An incentivized search platform for searching vendors by reputation

Chlu

October 16, 2017

Abstract

We describe Chlu Search, a platform for searching businesses and service providers ranked by their reputation. The aggregation of ratings and reviews accumulated by vendors over their lifetime defines their reputation. Currently it is impossible to find vendors ranked by their reputation across multiple marketplaces. Fake reviews and walled gardens don't allow searching for vendors across marketplaces. Chlu Search, supported by the Chlu reputation platform solves this problem. The Chlu reputation platform, described in a separate document, captures vendor reputation so that anyone can validate the authenticity of reputation data without depending on a trusted third party and without locking the reputation data inside a walled garden. The Chlu Search platform, described here, builds on top of the Chlu reputation platform and incentivizes vendor and customer participation by granting Chlu Search Tokens for writing reviews and accepting payments. The same token is also used by vendors to purhase advertising space on Chlu Search. Finally, we specify the Chlu initial token generation event and the distribution of token across the founding team, investors and future generation of tokens that provides the incentives for vendor and customer participation.

1 Introduction

If a customer wants to search for a vendor that provides a specific product of service, the customer has no choice but to repeat the search on multiple marketplaces and try to correlate the various ratings and reviews on those different marketplaces to try and select a vendor. The situation is such because marketplaces lock down vendor reputation data into walled gardens owned by the marketpalce. For example, eBay, Amazon and Alibaba reputation of the same vendor have no correlation. Multiple solution have been tried on web 2.0 by Yelp, TripAdvisor and similar platforms, to try and provide a means for customers to search for vendors in an easy manner. However, these platforms are prone to fake reviews as the reviews on these platforms are not backed by proof of a purchase made by the customer. Vendors can hire fake review writers and this results in an arms race between the review platforms and the fake review providers.

The Chlu reputation platform[1] describes a solution that addresses the problem of fake reviews and allows vendors to control their reputation data which breaks them free from the marketplace owned walled gardens.

In this document, we describe Chlu Search, a platform that provides a means to search the reputation data generated by the Chlu reputation platform. The Chlu Search platform also enables incentives for vendors to accept payments and reviews through Chlu, and or customers to write reviews using Chlu.

Chlu Search can only enable searching for vendors who share their reputation data with Chlu, and that is why the incentives for vendors are important. The same is true for customers, writing reviews is often ignored by customers, but by offering incentives Chlu Search drives the adoption of Chlu reputation platform.

This synergy between Chlu Search and Chlu reputation platform is important for the ecosystem to accomplish its goals. The vendor owned reputation data enables a future where marketplaces can't lock in vendors inside their walled gardens and the problem of fake reviews is addressed. Meanwhile, the incentives provided by Chlu Search further drive adoption of Chlu reputation platform resulting in bigger data set for Chlu Search to provide search for.

2 Chlu Search

Chlu Search enables customers to search for a potential vendor in a domain without having to repeat the searches om multiple marketplaces and then doing the often frustrating work of drawing parallels between the diverse ratings systems used by the marketplaces.

Chlu Search ranks vendors by the aggregate ratings and reviews received by vendors that are supported by validatable payments. The search results therefore are based only on the ratings, 1 to 5, and the amounts paid. There are other improvements possible, for example using a half life on the ratings - older ratings contribute lower scores to the vendor's rank.

The goals of Chlu Search can defined as:

Search by ratings Provide a means to search for vendors based on ratings received after a sale

Ratings backed by payments If there is no sale, the rating is considered invalid and not included in the search rank calculation

Independency from marketplaces Let vendors break free from the walled gardens of marketplaces, so that they can chose to start selling on any marketplace and even move from one to the other.

Chlu search is a centralised service and is not built on blockchain or a smart contract. Search doesn't need to be decentralised. However, the data that Chlu Search is built on is stored on a decentralised storage network, IPFS. The reputation data provided by Chlu reputation platform is stored on IPFS and completely under the vendor's control. Chlu Search requires that the vendor is incentivized to share this data with. In the next section we introduce the Chlu Search Token and show how it is used to provide vendors with appropriate incentive.

Chlu Search also needs that the Chlu reputation platform receives ratings data from customers. In traditional ratings systems, customers are not given much of an incentive to create a review. Chlu Search creates an incentive for the customers to create a review by using the Chlu Search Token as a reward.

3 Chlu Search Token

As described above the Chlu Search Token serves the important function of incentivizing the vendor and the customer so that there is data generated for Chlu Search to be relevant and there are enough vendors listed on Chlu Search. In this section, we describe the various uses of the Chlu Search Token and provide the initial details of the Chlu Search Token economy.

3.1 Incentivize creating reviews with Chlu

Chlu Search rewards customers who create reviews on the Chlu reputation platform. The reward is in the form of Chlu Search Tokens that can be converted to other cryptocurrencies.

