

Bethel zkStorage: Harnessing the Power of Zero-Knowledge Proofs for Decentralized Data Management

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20 January, 2024

Abstract

The Bethel Platform is at the forefront of blockchain innovation, offering a sophisticated, multi-language, containerized development environment. It provides a ledger ecosystem applicable to sectors like finance, trade, healthcare, government, AI, and IoT, offering decentralized storage, database management, and container solutions. Leveraging blockchain technology and Zero-Knowledge Proofs (ZKP), Bethel is set to redefine data management by enhancing security, privacy, and efficiency. This whitepaper explores the intricacies of the Bethel Platform and its groundbreaking offerings.

1. Introduction

1.1 Background

In today's digital era, data stands as a paramount asset for both organizations and individuals. The surge in data generation demands secure, efficient, and cost-effective storage solutions. Traditional centralized systems, despite their widespread use, face significant challenges like single points of failure, susceptibility to cyber attacks, escalating costs, and privacy concerns.

Blockchain technology offers a promising alternative with its attributes of decentralization, transparency, and immutability. It allows the creation of decentralized storage systems,

distributing data across a network of nodes, thereby enhancing security, privacy, and data availability.

Bethel Platform seizes this potential and goes beyond, offering a comprehensive decentralized data management platform encompassing storage, databases, and containers. This whitepaper delves into the Bethel Platform's components and its groundbreaking offerings.

1.2 Bethel Platform

Bethel Platform emerges as an avant-garde in blockchain solutions, tailored to meet the escalating demands for secure, efficient, and decentralized data management. This multi-language, containerized blockchain development platform offers a vast ledger ecosystem with applications spanning multiple sectors.

At its core, Bethel is built around three key components: decentralized storage, decentralized database storage, and decentralized containers. These components work together to provide a robust and versatile platform for data management.

1. Decentralized Storage: Bethel's storage solution decentralizes data across nodes, boosting security, privacy, and availability.

2. Decentralized Database Storage: It extends decentralized storage principles to databases, offering distributed databases with enhanced performance and scalability.

3. Decentralized Containers: These containers ensure secure and consistent application deployment across the network.

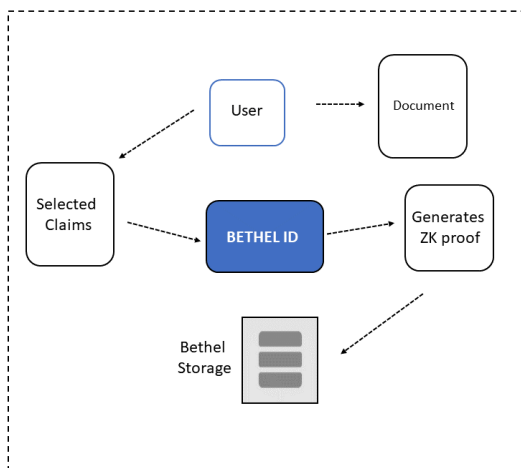
Designed for accessibility, Bethel provides tools and APIs that simplify blockchain interaction and dApp development, making it a pivotal advancement in blockchain technology.

2. Bethel Decentralized zkStorage

2.1 Overview

Bethel's decentralized zkStorage is a core component, designed for secure, efficient, and scalable data storage. Unlike traditional systems, it distributes data across a network of nodes, eliminating single points of failure and enhancing data security, privacy, and reliability.

Mechanisms of Bethel ZK-Storage



Bethel zkStorage employs an advanced architecture including a wallet with DID service, user-friendly storage interface,

rigorous file scanning engine, and Zero-Knowledge services both off-chain and on-chain, along with a file chunk service and integrated storage modules like IPFS-supported modules for superior data integrity and interoperability.

