Wortheum

World's First blockchain/web3 based News Platform

Whitepaper 2.0

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Wortheum: A Fast, Reliable , Scalable and first of its kind News Network.

In these days of fake news, information is at stake. All information is now classified as paid news, advertorial, infotainment and even fake news is being manufactured with an agenda. Individuals, entities, and various organizations are going to any extent to build an image or tarnish the reputation of others with inputs that are planted at the most opportune time to serve any ulterior motive or provide desired gains.

Wortheum is designed as a media and news based platform and is an innovative and forward-looking decentralized blockchain and ecosystem built on the Delegated Proof of Stake (DPoS) protocol.

We firmly believe that Wortheum Blockchain and its News platform will steadily grow as an ecosystem.

By combining the lightning fast processing times and fee-less transactions, Wortheum will certainly become one of the leading blockchain technologies used by people around the world.

Web3 orientated dapps, APIs and front-ends contribute to a general and straightforward accessibility of data, transactions and records, so that this existing diversity and utility ensure that the ecosystem is welcoming to content creators, i.e our journalist fraternity across the nation, consumers, investors and builders. Wortheum is developed to store vast amounts of journalistic and news content and to make it available for time-based monetization.

This platform of blockchain has been designed keeping in mind the widespread adoption of crypto currency and technology by the masses.

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I. INTRODUCTION

Wortheum is an innovative and forward-looking decentralized blockchain and ecosystem built on the Delegated Proof of Stake (DPoS) protocol. It is the first highly-scalable DPoS blockchain independent of central authority that addresses the problems of mass adoption and versatility of use.

Wortheum allows the easy storage and retrieval of immutable strings of data and information. It supports three-second zero fee transactions and is designed to store vast amounts of content and to make it available for time-based monetization. Wortheum recognizes that transaction fees are often one of the largest challenges to facilitating development and flexibility of use on a blockchain. Instead of requiring potentially costly and inconvenient transaction fees, Wortheum uses a novel stake-based Resource Credit mechanism to create a fee-less model.

Wortheum also aims to overcome mainstream adoption shortcomings in blockchain technology and content publishing by improving on their accessibility. It leverages the coined Proof-of-Brain (PoB) concept by distributing a portion of the inflation to content creators and consumers. To earn without financial investment, individuals partake in a wide range of activities. Those include blogging, participating in discussions, curating others, building and engaging with dapps, playing games and more; their limits are only constrained by their own imagination to further the decentralization of the system. All content is always readily-available on the blockchain and retains its original integrity.

Since its inception, Wortheum has steadily grown as an ecosystem. Web3 orientated dapps, APIs and front-ends contribute to a general and straightforward accessibility of data, transactions and records, so that this existing diversity and utility ensure that the ecosystem is welcoming to content creators, consumers, investors and builders.

Wortheum was created as an independent and decentralized fork of the Steem blockchain. Wortheum's intention is to create the strong community values and rewards its users creating a group of platforms that fulfill the requirements of all type of users.

I.1. GLOBAL PROBLEMS IN MEDIA INDUSTRY

"Journalism is a basic mainstay of free, reasonable, and just social orders. It assumes an imperative job in uncovering debasement, advancing responsibility and giving a voice to underestimated populaces."

The world has come a long way since Thomson Reuters first formalized a network of news, using even carrier pigeons to spread relevant information.

The role of 'social watchdog' that the Press enjoyed at one time is now questionable, as media houses turn into power centers and journalists proclaim to be makers or breakers of governments.

The advent of technology has given journalists more power to mold their opinions but this is not always put to healthy use. Commercial gains taking the lead and misuse and abuse of this power is rampant. Advertisement has superseded news content and every bit of information is sponsored, whether purposefully or inadvertently.

The loser is the end-user of the content that is published or aired. On The other hand, the advantage to the common man is that he has easier access to news on handy gadgets, anytime, anywhere.

He is not only richer by awareness but is also equipped with a viewpoint that keeps him in step with the times. But this should not beat the cost of having an independent outlook or the ability to analyze things as per one's intelligence.

II.   WORTHEUM ASSETS

II.1.   Assets

The Wortheum News network comes with two classes of cryptocurrency assets named Wortheum and Wortheum Backed Dollars (WBD). Moreover, Wortheum exists both under a liquid form (simply called Wortheum) and a staked form (called Wortheum/Worth Power). Wortheum is the liquid currency of the Wortheum ecosystem. It may be traded, staked, bought, and sold. Wortheum Backed Dollars are intended to be pegged to the United States Dollar (USD) at a one to one rate. Wortheum Power (WP), the staked form of Wortheum, is vested during a process referred to as a "power up". Upon being powered up, Wortheum Power can then be entirely or partially un-staked at will, in a process referred to as a "power down". Staked Wortheum then returns to its liquid form (i.e. Wortheum) in equal amounts over a 13 weeks period, with a segment delivered every 7 days.

