfolio of startups and in an advisory capacity. They operate out of offices in San Francisco, U.S. and Cape Town, South Africa.



## Abstract

A token to address the needs of the LGBT<sup>1</sup> community is proposed. This token will aggregate the economic strength of the LGBT community, which is estimated to be between 3%-7% of the global household wealth<sup>2</sup>. The Token aims to leverage this economic power and blockchain technology to advance equal rights and full acceptance for all members of the LGBT+ community worldwide. Both macro- and microeconomic models are proposed to facilitate a sustainable token economy that will encourage early network adoption through launch partners. The token technical design aims to enable scalable transaction throughput, while protecting identity for members of the LGBT community. A route-to-market through launch partners is discussed on a high level and analysis undertaken to increase the likelihood that a viable economy will emerge.

This Pink Paper is accompanied by the [White Paper](#). The White Paper offers additional context and rationale on the opportunities and challenges concerning the LGBT community in general and the Pink Economy in particular. This paper should be read in conjunction with the White Paper. For your convenience we reduced the context to a minimum in this document

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<sup>1</sup> LGBT or LGBTQ, LGBTQI or LGBT+ includes Lesbians, Gays, Bisexual, Transgender, Queer, Intersex, and other communities defined by their sexual self-identification. We celebrate the spectrum of diversity as well as gender fluidness and will work to support and include + elements through the efforts and makeup of the foundation.

<sup>2</sup> See White Paper for additional details and sources.

# LGBT economy strength

## The size of the LGBT economy

The estimated LGBT share of the global household wealth is \$16 trillion (LGBT Capital, 2016) which constitutes a significant portion (6%) of the estimated global household wealth of \$250 trillion (Credit Suisse Research Institute: Global Wealth Report 2015). The estimated global purchasing power of the LGBT economy in 2016 was between \$2 trillion and \$4.6 trillion (Peter Jordan (LGBT Consumer Trends), 2018). This represents a significant portion (3.9%) of the estimated global purchasing power of \$115.6 trillion (World Bank, 2015).

The geographical breakdown of this spending power is roughly proportional to the standard breakdown of total purchasing power, with Asian spending dominating all other markets (more than both the US and European Union combined). This is particularly relevant considering the size of Asian cryptocurrency markets and penetration of cryptocurrency technologies<sup>3</sup>. In mid-2017, Asia was estimated to constitute 38% of all cryptocurrency users (Cambridge, 2017, p.109). However, it is difficult to ascertain how many of these users are speculative in nature.

Western economies offer a combination of technological progress and LGBT freedoms, offering the biggest potential for supporting initiatives that intersect these markets. The North American and European Union LGBT markets, both worth about \$1 trillion (LGBT GDP, WEALTH & TRAVEL 2016 by LGBT Capital, 2016<sup>4</sup>), are of particular note.

## LGBT spending habits

There are strong indicators<sup>5</sup> that LGBT community members are more likely to spend at inclusive businesses. For example, 59% of gay and bisexual men reported visiting an LGBT nightclub in the past 12 months and 42% of lesbian and bisexual women did. Likewise, when it comes to online dating, 44% of gay and bisexual men reported using a dating app that specifically caters to gay men. As a contextual note, the following statements are from markets (mainly the U.S.) where no direct repercussions for being a member of the LGBT community are expected. The reality differs vastly in other regions.

The LGBT community has diverse spending habits due to its wide variety of subgroups. For example, the **average household income of gay men differs from that of lesbians significantly**. However, both married male-male couples and female-female couples have, on average, **higher household income than their heterosexual counterparts** in regions where equal rights have been obtained. In relation to philanthropy, across the board, there is a consistent ratio of LGBT people (i.e. 45% in the USA) donating to LGBT organizations<sup>6</sup>. While donating forms a large part of the LGBT community, these statistics have remained stable over the past five years.

The LGBT community perceives itself to be financially stable, with only 15% reporting a negative economic outlook for themselves. Both tourism and cultural events form a significant part of LGBT spending<sup>7</sup>, with over two-thirds of LGBT people reported spending over \$50 eating out weekly. These are significant markets that could further optimize their appeal to the LGBT community.

The LGBT community overwhelmingly favors using the services of businesses that support the community. 88% of respondents in the CMI survey reported that corporations that support LGBT equality are essential and 77% reported that companies that support LGBT equality would get more of their business in the next year. The reverse also seems to be true, such as when **LGBT people actively boycotted Chick-fil-A** after it was perceived to be anti-LGBT.

11% of LGBT people reported being self-employed. This is a significant portion of the LGBT market that immediately has a natural interest in engaging commercially with the LGBT community. The National Gay & Lesbian Chamber of Commerce in the U.S. certifies LGBT-owned businesses, but has only **909 certified businesses**. When considering that only 7% of respondents in the CMI survey indicated that they are a registered LGBT Business Enterprise, this gives an encouraging approximation for the total amount of LGBT-owned businesses (around 13,000 in the USA).

<sup>3</sup> Furthermore, Hornet's strong presence in several key-markets in Asia (like Taiwan, Thailand, Russia) and their affiliation with Blued.

<sup>4</sup> The full report is not publicly available, but can be requested via <http://www.lgbt-capital.com>

<sup>5</sup> LGBT Community Survey® data was provided by Community Marketing & Insights (CMI), an LGBT-focused research firm based in San Francisco. The data used here are from the [11th Annual LGBT Community Survey®](#)

<sup>6</sup> CMI Survey Page 45.

<sup>7</sup> CMI Survey Page 24.

From the above, we can see that that the LGBT community is diverse in its spending and is inclined to reward LGBT-friendly businesses. Though many businesses are LGBT friendly, they may not have had an easy way to indicate this to potential customers. Providing them with a convenient way to do this, without significant investment or marketing, would likely be valuable to both the LGBT community and to supportive businesses.

## LGBT challenges

The LGBT community currently faces economic, social and legal challenges. While Western societies have made progress on recognizing the rights of people with differing sexual orientations – through enacting legislation and corporate social responsibility – this has not always extended to the larger worldwide LGBT community. The White Paper explains in greater detail the challenges and inequalities from external factors as well as from within the LGBT community. Please refer to the White Paper to learn about and understand the reasons for this proposal as well as the tremendous economic and advocacy opportunities it presents.

## LGBT-friendly business prospects

The Human Rights Commission (HRC) gave 609 large businesses a perfect score in its **Corporate Equality Index** 2018. In the U.S., many businesses prior to the landmark Supreme Court ruling legalising same-sex marriage extended spousal benefits to same-sex employees. Additionally, some businesses cover medical expenses for trans employees. While this is indicative of increasing levels of support for the LGBT community, consumers may not be aware of this.

Although many businesses are LGBT friendly, they may not realize that explicit support for the LGBT community would be economically beneficial to them, or have no idea how to express such support. If a standard means by which this could be indicated was introduced, it would go a long way to broadening the reach and impact of the Pink Dollar<sup>8</sup>.

## Tokenizing the opportunities

- Creating a blockchain-based digital asset dedicated to the LGBT community will provide a convenient opportunity for businesses to express their support for the LGBT community. While doing so, they should be able to attract more customers, due to the loyalty these customers tend to exhibit to LGBT-friendly businesses.
- Using a digital asset running on an appropriately decentralized blockchain network seeks to provide members of the LGBT community with a level of pseudonymity not available to them in traditional payment methods (such as credit cards). This will give LGBT community members in less friendly countries access to products and services that they would not previously have had access to.
- Having a digital asset dedicated to the LGBT community aims to mobilize the masses of this community into a tangible, global economic network. Through the presence of the digital asset, the community can raise awareness and measure its impact on businesses, charities and boycotts. The high affinity of LGBT people to sympathetic causes, even if these projects are less 'user-friendly' will allow this digital asset to bridge the gap between the current technical cryptocurrency community and mainstream adoption.
- Using a digital asset, it is proposed that LGBT community members can easily fund charities anywhere in the world for LGBT-related causes. The digital asset has the potential to bypass traditional transaction processing bureaucracy and costs, with the savings effectively being passed onto those who need the funds most. The digital asset may also prevent funds from easily being seized by governments. The cryptocurrency also provides the opportunity for funds generated in the network from standard activities (such as payment transactions) to be directed to LGBT-focussed initiatives and organisations.

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<sup>8</sup> See White Paper for the history and definition of the Pink Dollar

## Opportunity for cryptocurrency

The LGBT community shows a great affinity for projects and causes that support the push for equal rights. Its collective spending power is as yet poorly understood, but even at lower estimates comprises a significant portion of the total global spending power. With its untapped economic power, and it already identifying as a worldwide movement, the LGBT community provides the ideal environment to establish a digital asset that supports its goals.

## Introducing the LGBT Token

*The LGBT Foundation aims to deliver equal rights and full acceptance for all members of the LGBT community worldwide. The LGBT Foundation enables the LGBT community to exert its considerable economic might, provides a safe and secure environment to access the LGBT Token and other products and services, and enables members to verify and protect their identities. The Foundation aims to allocate resources on an ongoing basis to support and defend LGBT community members from oppression, discrimination and inequality.*

### Token Objectives

The high-level, proposed LGBT Token objectives are:

1. enable members to assert and protect their LGBT identity;
2. demonstrate and exert the economic might of the LGBT community by creating a new medium of exchange for its use; and
3. support global social impact initiatives that the LGBT community cares about, including tackling oppression, discrimination and inequality, education and healthcare.

The first Token objective is not strictly speaking linked to the Token economy, but rather a necessity to safely engage in the Token economy. The proposed technical design of the system aims to link an identity, stored in a decentralized manner, to a Single Sign-On (SSO) and cryptocurrency wallet. This system is intended to be a self-sovereign identity, that is, users are encouraged, but not forced to self-declare information. This information may be as simple as a name, or more private, such as sexual preference or HIV status. Once they have declared their identity, users can choose to re-use this ID with other network partners who use the SSO system. The system may use Civic or U-Port as the basic sign-on software, with additional optional fields. The exact technical design of this solution is still being explored.

