Bluwhale

A Decentralized AI Personalization Protocol for Blockchains

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Abstract

In an era where digital customization and user-centric interfaces are paramount, the quest for unparalleled personalization is undeniable. Yet, the attainment of such personalization is contingent upon the harnessing of vast user data and myriad interconnected data points, all within the constraints of existing web2 paradigms. To transcend these limitations and set the stage for the next generation of consumer-centric web3 technologies, it is crucial to embrace interoperability and collaborative data sharing among users.

Bluwhale emerges as a pioneering decentralized protocol, engineered to convert user-specific and contextual information into accessible knowledge graphs. These innovative graphs serve as the foundation for dApps, AI algorithms, and digital agents, enabling them to achieve efficient personalization by leveraging collective user data networks. This document unveils a novel incentive mechanism that encourages decentralized applications (dApps) to engage in cooperation within a shared ecosystem, while still fostering competitive dynamics.

This ecosystem envisages a plethora of benefits for users, including sovereignty over their personal data, enhancements tailored to the user's preferences, seamless interoperability, and direct engagement in the value-generation process. By fostering such a collaborative yet competitive environment, Bluwhale positions itself to challenge, and potentially eclipse, the current web2 monopolies, heralding a new era of user empowerment and digital sovereignty.

Introduction

In a future where digital innovation shapes every aspect of our lives, the necessity of integrating artificial intelligence (AI) to align digital products and services with individual user needs becomes undeniable. With the digital landscape burgeoning to an almost infinite array of assets, the efficacy and success of decentralized applications (dApps) will be determined by AI's ability to understand, cater to, and customize its offerings based on the unique preferences and requirements of each user.

Our objective is clear and straightforward: to create the world's most user-focused AI network. This network is designed to facilitate seamless matches between enterprises and individual wallets, ensuring that businesses can offer engaging, enjoyable, and highly personalized experiences to everyone across the globe. Our commitment is to revolutionize how products and services are delivered, making every interaction a personal one, and transforming the digital marketplace into a space where every user feels uniquely recognized and valued.

1. The Data Monopoly Dilemma

In the current digital era, a handful of powerful corporations have come to dominate the internet landscape. This elite group, which includes giants like Facebook, LinkedIn, Amazon, Spotify, YouTube, and Netflix, presents a formidable challenge to individual privacy and rights. Through their monopolistic practices, they harvest and monetize user data and content, generating immense economic gains within their walled ecosystems. This concentration of power not only quashes potential competition but also forces both emerging businesses and users into a state of dependency. This dependency, in turn, shapes the flow of information, the allocation of financial resources, and the mechanisms through which individuals and entities are compensated.

At the heart of this problem lies the strategy employed by these dominant entities: the accumulation and control of user data and the exploitation of network effects within their siloed platforms. By creating barriers to switching services, such as the high costs and inconveniences associated with moving to different platforms, these corporations ensure that users remain tethered to their ecosystems. The data pertaining to users' relationships, preferences, and activities—confined within these platforms—strengthens this lock-in effect. This dynamic effectively sidelines competition and consolidates vast user bases and data under the control of a few, altering the landscape of digital interaction and commerce.

2. Decentralized Personalization Protocol

As the web3 sector continues to evolve, many companies have leaned heavily on financial transactions as their primary strategy for entering the market. This often involves issuing tokens with sophisticated incentive structures designed to attract users quickly. However, this method tends to cultivate an environment focused on short-term financial incentives rather than fostering long-term user engagement. Consequently, during periods of downturn in the cryptocurrency market, there's a noticeable increase in user attrition. To counteract this trend, it's imperative for web3 companies to revise their approach by prioritizing the development of high-quality products, games, and services that genuinely captivate users, thereby enhancing user engagement and satisfaction. Introducing financial incentives subsequently can create a more stable ecosystem that nurtures lasting user loyalty.

Central to this revised strategy is the introduction of a decentralized personalization protocol. This innovative protocol leverages user information to create a queryable, vector-graph-based layer that integrates data from various blockchain networks, centered around individual user profiles. Such consolidation enables a fluid experience across diverse decentralized applications (dApps), providing users with the option to share their preference profiles with the dApps they use. Opting to share their data allows users to participate in a revenue-sharing model, directly benefiting from the value they help create. On the other hand, users who prefer to keep their data private can do so, enjoying a level of anonymity within the application layer. This balanced approach offers respect for user choices while promoting a more engaging and inclusive web3 ecosystem.

