VALKYRIE PROTOCOL: CASCADING REFERRAL NETWORKS

VALKYRIE FOUNDATION

ABSTRACT. In this paper, we develop a new framework for migrating referral marketing, decentralized application activation, and action-based reward systems onto the blockchain in a decentralized fashion. By examining the current problems within the traditional referral market, as well as the lack of decentralized services to provide effective product promotion, we will bring Valkyrie, an incentivized participation protocol, to life.

1. BACKGROUND

Blockchain is seen as one of the most revolutionary technologies that has been developed in the last few years. However, blockchain-based decentralized apps, DApps, have failed to receive mainstream adoption. With ever increasing attention being directed towards cryptocurrencies and blockchain technology, the objective of this paper is to outline a solution for improved DApp user activation. Existing adoption issues can be roughly identified and classified into four major categories: the law of inertia, the challenge of onboarding, the ease of use, and the feature set problem. Through this paper, we will develop a framework for a protocol that offers distinct user benefits to participants and provides a path to DApp proliferation through content sharing.

Satirically, one may refer to blockchain as a "solution looking for a problem". The starting point of the technology was the invention of the peer-to-peer electronic cash system called *Bitcoin*, which would address the capability of transacting money from one person to another without the need of a banking institution. The system was adopted primarily by users with an interest or background in computer programming or information technology. However, the same advantages of a perceived high-level of innovation potential and area-specific expertise in the technology became the major blocker for the adoption to those with an average level of technological affinity. Thus, any solution to this problem should seek to ease the transition and onboarding of new technologies whilst simultaneously taking advantage of the superior native technologies of the blockchain.

In a different vein, Valkyrie protocol can be applied to the referral marketing industry as well. Inefficiencies arising from various middlemen between merchants and consumers have led to increased costs for merchants and reduced incentives for the final consumers. Despite seismic changes to the underlying market construct with the advent of e-commerce and social networks, there have also been minimal innovations in referral marketing over the past three decades. As such, participation and data integrity have not progressed in tandem, leading to suboptimal growth and prevalent abuse. For instance, studies have found that more than 33% of campaign participants have used fraudulent cookie-stuffing techniques to claim fake referrals, and as one would expect, a general lack of trust between campaign creators and

participants underpins the market. Moreover, a lack of clarity on incentivization schemes, as well as the distribution of funds down the funnel, has shown a clear need for the development of a decentralized incentivized activation protocol.

2. Referral Marketing on the Blockchain

Valkyrie Protocol is the first disruptive innovation in referral marketing and offers a superior paradigm for social referrals. Valkyrie is powered by the native Valkyrie token and built on three ideological pillars:

(1) **Blockchain-as-a-Service (BaaS)** - Valkyrie stores all data regarding social referrals on-chain, transparently, and immutably. The continuity of referrals and the corresponding data are not compromised, leading to the most accurate information for referral marketing campaigns, restoring efficacy and trust in the system.

(2) **Rewardable Ecosystem** - Valkyrie rewards campaign participants not only for their direct referral but also subsequent conversions, effectively scaling referrals continuously and creating a new ecosystem by introducing competition, ultimately maximizing all campaigns' reach and impact.

(3) **Distributed Governance and Equity** - The native protocol token represents direct equity in Valkyrie protocol, granting stakers (campaign creators and participants alike) the ability to partake in governance. Furthermore, holders benefit from the protocol's growth via buybacks from fee generation. The flywheel effect of increased protocol adoption leading to increased fee generation allows for increased VKR token buybacks. As a result, the deflationary VKR supply naturally brings about increased token value. A sustainable ecosystem for incentivization becomes the protocol's distinctive strength.

The Valkyrie campaign ecosystem further reduces the number of required participants to successfully encourage participation. Rather than requiring the participation of merchants, various networks and publishers, and final consumers, Valkyrie simplifies the process by providing the necessary infrastructure and validation directly on-chain. Campaign creators directly select the funds allocated to promotion, and dispersion through tagged link-sharing arising from natural user activity provides faster and more cost-effective referral marketing network.

3. Protocol Structure

The Valkyrie mechanism can be roughly viewed as decentralized ecosystem that connects the campaign creator and the participant(s). Campaign creators provide the rewards and produce the campaigns. The participants are the users that participate in a campaign and further increase proliferation through sharing their referral links.

Valkyrie allows for creators to specify campaigns that are in alignment with their targets and correspondingly distribute incentives to their participants. Once the initial campaign rewards are established, participants will receive a pre-specified amount of rewards every time they perform the campaign-chosen action. Valkyrie protocol's reward structure allows for campaign creators to expedite their marketing campaign progress. Rewards are distributed for desired behavior, and additional rewards are accrued to participants who have additionally shared the content to other users, allowing for a continuous incentive structure for campaign participants.