The second and third Token objectives can be rewritten and expanded upon, so that they can be applied to the Token economy. The restated Token objectives would then be:

2. incentivize members of the LGBT community to unite around using the LGBT Token as a medium of exchange for all purchases; and
3. use the LGBT Token to fund LGBT-centric causes.

These two objectives tie into each other, as the bigger the adoption of the token, the more money can be spent on charitable causes. Thus, the focus on the token economy design will be maximizing objective two.

## Token economics

One of the primary aims of most decentralized networks is to reduce the volatility of the native Token's price in terms of more stable currencies (such as bitcoin or fiat). There is still much debate regarding how best to value blockchain-based digital assets, but the prevailing approach is to use a form of the traditional macroeconomic **Quantity Theory of Money** applied to cryptoeconomics<sup>9</sup>. This model is expressed in the **Equation of Exchange**:

$$M \cdot V = P \cdot Q$$

- $M$  is the monetary supply, the total number of tokens in the network.
- $V$  is the token velocity, the number of times a single token is transferred within a fixed period.
- $P$  is the price of one 'unit' of output in terms of the native token.
- $Q$  is the total output in the given time period. The output here could be 'total volume of transactions' in a cryptoeconomy. Note that this is the total volume of transactions \*\*in terms of the native token\*\*.

The goal is to determine the value of  $E$ , the exchange rate of a single token for a more stable and established currency (say USD). We can apply the following transformation<sup>10</sup>:

$$E \cdot M \cdot V = \alpha \cdot Q$$

where is  $\alpha$  the price of one 'unit' of output in terms of the currency used in the exchange rate  $E$  (say USD)<sup>11</sup>.

Making  $E$  the subject of the equation,

$$E = \frac{\alpha \cdot Q}{M \cdot V}$$

shows us that in this model the price of the token in USD depends on many factors. The monetary supply is typically fixed or growing at a known rate. The quantity of output is hard to control and is determined by the utility offered and the number of participants in the network.

Based on the above equation, there is an inverse relationship between velocity and token value (in terms of USD) - higher

velocity results in a lower token price and lower velocity results in a higher token price.

In the Token economic design here, we primarily focus on ways to manage the token velocity to produce a sustainable token price, so that the new cryptocurrency is useful as a medium of exchange. It is worth noting that token velocity control levers are proposed mechanisms and there is no unanimous agreement among traditional economists or cryptoeconomists on the optimal way to control or accurately measure velocity.

### Token use cases

To be able to implement velocity-control mechanisms in the LGBT Token network, it is necessary to consider the major use cases of the token. These proposed use cases will comprise the majority of transactions in the system and therefore dictate the rate at which tokens flow through it. Identifying key use cases and implementing them in the network with (adjustable) velocity considerations in mind will allow the network to modulate velocity and, by extension and to some extent, token price. The following primary use cases have been identified:

Transactional use cases:

- **Standard medium of exchange, anonymous use case:** Users will transact with businesses who accept LGBT Tokens as payment.
- **Standard medium of exchange, identity use case:** Users can purchase goods and services with businesses who accept LGBT Tokens as payment. They can provide their identity (with their permission and anonymized on the public ledger) as and when needed - for example, purchasing tickets for an LGBT-related festival.
- **Impact program:** Users donate LGBT Tokens to various charities through the LGBT Impact Program, which forms part of the LGBT Token network infrastructure.

<sup>9</sup> [Cryptoasset Valuations](#)

<sup>10</sup> [The Quantity Theory of Money for Tokens](#)

<sup>11</sup> There are alternative formulations of this equation such as [one proposed by Vitalik Buterin](#) and [explained in more detail by James Kilroe](#)

Incentivization use cases:

- **Rewards:** Launch partners distribute Tokens to members of their networks for good behavior and for generating content.
- **Micro-payments:** Micro-interactions between users on social networks which use the LGBT Token for points or as an in-app currency. This may involve tipping or spending additional Tokens to do 'special' actions on the network with other users.
- **Market research:** The LGBT Foundation will conduct market research by allowing users to share their data via a paid opt-in process. Eventually, this will allow the LGBT Foundation to produce research reports about the Pink Economy by using the data they have gathered.

Voting use cases:

- **Voting and decentralized governance:** The long-term vision of the LGBT Token involves the LGBT Foundation divesting its powers and responsibilities to a decentralized body governed by Token-holders on the network. Currently, there is no industry consensus on the best decentralized governance model. The Foundation is investigating appropriate mechanisms that will allow token holders to participate in token governance in a sustainable and legally appropriate manner. The governance decentralization process will explore how to implement token holder participation through three key governance functions, namely: nomination, election and recall. Until that point, the LGBT Foundation proposes to pursue its mission and objectives as articulated in this paper and the White Paper.

Transactional use cases constitute interactions which mirror their traditional counterparts in their implementation, albeit with the added benefit of convenience and low transaction costs, to incentivize usage.

Incentivization use cases are different, as they involve the Token being earned for certain types of behavior. They are predicated on an out-of-network actor, such as a launch partner, incentivizing users to behave in a particular way. We aim to harness these use cases to modulate Token velocity. This will be done by assisting and incentivizing network partners to incorporate microeconomic models, which link the token value to the transaction value within the network. This is discussed in the Token micro-design section below.



## Token macro-design

We provide an overview of the proposed macroeconomic variable values in the LGBT Token network. Due to unknown implementation details of certain aspects of the network (such as governance), some of these variables are discussed at a higher level, whereas others are explored at a more granular level.

### Inflation

Network inflation can be used as a reward (i.e. incentivization) mechanism to encourage particular actors to behave correctly. Inflation, coupled with transaction fees, are the two primary mechanisms for creating financial incentives in a cryptocurrency network<sup>12</sup>.

There are a variety of possible inflation mechanisms – with respect to both existing circulating supply at the time of inflation and the total supply<sup>13</sup>:

1. Issue a fixed amount without inflation. Rewards and incentives would have to be generated without inflation. This model is deflationary in nature due to limited supply and the inevitability of lost tokens<sup>14</sup>.
2. Generate tokens indefinitely at either a fixed or variable rate. Ethereum presently has a varying inflationary model. The alternative is to issue at an effective fixed rate of total supply annually. This would have a compound effect on circulating supply over multiple years and considerations would need to be made on the effect on price based on the rate of supply.
3. Generate tokens to a finite number and/or only for a certain period of time. This is what Bitcoin does: a decelerating inflationary model that converges to zero. The total supply converges to some fixed sum.

As aforementioned, inflation must be carefully considered based on what it is expected to enable on the network. While inflation has been shown in models to have a positive effect in token economies<sup>15</sup>, these models reach this conclusion from the premise of incentivized inflation. Based on the above information, the inflation of the LGBT Token will be managed as follows:

1. Newly generated Tokens are directed to LGBT Impact, to address the program, operating costs and other activities that serve to benefit the ecosystem. The voting mechanism of the LGBT Impact program is described in the token micro-design section.
2. Transaction fees in the system can be used for multiple purposes. Some of these proposed purposes include:
  - as rebates to cover exchange fees in the system for merchants.
  - discounts for users to incentive the Token use.
  - funding the business costs and expenses incurred by LGBT Foundation.
  - being directed into a special project fund that is controlled by a decentralized governance mechanism.

Both the **U.S. Federal Reserve** and the **European Central Bank** state that the ideal inflation rate is 2%. However, due to the expected annual growth of the LGBT Token, the initial token economy is more akin to that of a high-growth emerging economy. The **median inflation target for developing countries is 3%**, however, for the past few years, the average BRICS inflation rate has been **somewhere between 3% and 6%**.

Before trying to use traditional macroeconomic figures as a guide for a reasonable inflation mechanism, it is important to note that cryptoeconomies are significantly different in nature. Inflation targets set by central banks are calculated using macroeconomic variables that don't exist in cryptoeconomies.

The inflation mechanism proposed is subject to change as the economy is developed further. Launch partners will be allocated tokens that are released at fixed time intervals, which also simulates inflation in the medium term<sup>16</sup>. There will be no inflation mechanism through new token creation in the short and medium term. In the longer term, an inflation mechanism of up to 1% may be introduced depending on the state of the network and its economy.

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<sup>12</sup> [On Inflation, Transaction Fees and Cryptocurrency Monetary Policy](#)

<sup>13</sup> [Inflation and Participation in Stake-based Token Protocols](#)

<sup>14</sup> According to <http://fortune.com/2017/11/25/lost-bitcoins>, over 4 million BTC may be lost already.

<sup>15</sup> [The Economics of Cryptocurrencies - Bitcoin and Beyond](#), page 28

<sup>16</sup> Similar to how the large reserves of the Kin network are released daily as an inflationary tool, distributed to services.

## Token Distribution

The Token distribution needs to satisfy the ecosystem itself and all stakeholders involved. We can identify the stakeholders in the early LGBT Token network as:

- Public users who hold and utilize LGBT Tokens
- Launch partners of the network
- Team members who contribute to the development of the network
- The LGBT Foundation

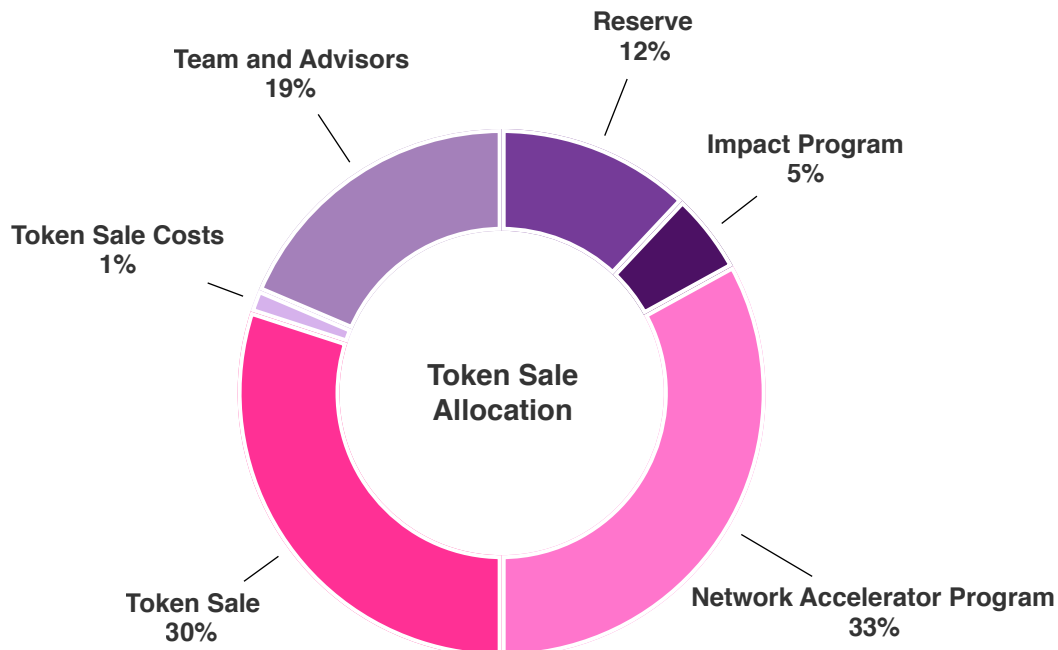
Each of these stakeholders need to be allocated an amount of the initial total supply to satisfy the objectives of the Token economy. For allocations that result in a more centralized holding of tokens, rules must be introduced stipulating when these tokens are accessible, to provide long-term commitment and help reduce the risk of market manipulation.