3. Crypto data access will be decentralized

Enterprises might be inclined to invest in accessing data, but it's the consumer who ultimately holds the power to grant or restrict access to their data. The system is designed to maintain continuous access to the data for querying purposes, provided that the payment stream from the enterprises does not cease. This ensures a balance between the financial interests of businesses and the control consumers have over their own information.

In the realm of cryptocurrency, the inherent transparency of blockchain technology means that raw transaction data is openly accessible to all. However, this data only becomes practically useful when it undergoes processing, aggregation, and analysis, tasks typically performed by specialized data platforms. At present, the tools capable of

this analysis are not only costly but also restricted to a select group of users. Nevertheless, it's anticipated that these exclusive tools will eventually be replaced by more accessible alternatives, democratizing data analysis tools for broader use.

4. Fair Market Value

As the capabilities of analytical tools improve and cryptocurrency achieves widespread global adoption, crypto intelligence platforms are poised to become indispensable navigational aids within the emerging financial landscape. These tools are set to provide vital utilities for both active participants and observers in real-time, mapping out the intricacies of this new financial ecosystem. The nature of on-chain data in the crypto domain offers distinct advantages for analysis, particularly when enhanced with cutting-edge AI-based analytics. These advantages suggest that the crypto intelligence market is likely to grow to match, if not surpass, the size of its traditional counterpart, heralding a significant shift in the landscape of financial data services.

Access to data is strictly dependent on user consent and is priced according to the principles of a fair market. The cost to access an individual's data is set by the level of demand from enterprises, with prices fluctuating based on the market dynamics of supply and demand. As more entities express interest in accessing a user's data, its price naturally increases, mirroring the heightened demand. To maintain the stability of the overall ecosystem, the network imposes a minimal fee on each transaction, ensuring a balanced and equitable data exchange environment.

The Data Insight Platform

At Bluwhale, we've developed a solution that parallels the sophistication of Google's and Facebook's user graphs, yet we envision it as an open infrastructure for the future. Our approach diverges from the traditional model of creating a super app and acquiring users one by one, which often entails massive expenditure. Instead, we embrace the decentralized spirit of web3 to foster an ecosystem of collaborators. Individually, these entities may not pose a challenge to web2 giants, but together, through open and interoperable data sharing and by enhancing their applications and user bases with a shared intelligence layer, they can become formidable.

Key Features of Bluwhale's Decentralized User Knowledge Graph:

- Decentralized Collaboration: Leveraging the ethos of web3 to create a network of applications that share data openly and work interoperably, enhancing the collective strength against web2 competitors.

- Dual Technical Approach: The graph approach allows real-time access to blockchain data for apps. The NFT minting approach, akin to platforms like OriginTrail or Cyberconnect, facilitates user opt-in and unique individual identification.

Challenges and Solutions:

- Graph Limitations: Running subgraphs is restrictive, and without user consent, it's challenging to construct comprehensive user profiles due to the dispersion of digital identities across multiple wallets.

- NFT Minting Speed: Although efficient for user identification, the slow pace of minting NFTs for each user could hamper the overall process.

Our Innovative Proposal:

- Hybrid Model with AI: Combining the best of both technical solutions while employing AI to profile wallets and identify individuals, enhancing user data accuracy and engagement.
- AI-Driven Profiling: Utilizing AI to accurately profile individuals based on multi-wallet identities, similar to Google's indexing model which improves accuracy with more references per index.
- Embedding Space Architecture: Moving beyond traditional knowledge graphs, we're developing an architecture focused on user embedding spaces. This allows for querying millions of users within milliseconds, streamlining the data access process significantly compared to managing large graph structures.