3.1. **Campaign.** A *campaign* can be defined as an undertaking that is carefully planned in order to achieve a particular target. The protocol has two participants that fulfill the roles of merchant and customer. Attributed to each campaign is an *action*, defined to be the target behavior that the campaign creator wants to be produced and is the action that will provide rewards defined by the reward structure of the campaign. A *share* is an action taken by a campaign participant to advertise or share the campaign content to other users. If a referral is successful (ie. there is a conversion of another new user for the campaign), the referring party will be eligible to additional rewards allocated for referrals.

Valkyrie is a protocol that allows participants to early rewards through both actions and shares. By promoting the campaign contents, participants are able to continuously earn rewards without even performing any action. If a user has entered a campaign through a referral link and performs the campaign's target action, the referrer will earn additional rewards as defined by the campaign. Thus, active involvement and successful referrals allows participants to potentially see much greater rewards relative to a traditional referral program.

A *campaign creator* is a user who utilizes the Valkyrie Protocol to achieve a specified goal as defined by his/her campaign. The creator defines the scope of the undertaking and creates a campaign that specifies the campaign budget, the target action, and the referral market budget distribution schema.

A *campaign participant* is a user who has performed some sort of action and therefore receives a reward that is specified by the campaign. Given that Valkyrie is an action-based reward protocol, campaign participants are able to earn rewards by fulfilling the action requirements specified in the campaign. Furthermore, continuous campaign participation is encouraged through content-sharing and consequential reward distribution.

The Valkyrie Protocol utilizes a connectable reward structure that allows campaign participants to earn rewards not only for participation but also for referrals. The additional rewards given to successful referrals are unlimited in the sense that additional successful referrals through a linked network will always accrue rewards. As a by-product, this incentivized sharing schema allows the campaign producer to improve product proliferation through sharing.

3.2. **Incentivization Program.** A reward structure whereby all participants are able to receive rewards through content sharing and propagation is the main attraction of the Valkyrie Protocol for both campaign creators and participants alike. Campaign participants are not only entitled to rewards accrued to them through direct campaign participation but also any participation by other users if it can be linked to the original sharer in a tree structure. The reward distribution schema for each campaign can differ and is set by the campaign creator. For example, a campaign with a participation reward scheme of Native token 100, and a share reward scheme of VKR [50,30] will result in the reward structure described in Figure 1. Analyzing Participant A's total rewards,

- Participant A receives 100 units of native token reward for his/her direct participation.
- Through Participant A's link, he/she has also shared the campaign to Participants B, C, and D, who all have participated in the campaign. Then Participant A is eligible for an additional 50 VKR arising from direct participation for each of his referees.

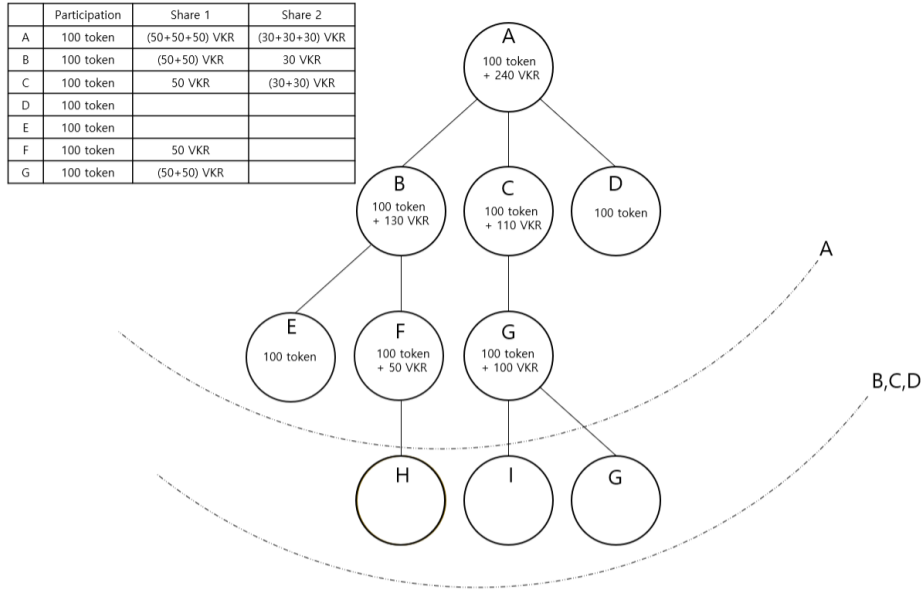|	Participation	Share 1	Share 2
A	100 token	(50+50+50) VKR	(30+30+30) VKR
B	100 token	(50+50) VKR	30 VKR
C	100 token	50 VKR	(30+30) VKR
D	100 token		
E	100 token		
F	100 token	50 VKR	
G	100 token	(50+50) VKR	

FIGURE 1. Cascading Reward Structure

- If Participants E, F, G participate through either Participant B, C, or D's referral link, then Participant A will be eligible for another 30 VKR for each.