The initial Token allocations for the LGBT Token are:

- 33% toward the network accelerator program ("**NAP**") to incentivize launch partners to use the Token on their platforms. Usage of these Tokens will be subject to separate terms and conditions which govern their use, to ensure that the partner tokens create more network value than what they dilute. This is the portion of the total Token supply that seeks to ensure that the Token

will have significant utility in the early phases of the network.

- 30% toward the Token sale. The proceeds of the Token sale will be used to cover expenses to build the LGBT Token network and bring it to market.
- 1.4% toward Token sale-related costs such as the sale itself, as well as preparatory and advisory costs incurred by the LGBT Foundation and other participating organizations.
- A token allocation of 18.6% to the team and advisors. This ensures the development team attracts high-quality talent with a commitment to the success of the project. These tokens will be vested over a period of at least three years with a fractional release at fixed time intervals (such as every 12 months). They will be subject to separate terms and conditions.
- 5% toward the LGBT Impact Program. This will be used as an initial supply for the LGBT Impact Program until sufficient network activity generates further funds.
- 12% as a reserve held by the LGBT Foundation. This is to be used at the Foundation's discretion and may go toward initial operating costs or distributed to other stakeholders as necessary. This reserve will be locked up for at least 12 months.



## Number of Tokens

The determination of the number of tokens in a cryptoeconomy is more psychological than quantitative. Most platforms accommodate denominations of up to 18 decimal places<sup>17</sup> which means the number of tokens won't influence the ability to conduct transfers in the system. Psychological aspects of denominations can influence the perception of the utility of a single denomination<sup>18</sup>:

1. Denominations that relate to commonly found denominations in fiat currencies promote recognition and association with tangible value. For example, \$0.01 is a tangible amount of value that any person from the U.S. can relate to, whereas \$0.001 is an abstract concept.
2. Given a significant token price, people may consider an individual token expensive due to its price without regarding its purchasing power. In the absence of any other information, people will assume the standard price for a service on the network will cost an integral, as opposed to fractional, amount of LGBT Tokens. They may mistakenly believe that a high-priced token represents low purchasing power, or even that fractional ownership is not possible.

It is relevant to note the usual USD sizes across some typical expected use cases of the system:

1. Both physical payments and online payments to retailers can range in the order of cents to thousands of USD.
2. Similarly, donations can vary over a wide range of USD values.
3. Tickets for events and entertainment often range from \$10 to \$1000.
4. Rewards and fees can vary dramatically. For example, content creation can reward very small (\$0.01) to very large amounts<sup>19</sup>, depending on the number of views generated. Users should be able to send very small denominations for the purposes of tipping, social interaction and other non-payment oriented activities. This can be handled semantically by either assigning a formal name to denominations smaller than a Token size<sup>20</sup> (akin to

the USD "cent"), or handled by having a very low token value with a very large supply.

Given all of the above, of primary note is the consideration that the starting Token value should be larger than \$0.01 (1 US cent). Given that the LGBT Token is expected to be a medium of exchange Token with a wide distribution across many wallets and social apps, it is prudent to have a very large Token supply. Based on the above:

- the total Token supply is 1 billion Tokens, with 300 million Tokens privately available; and
- the Token price at issue is proposed to \$0.32<sup>21</sup>.

## Volatility

Most digital assets suffer from a volatility problem. Due to the speculative nature of certain digital asset purchaser behavior, a large portion of volume traded daily for most tokens or coins is between speculative buyers and sellers on exchanges which directly influences their price. Such markets suffer from an extreme form of reflexivity. Currently, for most networks, at least at the present time, very few tokens are used for utility. Even among digital assets that have a working product<sup>22</sup>, the price is still vulnerable to general cryptocurrency market movements and this behavior will always occur to some extent while the majority of the cryptocurrency market capitalization is speculative<sup>23</sup>.

LGBT Token is intending to release a working product while the market is still in this state<sup>24</sup>; volatility will almost certainly occur. Due to the fact that the initial utility of the Tokens comes from the use of the Token by launch partners, who likely reward users actions with fiat-denominated rewards, the distribution of these tokens is likely to be narrow. For example, assume the value of an LGBT Token at the beginning of a fixed time interval is  $2X$  and over this time interval the value of the token varies between  $X$  and  $3X$ . The reward mechanism would have to adjust distributions based on these prices at any given time.

<sup>17</sup> 1 ETH is actually equal to  $10^{18}$  Wei as per <http://ethdocs.org/en/latest/ether.html>

<sup>18</sup> <https://hackernoon.com/one-trillion-crypto-tokens-e3adabb92fd9>

<sup>19</sup> <https://www.quora.com/How-much-does-YouTube-pay-per-1000-views-How-where-can-I-get-sponsor-to-have-enough-capital-from-nothing-and-be-a-successful-company>, YouTubers make on average \$0.8 per 1000 views, implying very small rewards per view.

<sup>20</sup> One 100 millionth of a Bitcoin is called a satoshi.

<sup>21</sup> This does not take into account sale bonuses which would affect the effective price for the token during that period.

<sup>22</sup> Such as the [Basic Attention Token](#)

<sup>23</sup> [The network effects of volatility and liquidity, Bitcoin vs other payment coins](#)

<sup>24</sup> Based on the previous footnote, a study found that Bitcoin should achieve fiat-level volatility by mid-2019.

This has the potential for multiple detrimental and uncontrollable effects:

1. A situation may arise where over a short period of time the number of Tokens various users receive for the same action is markedly different.
2. If the Token price rises significantly (say from **X** to **3X**) once rewards have been distributed, these may all be used to claim tangible rewards from launch partners which could represent an unexpected loss to the launch partner, who would assume the exchange risk.
3. There are speculative consequences to price volatility too<sup>25</sup>. Many users may be discouraged from purchasing, holding, staking and/or using Tokens under conditions of volatility.

There have been a few mechanisms attempted to address this speculative volatility. The most prominent is that of the stablecoin, which is a cryptocurrency that has price stability as a primary function.

We do not recommend implementing mechanisms that would make the LGBT Token a stablecoin. We believe the largest uncertainty regarding the Token's price will be during the initial years where there will be large growth and speculation. Therefore, temporary measures to address the symptoms of volatility are the most practical approach. The proposed solutions refer to launch partners which operate some form of reward system in their networks.

Assuming a launch partner is willing to commit to between 0% and **X** of the Lifetime Value (LTV) of a customer in rewards, then the reward payouts in Tokens could be adjusted less frequently to reduce volatility in its network (which is the primary driver of initial utility). Therefore, the launch partner would incur some costs (up to some threshold level based on **X**) to ensure it does not have to continually adjust reward payouts and create a volatile reward system. Consequently, all users in the given time interval will be awarded a fixed number of Tokens for an activity, regardless of LGBT Token price fluctuations during that interval.

An alternative (or additional) approach is for a launch partner to declare that on any given day (or fixed time interval), a fixed number of Tokens decided at the beginning of the time interval, based on the Token price, are available as rewards in the system. No matter how many users participate in the system<sup>26</sup>, the specified rewards are handed out based on incentivized behavior<sup>27</sup>. This is open to collusion for some types of activities, but with an appropriate identity management system, these problems should be mitigated.

The LGBT Foundation proposes to consult and work with each individual launch partner to develop strategies and mechanisms that ensure that volatility impacting their user experience is minimized, while not curbing economic activity.

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<sup>25</sup> [Stablecoins: designing a price-stable cryptocurrency](#)

<sup>26</sup> This is a similar system used by the [Kin Rewards Engine](#).

<sup>27</sup> Though Hornet could disclaim that a certain minimum threshold of users participating in reward-related activities is required to limit abuse by small groups of people.

## Price-stability and Velocity Considerations

There are various mechanisms that can be implemented to reduce price volatility of the LGBT Token. One of the primary ways to confer value to a token is to ensure token velocity is

acceptably low, as discussed above. Here is an overview of all price-stability levers which were explored and their expected feasibility for the LGBT Token use cases.