II.2.   Resource Credits

Instead of relying on transaction fees, Wortheum News uses a fee-less system that leverages rechargeable Resource Credits (RC). In this framework, each account holds a given amount of credits related to its stake. Those credits are then consumed when transactions are executed on the blockchain and automatically recovered with time. The amount of Worth Power attached to a given account determines its level of stake and allows for the calculation of the associated bandwidth. The latter indicates how much a given account could transact within a specific period of time and originates from the available Resource Credits of the account, displayed as mana.
Resource Credits self-replenish at a rate of 20% per 24 hours. Such a replenishment rate acts as a self-limiter and requires the account to stake an amount of Wortheum directly proportional to the account's purpose and intent of use. An account that projects a higher rate of use will need more Worth Power than an account that rarely transacts.
Resource Credits are used up by different forms of transactions at different rates. A transaction that involves the post of a paragraph of textual material will deplete more mana than a transaction consisting in an asset transfer. The amount of

mana required to transact is also impacted by the number of transactions during the time of use. Transactions made on-peak consume more resources than those made during low usage periods.

No account is entirely prevented from issuing a transaction should it be created with no investment or provisioning through a delegation. Accounts that have 0 Worth Power may still issue limited transactions that vary as 4 per time of use and blockchain load. For example, an account with 0 WP may have enough Resource Credits to successfully issue 2 textual posts or about 17 transfers during a specific period of use. In this way, Wortheum removes one of the biggest entry barriers for users and developers.

II.3. Delegation

Worth Power may be temporarily lent to other accounts using a feature called "delegation". Delegated WP may be granted to other accounts for any length of time. The retraction of an existing delegation takes a total of five days to return to its origin wallet.

Delegated WP is not counted as deduced from the delegator's stake in respect to governance-level impact (see section III), but no longer counts towards their Resource Credit totals. In contrast, delegated WP raises the recipient account's Resource Credits for the duration of the delegation, but does not augment their own pre-existing stake in regards to governance-level impact. Ownership of the stake is retained by the delegator.

II.4. Allocation and Initial Supply, Inflation and End Supply

Wortheum started out with the 500 million Wortheum and 0.7 million Worth Dollars as premined initial supply. Wortheum's decreasing inflation rate is one of its key monetary features and reduces minting over time. The inflation rate decreases by 0.01% with every 250,000 blocks, approximately 0.5% per year, until it reaches 0.95%. Wortheum inflation is distributed in the following manner:

1. 65% is used to fill the reward pool (which is split in equal portions between content producers and curators);
2. 15% goes to WP stakeholders;
3. 10% goes to the witnesses for block signing;
4. 10% goes to the Decentralized Worth Fund (see the next subsection).

There is no predefined known value limit to Wortheum supply. The supply is dependent on the inflation rate.

II.5. Decentralized Worth Fund

The Decentralized Worth News Fund (DWF) is a proposal-based DPoS financing alternative. The DWF places the consensus behind direct financing of development and other ecosystem-positive projects into the hands of the stakeholders. The distribution of the DWF is decentralized by design. Support for a proposal is calculated based on the total stake in support of that proposal. When a user opts to support a number of proposals, their stake influences the proposals equally. Support for a proposal may be granted or removed but the mechanism cannot be used to negate the sum of supporting stake with a negative vote. This prevents one single large stakeholder from doubling the impact of their stake and influencing the remuneration of numerous proposals, creating a level playing field.

Proposal funding is released when the total value of that supporting stake surpasses the stake behind a benchmark proposal. The benchmark proposal itself may vertically traverse the rankings as per the amount of its supporting stake. The payments are distributed on an hourly schedule over a set period of time as specified upon launch of each proposal. Proposals that surpass the benchmark proposal and unlock funding will receive the funding as remaining in the total task of the proposal minus the time that had passed prior to funding. The total amount is only released where the proposal unlocks the funds prior to its scheduled duration.