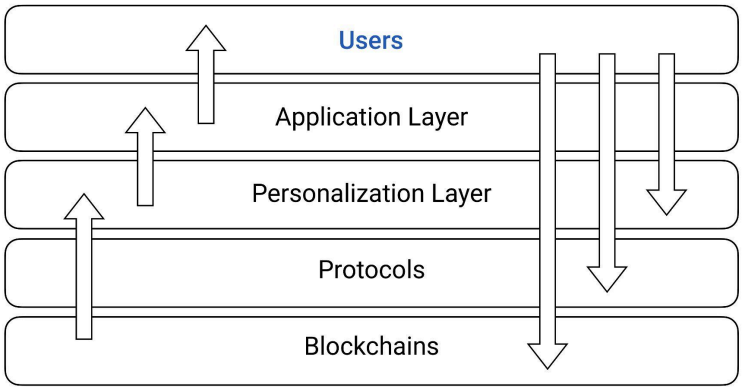
Open User-Centric Ecosystems:

Blockchain technology presents a promising resolution to the prevailing imbalances within the digital realm. It champions a decentralized model that shifts control back to users, granting them autonomy over their content, connections, preferences, and communications. This empowerment enables individuals to engage actively in the economic value they generate, offering them the option to contribute their data to

decentralized applications (dApps) and AI systems. In such a framework, applications gain a deeper understanding of user preferences, paving the way for the provision of highly personalized services amidst a digital expanse teeming with countless assets, products, and services.

Achieving this vision necessitates the cultivation of an interoperable and open ecosystem. Such an environment would facilitate seamless interaction and data sharing among dApps, allowing user networks to thrive. It would also empower users to communicate, engage, and participate across platforms without restraint. Moreover, this model would enable users to reap financial rewards from the value they contribute to each dApp, marking a significant shift towards a more equitable digital landscape. By prioritizing these developments, blockchain technology can lay the foundation for a user-centric digital world where individual contributions are recognized and rewarded.

Figure 1 - User-Centric Intelligence Layer = Personalization Layer



By integrating these approaches, Bluwhale aims to redefine the landscape of user data interaction and analysis, offering a more efficient, accurate, and decentralized alternative.

Wallet Dashboard

In the core of the Bluwhale platform, we have the Wallet dashboard. The Wallet Dashboard provides a comprehensive overview of the activities associated with a particular entity or address, encompassing:

- Portfolio holdings: Including both tokens and NFT’s

- Profit and loss - Current and historical wallet performance
- Transaction history - Full transaction history updated in real-time
- Similar wallets - Showing other wallets that have exhibited a similar behavior
- Crypto Score - Filtering out the desirable users
- On-chain messaging - The best way to reach all users anonymously

The wallet dashboard is one of the main pillars of the platform, giving the full picture of each entity or address. Leveraging our AI technology we dive deeper gaining more insight:

- Labeling: The ability to distinguish between different types of users
- Following Lists: Easy access to everything you track
- Crypto Score: Distinguish between users you want to attract and users you want to avoid
- Anonymous messaging: The best way to market directly to your holders

Multi-chain Integration

The realm of on-chain analysis extends beyond any single blockchain, yet many analysis tools are confined to just one. To furnish a comprehensive intelligence overview, Bluwhale inherently collects, aggregates, and attributes data from multiple blockchains, utilizing its proprietary system.

Project Dashboard

Similar to the Wallet Dashboard we are looking to provide insights centered around the holder base:

- Holder Labeling: Depending on exhibited behavior we label all token holders
- Holders also Hold: Providing a full picture of what users hold other than the project token
- Total Assets: What is the distribution of all the different assets held by users
- Buying Power: What is the total holdings in dollar terms of all users
- Chain Utilization: Where do token holders usually transact

Leveraging this information we aim to provide all projects the ability to fully grasp their user base behavior.

On-chain Messaging

Every user utilizing the Bluwhale platform has the ability to send both on-chain and off-chain messages to other users. Each user has a fixed amount of message spots available, making those spots a commodity in the Bluwhale ecosystem.

Spots

Wallet profiles can elevate to advanced levels and access greater monetization opportunities by inviting their followers or friends to verify their identity. For followers to participate in the verification process, they must initially claim their own wallet profiles by linking their wallets. Following this, they respond to the verification request. Successfully verified followers are then eligible to passively earn a portion of the total earnings generated by the profile of the individual who invited them for verification. This system not only incentivizes users to engage their network but also rewards the verified connections for their participation.

Every consumer who claims their wallet profile by linking their wallet and verifying their social media profile will be rewarded with BLU points, along with the opportunity to monetize their communication and personal data. As they undergo further verification through their network of friends (or followers), their level will increase, thereby enhancing their potential to monetize their data. This progressive system ensures that the more verified connections a consumer has, the greater their capacity for earning through the platform.