Lever	Description	Viability for LGBT Token
Dividends	Continuous income through the holding of tokens from protocol design such as transaction fees or inflation. Lowers velocity.	Unfeasible for the LGBT Token. Both transaction fees and inflation are designated for other use cases.
Staking	Tokens are locked up for a certain amount of time in order to perform a valuable function. Lowers velocity.	Staking can be used in reward programs by launch partners, but likely not on a protocol level (e.g. to validate transactions).
Gamification	Incentivize holding of Tokens in exchange for larger rewards or discovery. Lowers velocity.	Feasible if a large number of launch partners will use the token for rewards. The appendix contains a microeconomy template for launch partners incorporating a gamification model.
Curation Markets	A market with a native token where users curate particular subtopics. Buy-in is through a predefined token price curve. Lowers velocity.	Unfeasible for the LGBT Token. No reason to use LGBT Token as a reserve token over more established Tokens.
Medium of exchange	Becoming a medium of exchange. Adoption encourages holding for convenience and as a store of value. Lowers velocity. This is a long-term goal.	Difficult to ensure but providing a wide variety of launch partners during the early stage will be a primary driver. The token requires time to become a true medium of exchange. This is a long-term goal.
Money Supply Changes	Maintaining price stability through adjusting the money supply through inflation and burning mechanisms.	This approach is considered infeasible due to its centralized nature and potential legal ramifications.
Discount Token Models	Applying a Discount Token Model where holding / using tokens enables a discount for transactions. Lowers velocity.	Possible to use for LGBT Token depending on services offered. Can be used in a microeconomic template for launch partners in tandem with gamification.
Airdrops	Token airdrops to holders of other currencies in order to encourage use would increase velocity if these holders spend the token.	Airdrops for arbitrary Ethereum (or any other cryptocurrency holders) holders is deemed infeasible as it provides no utility and introduces reputational as well as potential regulatory risk.
Promotional Events	Offering tokens to targeted demographics in concentrated LGBT centers will promote the use of the token to appropriate demographics, increasing velocity.	This is appropriate for the LGBT Token as it addresses the target market and introduces potential users to the network. These users derive maximum utility from the LGBT Token.

# Token micro-design

## Microeconomic Model

A microeconomic template has been developed for launch partners (which operate a network-based app) to implement using the LGBT Token to incentivize appropriate behaviors by all actors in the network<sup>28</sup>. Below, this template is applied to the Hornet use case, which will be the first partner in the LGBT Token network.

## Example: Hornet Network

**Hornet** currently has a reward program which rewards users points for certain activities, which can be redeemed in the Hornet store. This points system is proposed to be migrated to the LGBT Token and expanded to increase functionality and utility of the program. We propose to apply a microeconomic model to the Hornet Reward Program context to see how it might be used by any launch partners with a network-based app.

## Hornet Overview

Hornet is a social networking app for gay men which intends to give them a more meaningful and holistic way to express themselves and connect with others. It has a mobile app and web-based app, which allows users to upload information, message others and upload “stories” which are similar to posts on other social networking sites. This is intended to be expanded to include much more engagement functionality by users in line with Hornet’s vision of becoming a social media platform where gay men can be their true selves. Additionally, there are features to find local clubs and other LGBT-related events and businesses.

When Hornet switches to the LGBT Token, it will have an associated wallet to store a users’ LGBT Tokens. Additionally, there will be a decentralized SSO layer which will be used to manage user identity. This will increase privacy protection when transacting.

We can see below how the Hornet app translates directly to the generalized template found in the appendix.

## Token route to market

This section describes the route-to-market approach adopted by the LGBT Foundation. The route-to-market is designed so that the Token can demonstrate and exert the economic strength of the LGBT community.

In order to achieve this, we break down how to unite the LGBT community around the Token. We believe that there are three types of participants in the Token economy. These are:

1. **Token partners:** the businesses who are willing to accept and use the LGBT Token, such as LGBT specific digital services (like Hornet and Revry) and brick-and-mortar businesses (like Out of Office and Oasis);
2. **Token backers:** persons who have participated in the Token sale or brought the Token on the open market; and
3. **Token users:** Members and allies of the LGBT community, who will use the Token as a transactional medium.

At a high-level – the proposed route-to-market process is as follows:

1. Seed partners with the Token. These partners must use the Token as a reward or incentive for their users<sup>29</sup>. This will allow:
  - users to understand the value of the Token as they would have earned it through performing work, for example, for Hornet, this would be platform-enhancing behavior. However the reward or activity may vary for each launch partner;
  - partners to work out a sustainable reward strategy. These partners should not gift the Tokens in an unsustainable way as, eventually, they will be required to purchase rewards further Tokens from the secondary market at market prices. Thus, the rewards to users must be lower than their lifetime value (LTV) as customers<sup>30,31</sup>; and
  - The number of Token holders to increase, which in turn will increase the utility of the Token.
2. Promote earning by users: This process will be initiated by partners. As described above, partners will encourage

<sup>28</sup> A generalized construction of this template can be found in Appendix A.

<sup>29</sup> The detailed mechanism of this is in the partnership program.

<sup>30</sup> Ideally, the token improves the LTV of customers

<sup>31</sup> The [partnership program](#) will guide partners on how to initially launch the reward strategy, after this, monitoring and adjustment will personalize each rewards program.

users to earn LGBT Tokens for completing specific high-value behavior.

3. Promote spending by users: Initially partners, but it is proposed that eventually brick-and-mortar stores will be encouraged to accept LGBT Tokens as payment. As discussed in token opportunities section, these stores will accept the Token as it signals their progressive nature and LGBT community support. Furthermore, the LGBT Foundation may explore incentivized stores by offering 'cash-back' compared to traditional payment methods - for example, granting users a 1% rebate.
4. Eventually, if the Token is accepted by a significant portion of the LGBT community, it could become a sustainable medium of exchange.

### Launch partner microeconomic model

We explored the LGBT Token implementation in Hornet, the gay social media app, which is also a key launch partner of the LGBT Token. The Token implementation was modelled after consolidation with the relevant stakeholders. This gives a good indication on how the token is intended to be implemented in practice. The Hornet model will be described through all possible actor interactions, detailing the mechanisms governing these interactions.

### Point of sale (medium of exchange)

It is proposed that businesses and events listed in the Hornet app can use Hornet as a point of sale for certain products, by using the LGBT Token. Users will be able to pay for events offered by businesses in their area with LGBT Tokens using their Hornet wallets. The identity SSO layer seeks to ensure their privacy is maintained while purchasing goods tied to their identity, such as event tickets. This will also allow for the introduction of promotional events where a business could offer a small discount for users paying with LGBT Token through the Hornet app. One example would be the buying of drinks at specific events. For example, LGBT parties in San Paulo could allow for attendees to simply buy drinks throughout the night with their LGBT Tokens in their Hornet Wallet. This is beneficial for Hornet, as it encourages users to join the Hornet network for convenience and other financial rewards. Incorporating point of sale functionality into the Hornet app will contribute to the LGBT Token's status as a medium-of-exchange token, where its utility is at least partially derived for the ability to conduct transactions for goods and services with it. Incorporating this functionality has a network effect, as driving early utility of the token for payments encourages other businesses to accept the token as a form of payment.

Several brick-and-mortar stores and venues around the world have already pledged to support the LGBT Token as a form of payment. The latest list of supporters can be viewed at <https://lgbt-token.org/become-a-partner>.

### LGBT Impact Program

#### Donations to charities

The LGBT Foundation is exploring functionality in the wallet which enables users to donate directly to a selection of charities forming part of the LGBT Impact Program. This should be as simple as selecting a "Donate" option within the wallet. This should take the user to a selection of charities. This selection can be adjusted to address the current needs and desires of the LGBT community.

It is important to note that potential regulatory issues may arise as the donation scheme spans multiple geographic locations. The LGBT Foundation will commit to complying with all required regulation surrounding donations and restricting this functionality in jurisdictions where regulations prevent it.

#### Voting

The LGBT Impact program proposed to have a quarterly vote for all Token holders provide input on which charitable causes the LGBT Foundation should support. The list of projects will be provided by the Foundation initially, with the goal of eventually divesting curation over time into a decentralized governance model where the community itself will decide on appropriate programs to fund. This migration will occur as soon as a critical mass of users presents the ability to bootstrap a decentralized governance model. Any token holder will be able to submit a vote, where their vote weighting is a function of the amount of tokens in their wallet and how long these tokens have been held.

A few terms and variables are being considered, which will be used to formulate consultation process:

- the soft cap of a charity is the minimum amount of currency a charity needs to earn the vote to qualify for a contribution. This is due to the fact that certain charities require a minimum amount to function properly (such as for events, etc.);
- the hard cap of a charity is the maximum amount of Tokens a charity can be funded at a given time. Charities are of various sizes and large donations to smaller charities are a suboptimal allocation of donations;

- the voting threshold,  $T$ , is the minimum amount of votes (or total vote-weight) required for a charity to qualify for a contribution. This is an adjustable parameter and should be chosen in such a way (for each vote and based on the number of charities available) that at least one charity will exceed  $T$ ; and
- $DVP$  or dollar-per-vote is the amount of Tokens each vote is worth and is calculated as the total amount available to be donated in the vote divided by the total amount of votes cast to charities that have exceeded the voting threshold required for a contribution.

The community consultation structure is proposed to work as follows, subject to further considerations:

- a selection of charities will be chosen for any token holder to be able to submit a vote from their wallet. A Token holder's wallet will consist of LGBT Tokens which have been deposited into the account at different times with  $n$  different UTXOs (unspent transactions). Each UTXO  $i$  can be represented as an amount deposited  $D_i$  and a 'time since deposited'  $t_i$  (i.e.  $(D, t_i)$ ).