Role of ZK (Zero-Knowledge) Proofs in Bethel zkStorage

Iden3 Protocol Phases:

1. Setup Phase
2. Proving Phase
3. Verification Phase

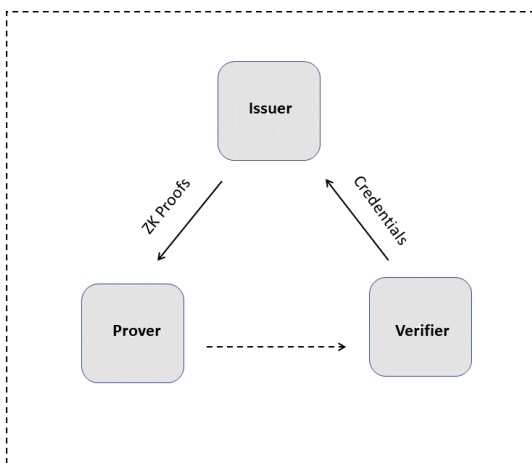
1. **Setup Phase:** Generates Proving Key (pk) and Verification Key (vk) based on the arithmetic circuit (or QAP representation of it).
 $(pk, vk) \leftarrow Setup(Circuit)$
2. **Proving Phase:** Prover generates a proof π that they know a witness w satisfying the circuit without revealing w .
 $\pi \leftarrow Prove(pk, w)$
3. **Verification Phase:** Verifier uses π and vk to check the validity of the prover's claim.
 $Valid \leftarrow Verify(vk, \pi)$

The integration of Zero-Knowledge proofs within Bethel Storage underscores its commitment to privacy and security. These proofs are vital for verifying data integrity and user permissions, ensuring secure storage while minimizing computational load through efficient off-chain computations and robust on-chain verifications.

Bethel zkStorage Components

The platform includes components like Bethel Wallet - DID Service, ZK Service, ZK Off-chain Provider, ZK On-chain Verifier Contract, File Chunk Service, On-chain Metadata, Bethel Storage Module, and IPFS supported Storage Module. Each plays a crucial role in ensuring secure, efficient, and user-friendly data storage and management.

- **Bethel Wallet - DID Service**



Provides users with a decentralized identifier (DID) and is the gateway for interactions within the Bethel Storage ecosystem.

Each user generates a digital identifier (DID) and associated cryptogra

- DID: DID_u
- Public Key: PK_u
- Private Key: SK_u

Authorities issue verifiable credentials, which are cryptographic:

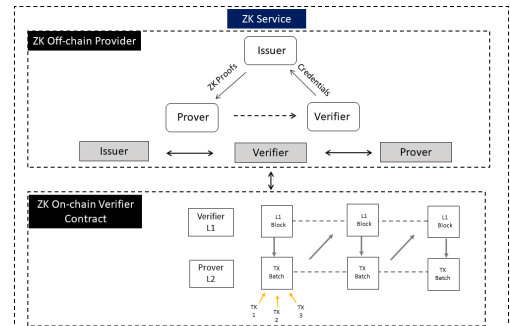
- Credential: $Cred_u$
- Authority's Signature: $\sigma = Sign(Cred_u, SK_{authority})$
- Credential and signature pair: $(Cred_u, \sigma)$

Users generate a ZKP for a claim about their credential without revealing the credential itself.

- Claim: $Claim_u$ (e.g., "Age > 18")
- Witness: w (private input, such as the actual age)
- Proof Generation Function: $\pi = ZKProve(Claim_u, w, PK_{authority})$

The function $ZKProve$ takes the user's claim, their private witness (which substantiates the claim), and the authority's public key to generate a proof π .

- **ZK Service**



Provides essential security and proofing capabilities for Bethel Storage.

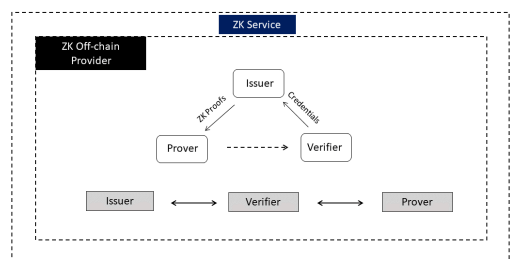
Utilizing Zero-Knowledge Proofs (ZK), it ensures data privacy and security while maintaining efficiency and scalability. It includes the roles of Issuer, Verifier, and Prover.

Verifiers check the ZKP against the DID and the public key of the issuer.

- Verification Function: $Verify(\pi, Claim_u, PK_{authority}, DID_u) \rightarrow \{true, false\}$

The $Verify$ function takes the proof π , the claim $Claim_u$, the authority's public key $PK_{authority}$, and the user's DID DID_u . It returns true if the proof is valid (meaning the claim is substantiated without revealing the private witness) or false otherwise.