Dynamic Message Pricing

Each wallet profile is assigned dynamic value-based pricing that hinges on two key factors: the number of decentralized applications (dApps) in the queue and the position each dApp occupies within this queue. This pricing mechanism reflects the demand for access to the wallet: as demand increases, so does the cost per message. The queue

position serves a dual purpose, offering an early mover advantage—where earlier access comes at a lower cost—while also acting as a risk mitigation tool. This is because dApps joining the queue later can be more confident that the wallet belongs to a genuine individual, thanks to prior verifications by others in the queue. Below, we illustrate this concept by comparing the scenario of a wallet in high demand with one experiencing little to no demand.

DDM Calculation: G = (Wt-SPa)/SPa (G = total # waiting - spots available/ spots available)

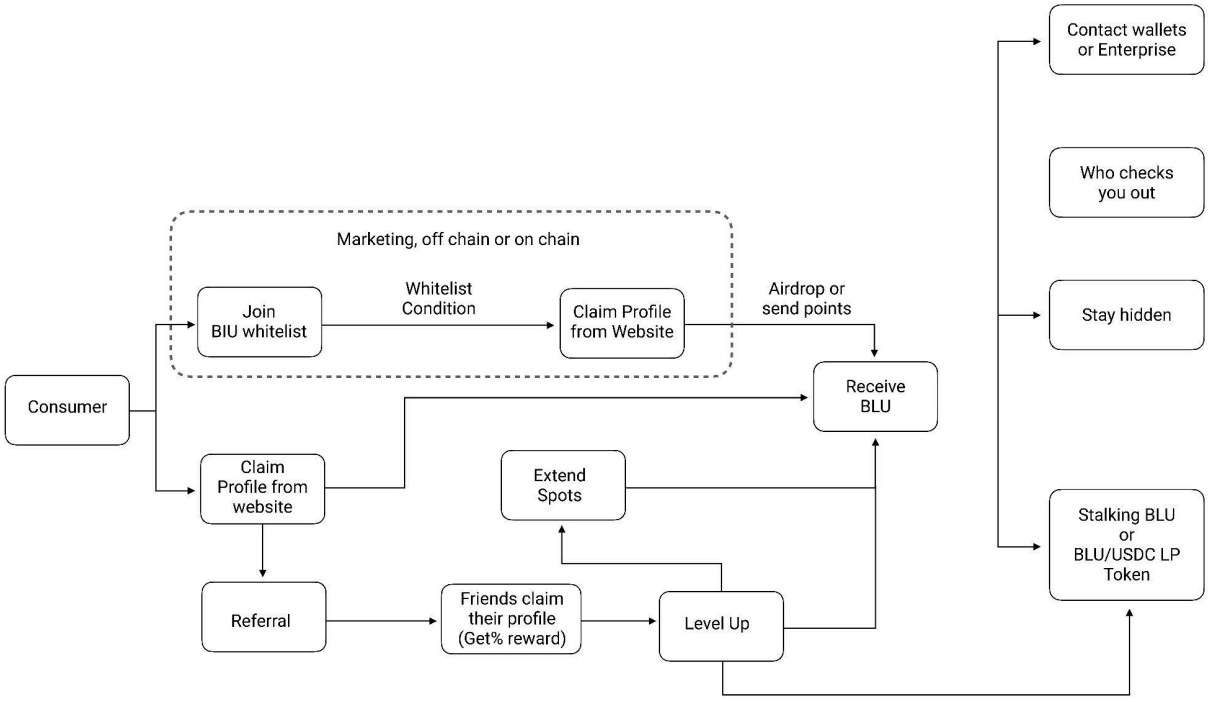
x = D(x) = D(1) * (1+G),

Use-to-Earn & the Bluwhale Insights Platform

The Bluwhale Insights Platform aims to reward and connect users who are participating in its ecosystem, where anyone can send a message to anyone, leveraging both our native currency BLUAI as well as the chain gas-specific token.

Marketplace Concept

The current economy surrounding blockchain analytics platforms is full of problems and is inefficient. There is tremendous demand from projects and users to connect to one another and there are two sides of the market to meet. Bluwhale solves this problem by enabling free insights derived from on-chain activity and leveraging AI technology to decrypt the data and present it in a well-informed manner.
The Bluwhale Data Insight Platform is the first fully decentralized network to power, incentivize, and reward users.