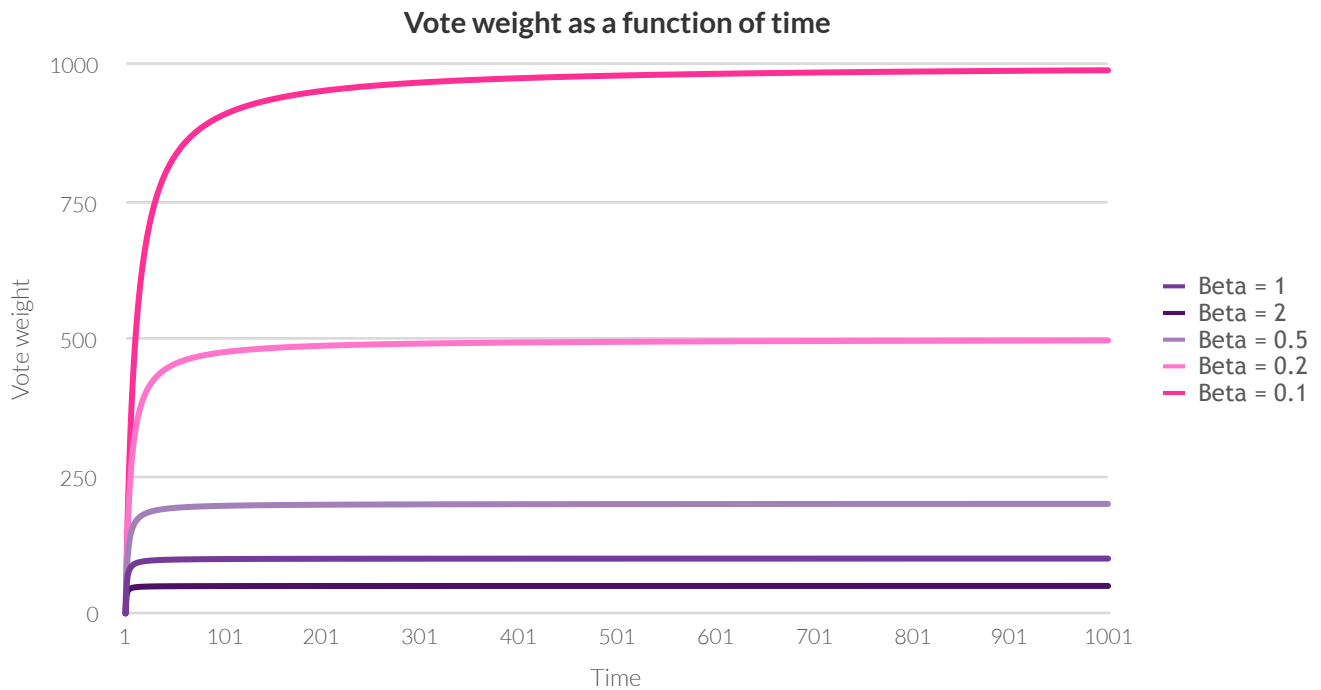
- the voting weight for this particular UTXO can then be calculated as

$$V_i = D_i \cdot \frac{t_i}{\alpha + \beta t_i}$$

so that a token holder's total vote weight is

$$\sum_{i=1}^n V_i = \sum_{i=1}^n D_i \cdot \frac{t_i}{\alpha + \beta t_i}$$

Where  $\alpha, \beta$  are adjustable parameters with  $\alpha$  reflecting the growth rate of vote weight as a function of token "age" and  $\beta$  reflecting how much the "age" of a token is weighted compared to the actual token amount.





- once the voting period has elapsed and vote weights calculated for each token holder, the votes are tallied for the charities. Let  $R = \{(C_i, S_i, H_i)\}$  denote the set of (number of votes, soft cap, hard cap) of each charity with an ordered indexing  $i > j \Leftrightarrow C_i > C_j$ <sup>32</sup>. We refer to charity  $i$  as the charity with *(number of votes, soft cap, hard cap)* =  $(C_i, S_i, H_i)$ . All charities such that  $C_i < T$  are discarded from  $R$  as they did not receive enough votes. An iterated process **HARD\_CAP\_PURGE** now occurs:

- I. The  $DVP$  is (re)calculated.
- II. A preliminary payout  $P_i = C_i \cdot DPV$  is determined for each charity  $i$  still in  $R$ .
- III. If  $P_i < H_i$  for every charity  $i$  in  $R$ , terminate this process.
- IV. For all charities  $i$  such that  $P_i > H_i$ , that charity is paid out  $H_i$  and is removed from  $R$ <sup>33</sup>.
- V. Return to step 1

We now have a set of charities  $R$  remaining who did not exceed their hard cap (those that did have already been paid out their hard caps). However, some of these charities may not have exceeded their soft caps. Since  $R$  is ordered-ascending in terms of votes we now iterate through the charities  $i$ :

- VI. (Re)calculate the  $DVP$ .
- VII. Calculate  $P_i = C_i \cdot DVP$  each charity  $i$  starting from the lowest  $i$ . For each  $i$ , if  $P_i > S_i$ , pay out that charity and remove it from  $R$ . Do this until a charity is found such that  $S_i > P_i$  (or until  $R$  is empty). Remove this charity from  $R$  but do not pay out since it did not reach its soft cap.
- VIII. If  $R$  is empty, terminate this process.
- IX. Reapply the process **HARD\_CAP\_PURGE** to the remaining charities in  $R$  since they may now have exceeded their hard cap with the additional funds from the removed charity being distributed.
- X. Return to step 6 if  $R$  is non-empty.

We believe this process fairly allocates proportional funds to all qualifying (that is, votes exceeding  $T$ ) charities while taking into account hard and soft caps. Every time a qualifying charity is removed for exceeding a hard cap or falling below a soft cap, the additional funds available mean the new potential rewards for the remaining charities need to be recalculated. Out of the charities which did not meet their soft caps, determining which to remove first is done based on number of votes (i.e. the one with the lowest votes is removed first), with their potential earnings being redistributed and potentially allowing other charities with more votes to meet their soft cap.

The voting itself will not be done in a decentralized manner, at least not initially. The LGBT Foundation – as a trusted entity which manages the privacy of identity of users interacting in the network – will manage the voting separately using an acceptable **E2E-type voting** format, such as **Helios**, which preserves the anonymity of users as much as possible while guaranteeing integrity of the votes.

Note the proposed voting arrangement that the LGBT Foundation is exploring is only in relation to the LGBT Impact Program.

<sup>32</sup> In other words, the charities are ordered ascending in  $R$  by how many votes (or vote-weights) they received.

<sup>33</sup> The total available to be donated is reduced accordingly, and so is the total pool of votes, which is why the DPV needs to be recalculated.

## Users

### Pay as you go (PAYG) for Hornet Premium

A PAYG model is proposed to be introduced, which will allow for existing subscription packages in addition to more granular choices of Hornet membership. The base price of Hornet Premium for a month is characterized as  $\$x/hour$ . Hornet will introduce a continuous price function to allow someone to purchase the below durations of Hornet membership. This price function is guided by the following initial price points (guided by the philosophy that 'buying in bulk' should be cheaper per hour), with the Token equivalent notified on the Hornet website from time to time:

- Annual package - Hornet costs \$0.007 per hour ~ (\$5/month)
- Quarterly package - Hornet costs \$0.01 per hour ~ (\$7/month)
- Monthly package - Hornet costs \$0.014 per hour ~ (\$10/month)
- Weekly package - Hornet costs \$0.03 per hour ~ (\$5/week)
- Daily package - Hornet costs \$0.1 per hour ~ (\$2.4/day)
- Hourly package - Hornet costs \$0.5 per hour ~ (\$0.5/hour)

Based on these guiding points the following Hornet Premium pricing model is proposed, where people can purchase Hornet Premium for any amount of hours h:

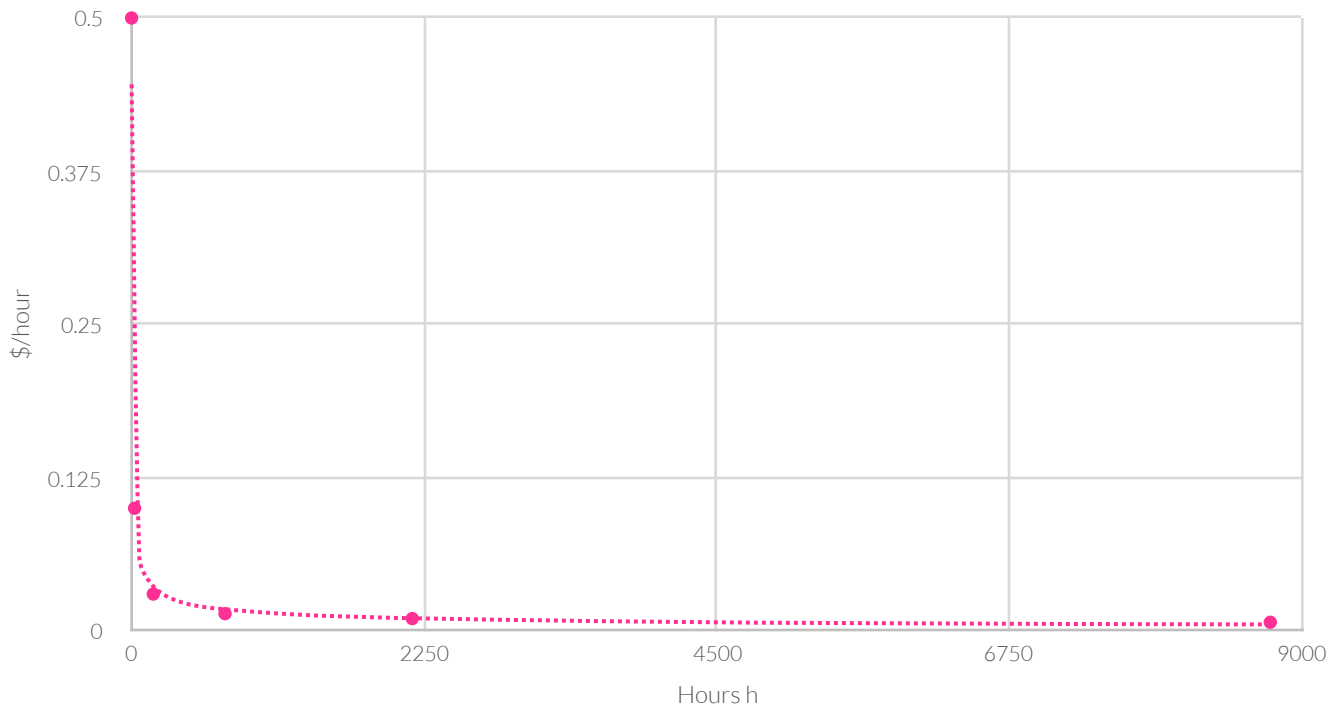
$$\$hourPrice(h) = \lambda h^{-\mu}$$

Where  $\lambda, \mu$  are adjustable parameters. Using the above points as a guide, this produces the following price multiplier function:

$$\$hourPrice(h) = 0.4459h^{-0.49}$$

This incentivizes purchasing for longer periods, but allows users to purchase any amount of Hornet Premium at a time.