III. BLOCK PRODUCTION, SIGNING AND CONSENSUS

III.1. Delegated Proof of Stake

Delegated Proof of Stake (DPoS) is the consensus algorithm behind Wortheum Blockchain. In a DPoS algorithm, the selection of block producers (called 'witnesses' on Wortheum) and all other consensus-based functions are decided based on the weight of staked funds supporting them. Stakeholders hold the highest prominence in DPoS. DPoS consensus is considered to be the most inclusive and the least centralized of all the blockchain protocols. DPoS was first invented by Dan Larimer as a functional alternative to the Proof of Work system

introduced with Bitcoin. Other prominent DPoS blockchains include BitShares and EOS; they are originally based on Larimer's Graphene framework.

III.1.1. Addressing 51% Attacks

A 51% attack may occur on a DPoS blockchain when a single stakeholder takes direct or indirect control of 51% or more of staked assets. Due to its direct experience with the pattern, warning signs, capabilities and results of such attacks, the Wortheum decentralized community is regularly monitoring for any such attacks. Additionally, Wortheum has taken steps to deter and mitigate 51% attacks at the blockchain level through governance provisions, including delayed voting with any newly-staked WP.

III.2. Protocol Changes

Hardforks and key protocol changes are accepted by 17 out of 20 consensus witnesses. Witnesses accept protocol changes by updating their nodes or reject them by continuing to run the present version. Protocol changes will not be applied and take effect until consensus is reached. All protocol changes are proposed, developed, prepared for and implemented through a transparent and collaborative team-working environment. They are entirely open source from initiation to their final release.

III.3. Production Ordering

Blocks are produced at 3 second intervals and are signed by "Witnesses" selected based on the total weight of the Worth Power supporting them through individual approvals. There are 20 consensus witnesses that are granted block signing operations on a rotating schedule.
Every account may select up to 30 witnesses for approval, during which process it adds to the support each witness receives. The witnesses are ranked in priority based on the total amount of staked support they presently receive. While the 20 consensus witnesses have an equal opportunity to sign blocks, witnesses ranked 21 and further are treated as backup witnesses. The number of signing opportunities they receive is directly proportional to the staked support behind them.

Should a witness be unable to sign a block due to operating on a protocol version incompatible with the main chain or due to any other technical issue, the signing opportunity will be automatically granted to the next scheduled witness. The witness that failed to sign will be recorded on chain as having missed a block.

III.4. Price Feed Consensus

Wortheum witnesses are responsible for dependable and consistent price feeds. The purpose of price feeds is to promote:
1. Exchange rate stability
2. Price accuracy
3. Dependable monetary policy

III.5. Node Types

There are several different types of nodes on Wortheum that are run by decentralized community members. These nodes are operated with different configurations and with the goal of optimizing resources and accessibility.
1. Witness Nodes: A witness node is used for signing blocks.
2. Seed Nodes: A seed node allows external peer-to-peer (P2P) connections.
3. API Nodes: An API node is any node that allows external remote procedure call (RPC) connections. It may have a selection of plugins.

III.6. Keys

There are private and public key pairs on Wortheum. All key pairs are directly derived from a password or passphrase, which in itself is not a key. Changing the password regenerates the key pairs. Public keys are openly available on the blockchain while their private counterparts are only granted to the account owner. Both pairs are required to validate a transaction.

III.6.1. Key Hierarchy

Wortheum uses a weighted hierarchy of keys:

1. Owner Key: Used for recovering accounts and regenerating other keys as well as setting a new password.
2. Active Key: Used to transfer and manage funds, vote for witnesses or approve DWF proposals.

3. Posting Key: Used to broadcast posting transactions.

4. Memo Key: Used for decrypting encrypted messages within the memo parameter of fund transfers.

Witnesses use their accounts to generate an additional key called a Signing Key. That key is used to indicate that a witness is available for block production and is unique to that witness. A default, static Signing Key may be broadcast by a witness account to disable itself as block signatory. This lets the blockchain know to not schedule that witness in the production order. To resume block signing, the witness must broadcast its unique Signing Key again.

III.6.2. Trustee System and Recovery

Where an account is compromised through phishing or a similar theft and its keys are changed without the owner's consent, it may be recovered by its Trustee Account. The default trustee of an account is the account that created it in the first place. Upon its creation, a new account may broadcast a transaction requesting a different Trustee. The trustee change takes 30 days to reach finality. Recovery is only possible where the period between the password change or owner key regeneration and the recovery itself is less than 30 days.