The only requirements to earn such rewards is that

1. The customer is registered to receieve the reward and
2. The vendor is sharing the ratings data with Chlu Search

The first requirement is not required apriori. In stead, the customer can make payments and leave ratings for a vendor and come back much later to collect the reward for the work. As soon as a customer registers with Chlu and proves they are the authors of their ratings and reviews, the customer is rewarded with Chlu Search Tokens as per the specification described later.

[TODO - change Chlu reputation protocol so that customer reviews are created under their IPNS directory]

To prove that a customer is the author of reviews, the customer wallet creates a validation signature in the IPNS directory where the reviews are saved. By registering with Chlu and proving their authorship of the reviews, customers can receive reward Chlu Search Tokens in an asynchronous manner.

The second requirement listed above states that if the vendor is not sharing the ratings data with Chlu Search, the customer will not be rewarded for leaving the review. Chlu wallets can

explicitly communicate this information to the customer, so that the customer is aware if they will receive a reward for leaving a review. Customers might even chose to not do business with a vendor who is not sharing their reputation data with Chlu simply because the customer wants to recieve the reward of Chlu Search Tokens.

3.2 Incentivizing Adoption

Chlu Search rewards both the customer and the vendor to participate in the Chlu economy.

1. The customer is rewarded for writing reviews
2. The vendor is rewarded for sharing their ratings data with Chlu Search

With the right schedule of rewards we want to drive adoption of both the Chlu reputation platform and Chlu Search. At the same time, allowing vendors to control their own reputation data and not being confined inside a walled garden run by a marketplace or a ratings platform.

Up till now we have described how the Chlu Search Token is generated as a reward to be given to vendors and customers. In the next section we describe how the Chlu Search Token is consumed in the Chlu economy.

3.3 Advertising on Chlu Search

Vendors are allowed to advertise within the Chlu Search platform. So a plumber in New York can purchase ad space, essentially boosting their profile in the search results by paying for ad space in Chlu Search Tokens. These spent Chlu Search Tokens are recycled and included in the rewards for vendors and customers.

With the generation of tokens for incentives and consumption of tokens for Chlu Search, we model a token economy so that the two are balanced and the token economy remains balanced.

3.4 Chlu Token Economy

Before we describe the Chlu Token economy is maintained, we need to specify how many tokens will exist, i.e. the cap on the number of Chlu Search tokens. We have decided this cap to be 2.1 billion tokens. At the time of token generation event, 50% of the tokens will be generated and sold to initial token buyers. The rest 50% of the tokens will be generated or "mined" as rewards for customers and vendors when they write reviews or share reviews with Chlu Search, respectively.

With the cap on Chlu Search Tokens defined we can now describe how the Chlu Token economy will work. While balancing the token economy we have the following variables available to us:

1. How many reviews were created in a given time period
2. How many Chlu Search Tokens were spent in purchasing ad space on Chlu Search
3. If the Chlu Token cap has not been reached, then how many tokens should be generated in the given time period.

We mention a "time period" above, and for the moment we consider this to be an hour. So that every hour new tokens are generated and rewarded to vendors and customers. If there are no new reviews in a given hour, then no rewards are to be given out, so no new Chlu Tokens are generated. If instead there are reviews and there have been ad purchases in a given hour, then the rewards for that hour will include both the tokens.

[EQUATION HERE - kp to develop an equation and conditional expression to capture the above rule.]

3.5 Token Generation Event

The maximum number of Chlu Search Tokens ever generated will not exceed 2.1 billion, out of which 50% are for sale during the token generation event to fund the development of the Chlu reputation and search platforms.

Purpose	When generated	Allocation (%)
ICO Sale	Genesis	50
Marketplaces, partners, giveaway	Genesis	5
Chlu Founders retain	Genesis	15
Customer and vendor incentives	Reward	30

Table 1: Token distribution

5% of the tokens are set aside for incentivizing marketplaces to integrate Chlu reputation and payments platform. 30% of the tokens are not generated at the time of the the token sale and instead are generated as reviews are created and customers and vendors have to be rewarded. Finally, 15% of the tokens are reserver for the founders.

3.6 Token reward rate

The Chlu Token economy will generate a maximum of 6000 tokens per hour. If there are no reviews created in a given hour, then no tokens are generated. If there are one or more reviews then the 6000 tokens are distributed between the customers who created the reviews and the vendors who shared their review with Chlu Search.

[TODO - need to recollect how we split them between payments that we 0.0001 btc, 1 btc, or 0.1 eth]

[TODO - need to recollect how we stopped someone from making 0.000001 btc payment to get review reward that is greater than the payment amount. Especially since we don't have a conversion rate between Chlu search token and btc known at the time. Maybe we can look it up. Need to think this through.]

4 Conclusion

References

[1] Chlu, *Reviews and Ratings Verified by Payments on a Blockchain*. 2017. https://chlu.io/papers/position-paper.pdf