**\$/hour Price of Hornet Premium as a function of hours purchased**



## Community Rewards

Hornet has an existing community rewards program which it proposes to incorporate into the LGBT Token network. It proposed to expanded it to provide rewards for a variety of behaviors. Actions which have been identified as reward-generators are:

- moderating the Hornet platform. This includes reporting bad or inappropriate behavior and becoming a part of the designated moderation team;
- referring new users to Hornet. People can be invited to Hornet by existing users who receive a reward if the user signs up and verifies their account;
- a 'first' action for certain types of actions will generate rewards, such as submitting your first story. This incentivizes user participation in the network;
- there may be rewards for reaching follower milestones. This is applied to both users and content creators.

A number of potential rewards, some of which are currently offered, are described with their corresponding reward:

### Hornet Attainment

"Hornet Attainment" is a proposed service that may be made available to its users and is especially popular in some Asian regions. Users will have a 'reputation score' which reflects their social status in the network. Users can show appreciation to

influential users by gifting them virtual goods that are purchased with LGBT Tokens. When these goods are sent to the recipient, an assumed 50% of the LGBT Token value is reflected in their wallet as 'attainment' tokens. These tokens count towards their reputation score using the formula below. The remainder is reflected as Hornet revenue. Hornet attainment is not designed to be lucrative for users, but rather for users to accrue reputation points. Recipients who hold their attainment tokens, instead of cashing them out, will earn reputation points based on the value of these tokens as well as how long these tokens have been held. For 'attainment' tokens with an LGBT Token value  $G$  having been held for time  $t$ , the reputation points  $R$  accrued are:

$$R(G, t) = \rho \cdot G \cdot \frac{\alpha - t}{\beta - t}$$

where  $\alpha, \beta, \rho$  are configurable parameters.  $0 < \alpha < \beta$  and these are used to determine how quickly the value of  $R$  decays over time.  $\rho$  is used to scale the reputation.

Note the starting value may be different for different values of  $\alpha$  but this can just be rescaled by  $\rho$ .

Users can also show off these gifts in a virtual trophy case. Reputation may also include tangible benefits such as visibility in a certain area for Hornet social matches.

Action	Perk
Claiming a Hornet wallet (for use of LGBT Tokens)	1 LGBT Token per user. ~ 5 million LGBT Tokens have been allocated to encourage widespread adoption of the wallet.
Community Rewards (today): Moderators; Translators; Beta testers; City ambassadors; Stories; Hornet guys	Currently users rewarded perk points. Users can redeem these points in the Hornet shop. The early version of the shop contains 7 items.
Community Rewards (amplified); All of the above +; Influencer; Traveller; Party starter; Host	Users will now instead receive LGBT Tokens.; The community rewards will be aggressively increased by 10x through the use of the LGBT Token. Increase diversity of rewards program; The increase is considered sustainable as currently approximately;
Profile completion	The Hornet team is exploring building out rewards for users who complete their profile. It is proven that profiles which are completed have higher activity. Thus, Hornet may choose to incentive profile completion using the LGBT Token. <sup>34</sup>
Profile verification	As above, genuine profiles are more valuable to Hornet than fake accounts, so in future Hornet may incentivize profile verification. <sup>35</sup>

<sup>34</sup> This is described in more detail in Appendix A.

<sup>35</sup> This is described in more detail in Appendix A.

## Content Creators

To incentivize both the presence of content creators (to choose Hornet as a content platform), network interactions and higher quality content, a monetization scheme for content creators will be introduced. Every fixed time interval, the monetization for a content creator should be calculated and once this exceeds a certain threshold, it should be deposited into their LGBT Token wallet. When calculating the monetization at a later time interval for content which has already been monetized, the mechanism takes into account that only additional interactions which haven't previously been accounted for in monetization, should be used.

Monetization should be based on a variety of factors and scale appropriately, while ensuring it cannot be abused by smaller or larger content creators:

- How many likes a post receives should influence the monetization scheme. This should be tempered by the fact that for larger content creators, followers will correlate with likes, so the ratio  $\frac{\text{likes}}{\text{followers}}$  is a more appropriate metric.
- Similarly to how many likes, the number of shares should influence the monetization, using a similar ratio as defined in the previous point. For each action such as share, like etc., an 'effort' factor should be used to determine how many likes or shares are appropriate for the monetization threshold, to discourage abuse.
- There should be a threshold which a particular monetization calculation needs to exceed to be

considered a monetization (so if you have one follow and one like, for example, there is no monetization for that post).

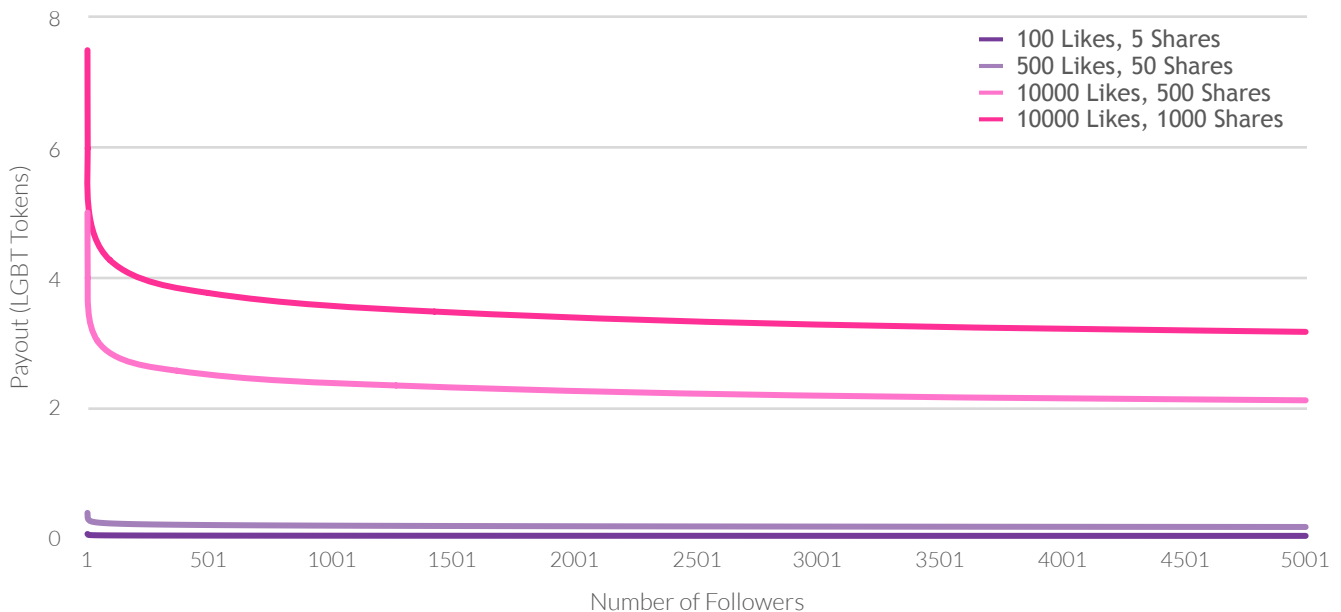
We define the following variables:

- $f$  is the number of followers a content creator has.
- $g$  is a growth rate factor determining how payout scales with more followers.
- $l$  is the number of likes a content creator receives for a given post.
- $s$  is the number of times a content creators post is shared.
- $\alpha_l$  is a scaling parameter for likes to scale it down to a payout (since 10,000 likes should not pay out 10,000 LGBT Tokens). This is determined as a network parameter based on how likely the average user will like something.
- Similarly,  $\alpha_s$  is a scaling parameter for shares.
- $\rho$  is a general scaling factor used to adjust the entire payout function.

The monetization  $M_n$  at time interval  $n$  for a particular content creator's post (which was created at time interval  $m$  is then

$$M_n = \rho \cdot \frac{\alpha_l l + \alpha_s s}{\sqrt{f^g}}$$

**Payout in LGBT Tokens for different amounts of followers**



The actual payout  $M$  for a particular post should be computed as:

$$M = \max \left( M_n - \sum_{i=m}^{n-1} M_i, 0 \right)$$

(where  $M_i$  in the sum are the actual payouts of previous time intervals) so that previous likes and shares are not double-counted. If this is below zero (such that if followers are lost, or posts are unliked), then the payout becomes zero (as opposed to becoming negative). This is accumulated if it exceeds  $T$ . The formula can effectively be calculated by subtracting the total amount paid out for a post up to time period  $n - 1$  from  $M_n$ .

Part of Hornet's go-to-market strategy is to target content creators within a specific geographic area. Hornet may supercharge content creator incentives within specific geographic areas to encourage such local growth.

### Generalization to various actions with multipliers

If multiple interactions are introduced which allow users to interact with content creators, these can all be included in a monetization function with their own scalings (since the rate at which each action is used can vary significantly - people often like more than they share, for example).

Assume there is a set of actions  $A = \{A_i\}$  (such as likes, shares, etc) with an associated set of payout multipliers  $\{\alpha_i\}$ . Let the cardinality of  $A$  be  $C$ . Then

$$M_n = \frac{\rho}{\sqrt{f^g}} \sum_{i=1}^C \alpha_i A_i$$

Alternative distribution models for launch partner to explore, but which were not deemed suitable for Hornet, are described in Appendix A.

## Other Implementations

### Credit Card

The LGBT Foundation is exploring, subject to obtaining all legal and regulatory approvals and licences, a credit card that enables users to claim LGBT Token as a form of cash-back rewards on FIAT purchases. Users can decide whether these rewards are directed towards causes or toward their wallet. This is expected to be implemented in approximately 18 months. This could allow tokens to be earned by users, which can be spent wherever LGBT Tokens are accepted and to overcome one of the main obstacles for the mainstream audience to acquire cryptocurrencies in general. A credit card that establishes an automatic LGBT Token distribution towards users while being usable on everyday transactions might create a significant demand to buy back Tokens for the Card issuer<sup>36</sup>.