IV. DEVELOPMENT AND INTEGRATION WITH WORTHEUM

Wortheum strives to be the perfect real-estate for existing and new dapps and ventures to build on. It is based on ChainBase, an evolution of Graphene. ChainBase is resilient against blockchain crashes and block corruption and is faster and more versatile than its predecessor. It permits snapshots to be created of its state and allows for parallel access to the database while handling a scaling amount of RPC requests easily without a significant increase in memory use. Wortheum is open to and can be readily utilized by all lines of business.

IV.1. Integration

Cross-platform and application integration is inherently simple on Wortheum. Custom JSON (JavaScript Object Notation) operations may be declared on Wortheum and are frequently used by dapps to encode a range of text data onto the chain. JSON is commonly used by the majority of modern applications and is compatible with virtually every programming language. This directly translates

to the fact that almost any application may be connected with and make use of the Wortheum blockchain.

Custom JSON acts as a modifiable database which is customized to the explicit needs of the dapp. Any data that may be contained in a text string can be encoded at once. A dapp that requires its users to publish an additional identifier as part of a specific transaction may do so with custom JSON. That data can then be easily fetched either through a script that monitors the blockchain in real time or through various other mechanisms. Wortheum's flexibility with data storage and easy integration makes it possible to cover the needs and wishes of practically any requirement in the most user- friendly of ways.

IV.2. Performance

To facilitate widespread and barrier-free integration, Wortheum currently utilizes and will continue to improve upon layered solutions. Wortheum is a scalable and flexible blockchain by design. It is equipped to support a larger database than any of its competitors. It allows for near real-time transactions that can be adapted for any application requiring speed and modularity. To support rapid scaling, non-consensus ledgers are implemented as plugins. A Hivemind (Python) database-driven 'consensus interpretation' layer acts as an API for the blockchain and eases both interaction and node requirements. The tiered layers are leveraged to allow Wortheum to scale at a manageable rate while it organically grows and expands. In addition to Wortheum hivemind, other key layers are projected for development as part of the deliverables roadmap.

IV.3. Endusers and Consumers

No initial investment is required on behalf of an account holder to participate in Wortheum News Platform and by extension to use any of the dapps connected to or built on Wortheum Blockchain. Users may begin transaction immediately upon account creation. Non-investment stake growth is achieved by contributing textual content (publishing) and interacting through the curation of others. A dapp or venture has the option of introducing their product to existing user base, on boarding its own clientele, or simply utilizing the blockchain as a data ledger for external consumers.

V. ECOSYSTEM GROWTH AND DISTRIBUTION

V.1. Onboarding and Accounts

Just like the rest of the Wortheum ecosystem, account creation is decentralized. Existing Wortheum accounts create new Wortheum accounts, which can then be provided to new users when they join Wortheum News Platform. The creating account then by default becomes the trustee of the created account and may take on additional roles such as account recovery in case of stolen password. This enables a positive and accessible onboarding and initial experience process for new users.

Multiple account creation services are in existence and are both diverse and offer free and paid options. The diversity in onboarding approaches and account creation options is ideal for providing a cryptoworld entry point for those who have never dabbled in cryptocurrencies or are unfamiliar with blockchain technology. New users are not required to manage complex wallets and register accounts with Exchanges prior to participating in Wortheum News Platform and interacting with their accounts.

A Wortheum wallet is also the account name; it is not a numbered wallet as on other blockchains. The username is the sole user identity in the Wortheum ecosystem. Wortheum does not leverage account hierarchy. Anyone may register any available username they wish. It may be of any composition as long as it is between 3 and 16 characters in length and adheres to minor special character constraints. New accounts may be instantly generated by an existing account for a small creation fee or a free 'claimed account token' where the claimer is an investor with an investment over a certain benchmark. All accounts cost the same upon registration irrespective of the account name. This promotes fairness and open opportunity for those entering the Wortheum ecosystem.

V.2. Censorship Resilience by Design

Wortheum News Platform is by design a decentralized blockchain that is sustained by geographically distributed servers and nodes. Every transaction is transparently and chronologically entered into blocks and signed onto the public ledger. All transactions entered onto the Wortheum blockchain have the element of finality and once confirmed in its three-second blocks, are irreversibly signed. Altering the content of recorded transactions and blocks is not possible as that would alter the state of the blockchain post-finality. Therefore, taking the default

inalterability into account, no content on the Wortheum blockchain may be arbitrarily censored or altered in any way, shape or form.

Wortheum does not regulate its APIs or provide constraints on the type of endpoints that may be built on it. Individual front-ends and websites may present or not present segments of Wortheum content as they deem fit. This does not adversely impact the availability of the material stored on the Wortheum blockchain. With its censorship-resilient design, Wortheum is a dedicated proponent of free speech and transparency.