- **ZK Off-chain Provider - Issuer, Verifier, and Prover.**



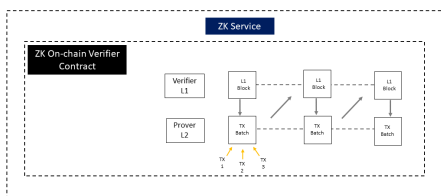
To perform complex computations and generate Zero-Knowledge proofs off-chain.

The Issuer creates and issues cryptographic proofs, the Verifier verifies the correctness and authenticity of off-chain computations, and the Provider manages access to off-chain services, ensuring authentication and verification.

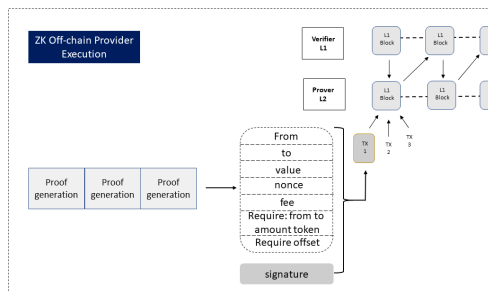
$$\pi \leftarrow Prove(pk, w)$$

- π is the proof generated by the prover.
- pk is the proving key, generated during the setup phase and used in generation process.
- w is the witness, which is the prover's secret information or the set satisfy the computational problem or the arithmetic circuit.

• ZK On-chain Verifier Contract



To validate the zero-knowledge proofs submitted by the zK Off-chain Prover on the blockchain.

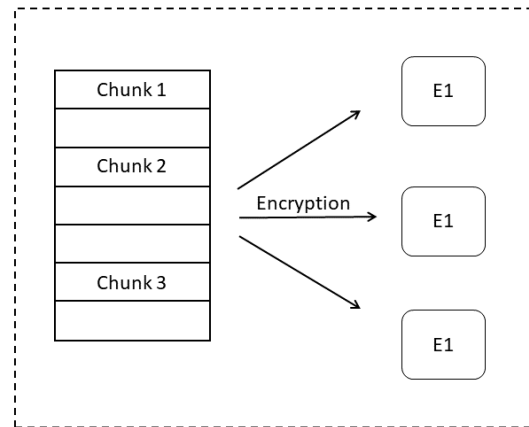


It ensures that off-chain computations are accurate and trustworthy without revealing the underlying data or computations, enhancing security and privacy.

$$isValid \leftarrow Verify(vk, \pi, publicInputs)$$

- `isValid`: A boolean value indicating whether the proof π is valid.
- `Verify`: The verification function or method implemented in the smart contract.
- `vk`: The verification key, part of the setup parameters, used to verify the proof.
- π : The proof generated by the prover, submitted to the contract for verification.
- `publicInputs`: Any public inputs or parameters that are part of the proof but not sensitive or private. These are used alongside the verification key vk to validate the proof.

• File Chunk Service



To segment large files into smaller, more manageable chunks for efficient storage and retrieval. Chunking optimizes data transfer, storage efficiency, and redundancy in decentralized systems, enhancing performance and scalability.

Determine Number of Chunks:

$$n = \lceil \frac{S}{c} \rceil$$

Create Chunks:

$$F_i = \text{Chunk}(F, (i - 1) \cdot c, \min(i \cdot c, S)), \text{ for } i = 1, 2, \dots, n$$

Reassembly Process:

To reconstruct the original file F from its chunks F_1, F_2, \dots, F_n :

$$F = F_1 || F_2 || \dots || F_n$$

- n is the total number of chunks.
- F_i represents the i^{th} chunk of the file.
- $\text{Chunk}(F, start, end)$ is a function that extracts a portion of F from byte index $start$ to end .
- $||$ denotes the concatenation of the file chunks to reconstruct the original file.

- **On-chain Metadata**

To store metadata of files on the blockchain, including file hashes, ownership data, access permissions, and history.

This enhances security, transparency, and provides an immutable record of file metadata, ensuring trust and accountability.