The LGBT Token rebates on purchases using the credit card will be based on a levelled system consisting of tiers. An early draft of the system is shown below:

Amount of LGBT Token spent over 12 months	0 - 999	1,000- 4,999	5,000- 9,999	10,000+
Reward level	1	2	3	4
	Rebate rates			
Hornet purchases	0.5%	0.7%	0.9%	1%
LGBT affiliated events	0.2%	0.4%	0.7%	1%
Shopping	0.1%	0.2%	0.5%	0.8%

# Token technical design

## Design Objectives

Design objectives help guide us toward a set of desired characteristics for the token that will both benefit and empower the LGBT community. Currently, we examine the overarching design objectives that can all be perceived as key ingredients to the success of the LGBT Token:

### LGBT Token transaction pseudonymity

As discussed in the Token objectives, we want the LGBT Token transactions to be secure, without the risk of personal data being disclosed unintentionally.

Furthermore, expecting LGBT members to be willing to expose their entire transaction histories on a public blockchain is a level of hyper-transparency that is not currently commonplace. For example, one's bank knows one's transaction history, but the history is not known by all stores where the account's linked credit card has been used.

### LGBT Token transaction scalability

We would need to build our token on a blockchain platform that offers a likely path to high throughout transaction scaling. Once global mass adoption of the LGBT Token happens, it is critical to be supported by a blockchain ecosystem that is able to handle this increased level of network activity. Scalability influences both transaction fees and the time taken to confirm transactions.

### LGBT Token functionality

This refers to the scope of the token's use. Basic token functionality implies that we can only use the token for transfers and it would function purely as a medium-of-exchange. More complex token functionality requires that a token can be used in a smart contract environment. Here, tokens fulfil numerous use-cases beyond simple transfers. Ideally, LGBT Tokens should be able to incorporate smart contract functionality.

## LGBT Token decentralization

This refers to the extent to which the system cannot be controlled or significantly influenced by any single or small group of users. Since we want this token to be governed by the LGBT community and not just a few powerful stakeholders, decentralization is of the utmost importance. The LGBT Foundation is exploring mechanisms to achieve this having regard to the nature of the LGBT Token, and legal and regulatory considerations.

Furthermore, decentralization presents a more robust architecture that doesn't contain a few central points of weakness which are susceptible to attack. Most blockchains are inherently decentralized, however different consensus protocols – amongst other factors – greatly influence the degree of decentralization and this should thus be carefully considered.

The LGBT Foundation deems the technical design objectives to have the following ranking:

### Pseudonymity > Decentralization > Scalability > Functionality

Finally, we note that there is **no** design objective which aims at pioneering blockchain technology development. The LGBT Token will instead focus on harnessing currently available blockchain technology to further the economic and social goals of the LGBT community. When new blockchain technology solutions aligning with this mission become available, they will be integrated into the system. This is encompassed in 'ecosystem support' in Table **x** below.

## Platform Comparison

### Platforms under consideration

Numerous blockchain platforms were analyzed as part of the project. The following platforms were explored: Ethereum, Stellar, Waves, EOS, Simple Token, NEO, Tezos, Cardano and Rchain. Emphasis was placed on privacy and scalability of these platforms and the technology surrounding these considerations.

We explored many interesting scaling solutions, such as Raiden, Sharding, Plasma, leased proof-of-stake and recursive snarks. We reviewed production timelines along with the technology underpinning these solutions. The Raiden network showed great promise for LGBT Tokens and it provided some degree of anonymity, which we discuss later. Platforms such as Stellar already show sufficient scalability, albeit at the cost of decentralization and functionality.

Regarding privacy, we initially explored high-tech solutions that serve to completely obfuscate transaction history through advanced cryptographic techniques. Zero-knowledge proofs were one such technique. Although theoretically bulletproof, we found these techniques not to be production-ready. We also examined low-tech solutions that use clever combinations of cryptographic hashes, signatures and other interesting mechanisms to obfuscate transaction trails. The idea of creating an in-house mixing service shows particular promise for the LGBT Token.

Drawing on the above insights, we compared two platforms that we believe align with the vision of the LGBT Token. These platforms are the Stellar and Ethereum platforms. The

motivations for these platforms are twofold. First, both platforms are currently production-ready. Secondly, and more importantly, both platforms plan to integrate payment channels into the network by Q4-2018: Ethereum through the **Raiden network** and **Stellar through the Lightning network**. The Raiden and Lightning networks refer roughly to the same technology known as payment channels. Payment channels will likely provide the necessary degree of scalability and privacy required by the LGBT Token.

Next, we briefly compare Ethereum and Stellar as they exist today and then again in Q4-2018, when we believe payment channels will be integrated into both platforms. Table 1 scores both platforms by a scoring (out of 10) and weighting individual platform aspects based on their importance to the LGBT Token network. Next, Table 2 briefly outlines the differences between the platforms in these chosen criteria, motivating the scores found in Table 1.

Note: The views and assessments expressed in this section represent the observations and views of LGBT Foundation only, based on various assumptions and underlying source materials that have not been independently verified. They are not intended to provide a full assessment or holistic comparison of these platforms. They should not be relied on, and are limited insofar as they relate to the LGBT Token. The views are expressed at the time of publication. A number of the assumptions may be subject to change as the respective platforms develop. See further disclaimers above.

	Weight	Ethereum Q1-2018	Ethereum with Raiden Q4-2018	Stellar Q1-2018	Stellar with Lightning network Q4-2018
Privacy	20%	3	7	2	6
Scalability	20%	3	7	7	9
Decentralization	15%	6	7	2	3
Transaction fees and speed	20%	2	6	8	10
Functionality	10%	8	9	3	5
Ecosystem support	15%	9	10	7	9
<b>Weighted Total</b>	<b>100%</b>	<b>4.65</b>	<b>7.45</b>	<b>5.05</b>	<b>7.6</b>

Table 1: Matrix ranking: Ethereum vs. Stellar in Q1-2018 vs. Q4-2018.

	Ethereum	Stellar
<b>Privacy:</b> The degree to which users can transact anonymously.	Pseudo-anonymous. Payment channels introduce an acceptable level of anonymity. Active research by Ethereum Foundation into high-tech zero-knowledge privacy solutions.	Pseudo-anonymous. Payment channels introduce an acceptable level of anonymity.
<b>Scalability:</b> Limits on the number of transactions the network can process.	Currently, around 15 transactions per second. Payment channels enable unlimited near instantaneous off-chain transfers between connected parties. This result will be suitable to handle mass LGBT Token adoption.	Currently, around 1,000 transactions per second. Payment channels and protocol advances will improve scalability. Stellar still falls significantly short of Visa or Mastercard, etc. at 20,000 transactions per second.
<b>Decentralization:</b> The extent to which the system cannot be controlled by any single user.	Anyone can run a node and validate transactions. No significant barrier to entry of running a node.	Anyone can run a Stellar Core node and validate transactions (although significant barrier to entry when compared to Ethereum). There is less incentive to run a full node as no mining fees collected. Inherently Stellar has fewer validators and, thus, a greater degree of centralization.
<b>Transaction fees and speed</b>	Median transaction confirmation speed: 3.5 minutes. Transaction fees depend on computation complexity, speed of the transaction, amongst other variables. Median fee: US\$0.069 per transaction. Payment channels enable negligible off-chain transfer fees and near instantaneous transfers.	Median transaction confirmation speed: 5 seconds. Negligible fees: US\$0.000002 per operation in each transaction.
<b>Functionality:</b> that is, does the platform allow full smart contract functionality?	Almost any conceivable and programmable application as Ethereum is Turing-complete.	Largely restricted to payments and a small library of other abstractions. Very limited functionality.
<b>Ecosystem support</b>	A large community of actively contributing developers and a strong network of support.	Growing number of developers and a growing network of support.

Table 2: Comparing Ethereum to Stellar

## Ethereum vs. Stellar

As it currently stands, Ethereum and Stellar each present unique strengths and weaknesses. Ethereum displays a good degree of decentralization, strong functionality and a promising outlook regarding privacy. However, Ethereum has relatively high transaction fees and long transaction confirmation times. Stellar, on the other hand, facilitates fast and cheap transactions. Unfortunately, this comes with the opportunity cost of decentralization and a lack of complete smart contract functionality.

Table 1 shows that based on these insights we currently score Ethereum 4.65/10 overall while Stellar receives a score of 5.05/10. These scores reflect the fact that both services offer a sufficient basis for the some critical design features needed for the LGBT Token, but lack privacy and - especially on Ethereum - scalability functionality.



When payment channels are integrated into both Stellar and Ethereum – in the form of the Raiden and Lightning networks – we see Stellar still in the lead. Table 1 shows Ethereum’s new overall score of 7.45/10 compared to Stellar’s 7.6/10. The greater jump in score for Ethereum highlights that Ethereum has more to gain from payment channel integration. This is because Stellar is already relatively scalable, whilst Ethereum is currently not. The introduction of payment channels in Ethereum will facilitate near-instant, low-fee transactions, remedying Ethereum’s current high-fee and slow transaction speed shortfall. However, this is contingent to the release of the Raiden Network.

Stellar is ready to scale and share similar privacy features, while the smart contract functionality is lacking in comparison to Ethereum. However, the proposed roadmap for the LGBT Token project require a safe, secure and scalable network first and foremost, before implementing more complex features. The fact that Stellar provides limited functionality increases the security of the LGBT Token network, as it is easier to audit. The LGBT Foundation believes, that the roadmap for Stellar will provide the required functionality in time.

## Platform Conclusion

We found Stellar to perform better in the areas of scalability, while showing sufficient levels of decentralization, privacy and functionality. Both, Stellar and Ethereum are not yet ready when it comes to the required privacy elements that we envision for the LGBT Token project. The LGBT Foundation will actively work to help improve privacy with Stella, for the safety of our users. In light of this analysis, Stellar emerges as the preferred platform to use for building and issuing the LGBT Token.

## Appendix A: Generic Micro-economic model

The launch partners of the LGBT Token will offer a wide variety of services and we provide a model for a generic network-based service. The proposed design is as modular as possible to accommodate launch partners adopting partial models where certain features are not relevant to them.

The launch partners of the LGBT Token may offer a wide variety of different services, in each case at their discretion. We simply outline a proposed model for a generic network-based service, without considering the specific objective or services that the launch partner provides. Despite this, the proposed design is proposed to be as modular as possible to accommodate launch partners adopting partial models where certain features are not relevant to them. The below is not advice. Each launch partner must need to consider their own circumstances, objectives and needs, as well as their local regulatory requirements, and obtain its own professional advice.