Thus the total rewards received by Participant A is 100 native tokens and 240 VKR. Note that this cascading scheme is currently restricted to only three layers, so any participation by users further down in the tree will not be considered when calculating Participant A's rewards. Calculating from Participant B's viewpoint,

- 100 units of native token reward for his/her direct participation.
- Through Participant A's link, he/she has also shared the campaign to Participants E and F, who all have participated in the campaign. Then Participant B is eligible for an additional 50 VKR arising from direct participation for each of his referees.
- If Participant H participates through either Participant F's referral link, then Participant B will be eligible for another 30 VKR.

Thus the total rewards received by Participant B is 100 native tokens and 130 VKR. As seen in this example, Valkyrie Protocol's design of a connectable reward structure delivers exponentially expanding rewards for campaign participants and corresponding campaign awareness for the creator.

In addition to the creator-defined reward schema, campaigns are eligible to augment their reward pool through the protocol's *Booster Program*. The eligibility of a campaign for the Booster Program is solely decided by the participants in governance. Given sufficient support, campaigns nominated for the Booster Program will receive amplified rewards in the form of VKR.

4. VALUE ACCRUAL TO THE VALKYRIE NETWORK

As mentioned earlier, VKR tokens represent direct distributed governanc and loosely speaking, *equity*, in the protocol. A concerning problem with many inflationary token schedules is that these rewards can be earned either through providing liquidity or staking in the governance contract. Furthermore campaign participation as well as referrals will be given inflationary rewards on Valkyrie.

To lock in value and increase buy pressure of the VKR, the protocol has been designed in a way such that buy pressure for VKR is proportional to the growth of the campaigns on the protocol. When a campaign is newly created, the required campaign deposit is in the form of VKR. Campaign creators are able to choose the tokens that they would like to distribute as rewards in addition to a minimum of a governance-defined percentage of the value of the reward pool in the form of VKR tokens. Additionally, another incentive to hold more VKR arises from the user's referral reward compensation, which is proportionally correlated to the amount of VKR staked. As a default, the total possible referral reward that a user can receive is limited to a predetermined cap. In order to increase their limit, a user can stake more VKR onto governance. The total limit increase will be a fraction of the VKR staked. Lastly, campaign creation and early withdrawal fees will be collected and periodically swapped to VKR and distributed to governance stakers. Through these various mechanisms, buy-back pressure for VKR is increased, leading to a virtuous cycle of Valkyrie Protocol growth and value accrual.

5. Conclusion

The active assessment of referral marketing performance is one of the most discussed and yet least understood subjects in practitioner communities. In both theory and practice, the advancements in performance assessments of referral marketing are inadequate. The outdated contributions only address the measurement of selected online marketing activities such as banner advertising and social media marketing. On the other hand, the developments in online tracking, performance measurement and analytics in everyday practice are rapid and accelerating. Marketing practitioners, excited by the 'big data' capabilities and emerging opportunities to turn what used to be called a 'slippery' marketing practice into an accountable business function, willingly adopt new online measurement approaches and readily switch their attention towards monitoring new numerical performance indicators.

Valkyrie offers a way for campaign creators to be able to actively engage with their consumers and gain the necessary data-based insight provided by the transparency of the blockchain. Businesses are able to derive insight into consumer and referrer behaviors to effectively market their products. By providing referral opportunities to all ecosystem participants, all users are readily able to monetize their personal network through testing and sharing innovative new products.

Increased reward distribution to both consumers and active publishers will be a disruptive force to not only the affiliate marketing industry, but also the traditional digital advertising market, which has reached $333 billion globally [1].

The Valkyrie team foresees that first-movers will be crypto-native services and firms such as wallets, node operators, and exchanges, and even developers seeking to provide incentivized protocol beta/QA-testing. The Valkyrie protocol will be able to leverage the Terra ecosystem network and will contact traditional advertisers to catalyze the next generation of social referrals and digital marketing on Web 3.0.

References

[1] Lee, Heejun, and Chang-Hoan Cho. "Digital advertising: present and future prospects." International Journal of Advertising 39.3 (2020): 332-341.
[2] Scalise, P. (n.d.). US20150142585A1 - Internet affiliate network marketing system and method with associated computer program. Google Patents. https://patents.google.com/patent/US20150142585A1/en.