V.3. Communities

Communities are a topical way to organize and manage the frontend-facing collation and discoverability of user generated content. They leverage the tag and follow features to sort, manage and thematically organize segments of content. A community is an account that is also set as a category for the content published in it. Upon its creation, a new account is generated and is then granted a modifiable label to display on the frontends. The community account itself may also opt to transact in the same way that any other account; it may post, cast votes, make transfers, and create other accounts.

Once a community is created, it may be labeled as desired and operated by its owner. Users may join communities, submit content to them, manage communities where they are set by the owner as administrators, hide undesirable submissions by muting them, give them descriptions and perform many other interactive actions with the ultimate goal of building an active and cohesive community.

With the majority of the community infrastructure based upon a layered approach and creative utilization of core blockchain features, communities are designed to be both flexible and functional. The naming of communities is not exclusive and multiple communities may have the same or similar names; their base account is set by a Worth-000000 name-number naming convention. This prevents name squatting and allows any user to form a community on any topic. Where numerous similar communities are in competition, the one with the highest rate of user engagement will become the main community on its chosen topic but without disabling or otherwise harming its competition. It is important to note that communities do not generate monetary rewards for their owners and organizers by default; their value is a purely qualitative improvement to the user

experience. However, front-ends may augment community features with additional revenue generation capabilities.

V.4. Qualitative Content-based Inputs

Wortheum has two streams of designed monetization: quantitative and qualitative proof-of-brain work. Quantitative work refers to automated processes with predetermined compensation mechanisms such as operating a witness node. Qualitative work refers to the creation and provisioning of consumer-focused content such as articles, linked or embedded videos and images, apps, games, curation, community organization, and work funded through the proposal system. Out of that scope of work, the two mainstay contribution options are the addition of content and the service of content discovery.

V.5. Content Monetization

Wortheum is by design intended to store vast amounts of content and to make it available for time-based monetization. Content may be submitted in the form of a 'post' (parent post) or 'comment' (child post). Once submitted, a piece of content will be monetizable for a period of 7 days. During that time it may be curated upwards or downwards through upvotes and downvotes until its final value is determined at the end of the 7 day timer. Where a front-end or website displays the value approximation prior to the completion of the 7 day timer, that approximation is variable and has not yet reached finality. Posts and comments are subject to the same monetization timer.

All qualitative actions carried out on Wortheum are by default solely leveraging individual users' organic stake. When content is submitted and the monetization period starts, that content is evaluated through curation in a proportional 9 manner that is influenced by its discoverability, its quality, the reputation and popularity of the presenter, its originality, and its subjective value to the ecosystem. This interaction is reminiscent of both social media networks and traditional economies. When large waves of content contributors use Wortheum at the same time, discoverability naturally goes down and competition goes up. Simultaneously, content consumption rises as the many contributors are also consumers, while others only consume without contributing. When such a surge occurs, the potential value of individual content pieces fluctuates due to the

increase in competition (which in some popular niches may also equate with market saturation) and the gap between the top and bottom monetized content expands.

V.6. Distributing Rewards

The reward pool is used to distribute funds to those who actively participate in creation and/or curation of content. The funding for the reward pool is composed out of 65% of the inflation.

When a user submits a post it initiates a 7 day curation window during which it may be upvoted or downvoted until its final evaluation is reached at the end of 7 days. Upon reaching final evaluation, 50% of the earned rewards are granted to the creator and 50% are proportionally split between the curators who have voted for the post with a positive value. Voting with a negative value does not generate curation rewards.

Distribution is carried out in a manner that automates partial staking. A modifiable percentage of each distribution is granted as WP. The remainder is granted as either Wortheum or WBD, depending on the market value of Wortheum to WBD.

VI. CONCLUSION

Wortheum Blockchain and News Platform is a constantly evolving and innovative ecosystem that aims to fuel mass adoption of blockchain technology and cryptocurrencies in journalism. It makes available and possible opportunities to both its user base, which are our people from the journalist fraternity and to the general public which consumes the news. It will steadily grow as an ecosystem, with a diverse family of peoples across communities, people who are associated with media and journalism, content creators, investors and consumers. This platform of blockchain has been designed keeping in mind the widespread adoption of crypto currency and technology by the masses.

We are the first institution to introduce blockchain technology in journalism in India and we aim to be one of the leading blockchain technologies in India to strengthen the journalist fraternity in a holistic sense and make them self-reliant.

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