Actors:

- **Service Provider:** Provides services to Users in a network model. Two types of primary services may be offered:
  - **Direct User Services:** These are services directly provided to the User in exchange for payment.
  - **Network Services:** These are services provided to facilitate network interactions.
- **Third-party Service:** Interacts with the network (through Network Services) to provide additional services or to engage with Users. Types of Third-party Services:
  - **Content Creator:** Creates content within network for Users to consume and seeks both **discovery** and **incentive** for the content produced.
  - **External Organization:** Wants to engage Users to provide additional services through the network and requires **discovery** on the network.
  - **Advertisers:** Want to Users to **discover** their services by viewing media describing the advertiser.
- **User:** Engages on the network, consumes (Direct User) services and content of Service Providers and Third-party Services. Users require an incentive to participate in the network and its economy.

### Model Assumptions

- We assume the Service Provider operates a network model, where there exist certain actions that can occur between any two actors (of any type) in the network.
- We assume the native currency of the platform is the LGBT Token. Additionally, we assume the Service Provider has a sufficiently large supply of LGBT Tokens such that the risk of depleting this supply is minimal.
- We do not assume the presence of ads on the network. Should an ad platform exist, it is a separate revenue stream to be implemented at the discretion of the Service Provider.
- We assume the Service Provider produces lists of things to be consumed by Users, with list ordering determined through some algorithm. These lists may contain anything and be limited in scope to geographical location<sup>37</sup>.

### Microeconomic Model

Among the actors on the network, we anticipate a microeconomy will develop that is facilitated by the native token - LGBT Token. We believe that there are two primary functions the Service Provider needs to fulfill for Third-party Services: discovery and incentive. We propose the Network Services of the Service Provider include a reward engine<sup>38</sup> which facilitates distribution of tokens to other actors in the network. We approach the model in terms of satisfying the actor relationship requirements.

### Third-party Service vis-à-vis User

Users discover third-party services (or their appropriate content) through lists. Users can interact with these third-party services:

- External Organisations and Content Creators can be reviewed, which can contribute to the list ordering algorithm.
- Content Creators' content can be liked, shared, or any other appropriate network action. Additionally, Content Creators can be tipped small amounts of LGBT Token by Users for exemplary content.

<sup>37</sup> Should this assumption not be satisfied, the model has been designed in such a way to accommodate this.

<sup>38</sup> This is commonly found in reward programs in decentralized networks. Both [PROPS](#) and [Kin](#) abstract token-related distribution services to a reward engine.

## User vis-à-vis Service Provider

Within the economy, there could be two primary exchanges of LGBT Token between the Service Provider and the User: transactions and rewards. The Service Provider would like to create an incentive for the User to both participate in the network and spend LGBT Tokens. The following two mechanisms could potentially be used to achieve this, subject to legal and regulatory considerations:

### Potential Mechanism - Discount Token Model

Users purchase Direct User Services from the Service Providers in exchange for LGBT Token. To encourage the use of LGBT Tokens within the network and provide incentive to spend them, we propose a discount token model for Direct User Services.

Let  $X$  be the maximum discount attainable by a specific User for a service (or collection of services) on the network. Then there are a variety of possible discount models through treating a token as both a discount token and a medium-of-exchange simultaneously:

1. If a user holds  $Y\%$  of the total circulating supply, the discount attained is  $\frac{Y}{100}X\%$ . The discount is directly proportional to how many tokens the user has (linearly).
2. An alternative, to encourage smaller holders who cannot amass large amounts of tokens, is to have a function  $f: \mathbb{R}^+ \rightarrow 0,100$  which has larger growth for smaller values of  $Y$  and plateaus for larger values of  $Y$ . The discount would then be  $\frac{f(Y)}{100}X\%$ .
3. Have a discount related to the number of tokens held as a flat value, not relative to the total supply. This is effectively a rephrasing of the above models, but a discount function could be applied directly to the number of tokens without regard to the total supply.

To ensure those with significant capital do not just buy tokens as needed for discounts and subsequently sell them, two solutions are proposed:

1. Have only tokens which have been held in an account for a fixed amount of time able to be used as discount Tokens (although fundamentally, Tokens would not be locked but always be freely tradable at the Users own discretion, so this would be optional).
2. Have the function  $f$  defined above reliant on time, so that the weight of a discount is 'coin age'-based<sup>39</sup>.

Treating the token as a discount token reduces the velocity in the system through incentivized holding of tokens, as well as incentivising spending for services that are offered in both LGBT Token and Fiat (such as premium membership).

### Potential Mechanism - Reward Mechanism

A **reward mechanism** for User engagement on the network which distributes small amounts of LGBT Token to Users for completing certain actions such as:

- Reviewing Third-party Services.
- Performing certain first-time actions without Users.
- Completing various (voluntary) aspects of their profile. Rewardable actions include:
  - Claiming a wallet for LGBT Tokens. This could be an opt-in experience, as a wallet ties an account to the network, which some users may be uncomfortable with.
  - Proof-of-life. In other words, proof this is actually a user. For example, this can be done by being required to upload 4 photos of the user.
  - Filling out a survey of interests to claim rewards. A survey may enable greater discovery of the user's interests, so that it can better tailor network discovery for that user.
  - Other Demographic information.
- Verifying an identity is important in networks to preserve the integrity of the network. Incentivizing the verification process ensures users are likely to verify their accounts while still being able to interact with the network if they choose not to. A reward can be paid out to users who successfully complete verification through the appropriate channels. This verification process may be an in-house process or delegated to a third-party KYC service (which may in turn be a decentralized service such as Civic).

User actions can help encourage more Third-party services and other Users to appraise these actions. The amounts for these rewards would likely be determined by the market rate for LGBT Tokens at the time and could be subject to change at the service provider's discretion.

<sup>39</sup> <https://www.bitcoinplus.org/blog/proof-stake-explained>

## Third-party Service vis-à-vis Service Provider

Third-party services (of both type) would generally like to be **discovered** by Users on the network. Additionally, Content Creators would like to monetize their content, which incentivizes them to produce more content for Users. To this end, we propose potential models to achieve the desired behavior that may help achieve these aims.

## Potential Models - Discovery-staking Mechanism

Under the assumption that the network accommodates lists, we propose appropriate (ordered) directories of third-party services<sup>40</sup> (which are categorized both conceptually and geographically) could be created for Users to consume. This inevitably introduces the potential for competition in listing on directories in each geographical region (or supercity) where the network operates. These lists will utilize a discovery algorithm which will take into account a number of tokens staked by the third-party service. Staked tokens are locked in for a fixed period of time in exchange for a higher score in the discovery algorithm (which will take into account other metrics as well such as followers etc). This could apply to both External Organizations and Third-party services. The staking and directory listing would need to be subject to separate terms and conditions, are considered in depth from a technical, legal and practical standpoint.

For a particular geographical region or directory type, an organization stakes LGBT Token to contribute to weighting in the algorithm. The actual weighting is determined both by the number of tokens held and the time for which they are held. For any amount of tokens  $S$  staked, the staking-weight of these tokens after being held for a time  $t$  is

$$\text{Staking weight}(S, t) = S \cdot \frac{t}{\alpha + \beta t}$$

where  $\alpha, \beta$  are configurable parameters which control how much the 'age' aspect of tokens is weighted in the staking weight. The total staking weight of a business is then a sum of all staking weights for tokens held (which may have different ages). This staking weight is then incorporated into the discovery algorithm.

Staking allows the additional possibility of penalties for third-party services that do not adhere to participation agreements on the network. Actors who violate these agreements may have their stake confiscated or slashed.

The benefits of this are:

- Tokens get locked up in the network. This reduces velocity in the network which assists the token with maintaining value, so that it can be used as a unit of account & medium of exchange
- External Organizations which otherwise would be unwilling to pay for ads are more likely to buy tokens and add to the network usage, knowing they ultimately get returns over the lifetime of the User. This also facilitates more User engagement through reviews.
- Content Creators are also incentivized to purchase tokens and not convert rewards immediately, as holding tokens have a compounded effect of more discovery and therefore future earnings.

This model can be adjusted for context with appropriate staking functions and rewards. For example, **Numerai** allows claims (stakes) based on the confidence of a data scientist's results and distributes rewards based on that.

## Monetization for Content Creators

Monetization in the form of rewards through the reward engine for Content Creators incentivizes higher quality content. For every User action (or certain amount of User actions) associated with content posted by a Content Creator, the reward engine can distribute LGBT Tokens to the Content Creator. The rewards can vary for different types of actions and for the rate per  $X$  of each action type occurs. This is linked to the discovery mechanism as content which is higher on discovery lists will be more likely to be consumed by Users.

Monetization can also be based partially on a staking mechanism. Content Creators can lock tokens dedicated to content creation which can provide additional rewards (up to some maximum). For example, assuming a maximum additional reward of  $M$ , a Content Creator could earn a bonus reward of up to  $\frac{Y}{N}M$  tokens, where  $Y$  is the number of tokens staked by the Content Creator for rewards and  $N$  is some predetermined parameter.

<sup>40</sup> Note, again, that this is a completely separate service to ads.

### **Advertiser vis-à-vis Service Provider/User**

To incentivize ad-viewing in a network, rewards could be paid to Users who view ad videos (in their entirety). This could potentially work in one of two ways, subject to technical, legal and practical considerations:

- For each video viewed, a user will earn **X** LGBT Tokens for up to **V** Videos per day for a total of **XV** tokens per day per user. Both of these are adjustable parameters based on the actual number of impressions within a given time interval as well as the network's revenue per ad viewed. The time interval should be chosen such that viewing trends are unlikely to shift notably during such a period.
- If an advertiser pays the service provider **X** LGBT Tokens (or any currency) for each video view, the service provider could allocate a certain fraction of that earning to its agreed payments to Users. Therefore incentives will vary by video based on the pricing between the particular Advertiser and the Service Provider.

### **User vis-à-vis User**

Users interact with other Users as they usually would have on the network. The native asset, LGBT Token, could be transferred between Users through gifts and tips.

Each of the models above is conceptual and would always need to be calibrated to the needs and requirements of each use case.

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