Metadata Storage:

- For a file F with unique identifier id_F :
 $M_F = \{\text{hash}(F), \text{owner}(id_F), \text{permissions}(id_F), \text{hi}\}$
- Store M_F on the blockchain.

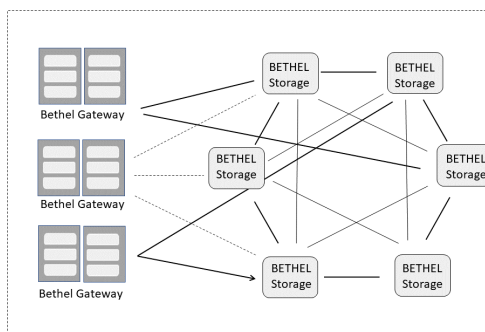
Metadata Update Operations:

- **Update Ownership:**
 $\text{owner}(id_F) \leftarrow \text{newOwner}$
- **Change Permissions:**
 $\text{permissions}(id_F) \leftarrow \text{newPermissions}$
- **Add to History:**
 $\text{history}(id_F) \leftarrow \text{history}(id_F) || \text{newEntry}$

Metadata Retrieval:

- To retrieve the metadata for file F with identifier i
 $M_F \leftarrow \text{getMetadata}(id_F)$
- M_F represents the metadata associated with file F .
- $\text{hash}(F)$ is the cryptographic hash of the file, ensuring data integrity
- $\text{owner}(id_F)$ denotes the current owner of the file.
- $\text{permissions}(id_F)$ details who has access to the file and what actions perform.
- $\text{history}(id_F)$ is a log or record of important events or changes related to the file.
- $||$ symbolizes the concatenation of a new entry to the history log.

- **Bethel zkStorage Module**

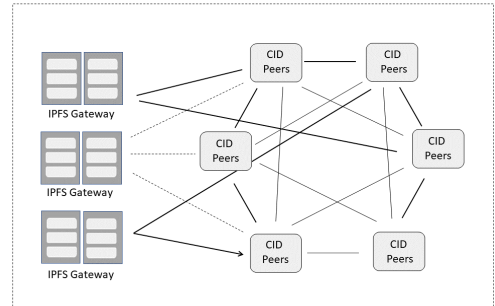


The primary storage module where actual data is stored within the Bethel system.

Utilizes decentralized storage techniques, distributing data

across multiple nodes for redundancy and security.

- **IPFS supported Storage Module**



An additional gateway integrated with the InterPlanetary File System (IPFS) for storage.

Leverages IPFS's peer-to-peer architecture for integrity and interoperability, ensuring data authenticity and reducing redundancy.

Advantages of Bethel zkStorage and IPFS Modules

The Bethel zkStorage Module and the IPFS-supported Storage Module offer distinct advantages, with the former ensuring decentralized, flexible, and resilient data storage, and the latter optimizing data retrieval and integrity through a content-addressable, peer-to-peer protocol. Users' choice between these modules or their synergistic utilization can be tailored based on specific storage needs, regulatory compliances, or performance criteria.

Concept and Functionality of Decentralized Identifiers

Decentralized Identifiers (DIDs) represent the paradigm shift towards user-centric digital identities in the Web3 landscape. These identifiers, anchored in blockchain technology, provide a robust framework for verifiable, self-sovereign identities, allowing users to control their digital interactions securely and privately.

File Chunking

In the Bethel ecosystem, each piece of data is divided into smaller chunks, encrypted for security, and then distributed across the network. This process is transparent to the user, who can access their data as if it were stored on a local device. Behind the scenes, however, the Bethel platform ensures that the data is securely stored and readily available when needed.

- *fileSize* as the size of the input file in bytes.
- *chunkSize* as the specified size of each chunk in bytes.
- *i* as the loop variable representing the current position in the file.
- *chunkFilePath* as the path of the chunk file being created.
- *names* as the slice containing names of the chunks.