Spots being the main driving factor for the ecosystem, it operates on a first-come, first-served (FCFS) basis, beginning with a limited number of spots for receiving messages. As more spots are unlocked, a wallet profile can view and monetize an increased number of messages. If the influx of incoming messages surpasses the spots available, these messages are queued in a waiting line until additional spots become available. The position of a message within this queue directly influences its cost, with the pricing structure remaining static until the recipient opts to reject the sender. Such rejection causes the sender to move to the end of the queue, necessitating a higher payment to send another message. For illustration, consider a Level 1 wallet profile that has 5 open spots but has received interest from 9 senders.

Spot 1: Company 1 pays 1 BLU per message
Spot 2: Company 2 pays 2 BLU per message
Spot 3: Company 3 pays 4 BLU per message
Spot 4: Company 4 pays 8 BLU per message
Spot 5: Company 5 pays 16 BLU per message
Spot 6 (Wait): Company 6 pays 32 BLU per message → receiver cannot see and earn until Level 2
Spot 7 (Wait): Company 7 pays 64 BLU per message → receiver cannot see and earn until Level 2

Spot 8 (Wait): Company 8 pays 128 BLU per message → receiver cannot see and earn until Level 2
Spot 9 (Wait): Company 9 pays 256 BLU per message → receiver cannot see and earn until Level 2

To put the previous discussion in context, the competition among decentralized applications (dApps) to communicate with their user base directly impacts the cost of messaging, which escalates based on the position (or "spot") their message occupies in the queue. From the perspective of users, there's an incentive to undergo the required verification processes. As they do so, they unlock additional message spots, thereby not only increasing their potential earnings but also making it more cost-effective for dApps to reach out. Simultaneously, this process enhances the user's credibility, adding layers of validation to their profile.

Furthermore, users gain the ability to trade message spots with one another, cultivating a dynamic free market. This market mechanism allows for the fluid exchange of access rights, empowering users to capitalize on their available spots and providing dApps with a variety of channels to engage with their audience.

BluAI Incentives

BluAI serves not only as the pivotal currency within the Use-to-Earn economy but also fuels a comprehensive incentive structure. This structure is designed to catalyze a virtuous cycle of platform adoption, fostering steady and sustainable growth over time.

The BluAI token is a native digital cryptographically-secured fungible token and is a transferable representation of attributed governance and utility functions specified in the protocol/code of the project, and which is designed to be used solely as an interoperable utility token on the platform.

BluAI can be used for:
Governance: Voting on proposals. The token would allow holders to propose and vote on on-chain governance proposals to determine future features and/or parameters of the platform, with voting weight calculated in proportion to the tokens staked (the right to vote is restricted solely to voting on features of the platform; it does not entitle token holders to vote on the operation and management of the company, its affiliates, or their assets or the disposition of such assets to token holders, or select the board of directors of these entities, or determine the development direction of these entities, does not

constitute any equity interest in any of these entities or any collective investment scheme; the arrangement is not intended to be any form of joint venture or partnership). It is the community members which would maintain and drive development of the platform, so the token incentives would need to be distributed to compensate such community members for their time, expertise and effort. The primary utility of the token is to allow users to engage with and participate in the development of the ecosystem. Only users who have participated in submission of proposals, commenting, reviewing and/or voting will be entitled to receive the token governance rewards."

BLUAI Rewards: These are incentives allocated for activities that contribute positively to the growth and vibrancy of the Bluwhale ecosystem.

Central to Bluwhale's distinctive value proposition is its role in the Use-to-Earn ecosystem, marking it as the pioneering cryptocurrency insights token. The incentive system of BluAI rewards underscores its fundamental utility, encapsulating the Bluwhale's ecosystem's comprehensive vision. This vision aims to cultivate a robust and stable environment, positioning Bluwhale as the preeminent hub for blockchain insights on a global scale.

Closing Thoughts

Blockchain technology offers a more comprehensive and accurate means of analyzing financial activity compared to traditional financial systems. The depth and quality of financial data available through cryptocurrency transactions provide a substantial edge to those equipped to harness it, making crypto insight platforms indispensable for serious participants in the market. This shift heralds a significant transformation in the financial industry, a process that is only in its initial stages. The ultimate goal of this evolution is the creation and widespread adoption of an all-encompassing tool that delivers complete cryptocurrency Insights. Bluwhale is envisioned to be precisely that tool.