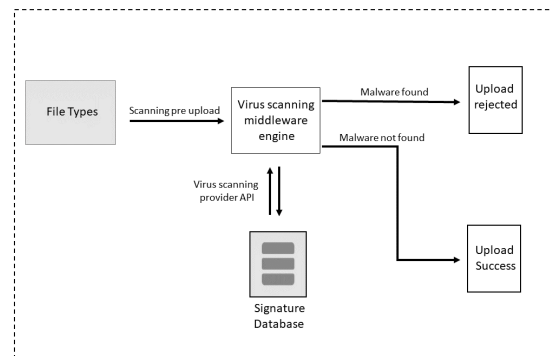
Input: *inputFile* (file handle of the input file)
chunkSize (specified size of each chunk)
hashFile (directory where chunks are stored)

Output: *chunkNames* (slice containing paths of the created chunk files)
names (slice containing names of the chunks)

Procedure: for $i = 0$ to $fileSize$ step $chunkSize$ do
 $chunkFilePath = hashFile / chunk \left(\frac{i}{chunkSize} + 1 \right)$
 create a new chunk file at $chunkFilePath$
 copy next $chunkSize$ bytes from *inputFile* to *chunkFile*
 close *chunkFile*
 append $chunkFilePath$ to *chunkNames*
 append "chunk" $\left(\frac{i}{chunkSize} + 1 \right)$ to *names*
 end for
 Return: *chunkNames*, *names*

The decentralized storage system is built on a peer-to-peer network, where each node participates in the storage and retrieval of data. This not only ensures the redundancy and availability of data but also allows the system to scale organically as the network grows.

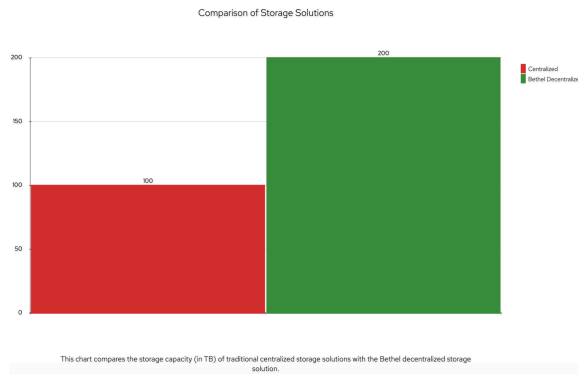
The Necessity of Pre-Upload Virus Scans



Pre-upload virus scanning is an integral security protocol within Bethel Storage, ensuring that the ecosystem is safeguarded from malicious threats. This preemptive measure not only protects individual files but also upholds the integrity of the entire storage network, reinforcing user trust, compliance with stringent data security regulations, and fostering a robust security posture against potential cyber threats.

Furthermore, Bethel's decentralized storage solution incorporates an incentive mechanism to encourage participation in the network. Nodes that contribute storage capacity to the network are rewarded, creating a self-sustaining ecosystem that is both robust and resilient.

In summary, Bethel's decentralized storage offers a transformative approach to data storage, leveraging the power of blockchain technology to provide a solution that is secure, scalable, and efficient.



The algorithm for Bethel's decentralized storage can be represented as follows:

```
def store_data(data, network):
    chunks =
    divide_into_chunks(data)
    encrypted_chunks =
    encrypt_chunks(chunks)

    distribute_chunks(encrypted_chunks, network)

def retrieve_data(data_id, network):
    encrypted_chunks =
    retrieve_chunks(data_id, network)
    chunks =
    decrypt_chunks(encrypted_chunks)
    data =
    combine_chunks(chunks)
    return data
```

File Sharing in Decentralized Storage Systems

In Bethel Storage, file sharing transcends conventional methodologies, embracing a decentralized approach where unique access links or keys are generated for encrypted files. These files can be securely shared and accessed by authorized recipients, with the system ensuring data integrity, access control, and user privacy.

2.2 Use Cases

Bethel's decentralized zero-knowledge storage solution has a wide range of potential use cases across various sectors. Here are a few examples:

1. **Data Backup and Archiving:** Businesses and individuals can use Bethel's decentralized storage for secure and reliable data backup and archiving. The distributed nature of the storage ensures that the data is always available and protected against loss.

2. **Content Distribution:** Content creators and distributors can leverage Bethel's decentralized storage to distribute their content to a global audience. This can be particularly useful for streaming services, online gaming platforms, and other digital content providers.

3. **Secure Document Storage:** Organizations dealing with sensitive documents, such as legal firms, healthcare providers, and financial institutions, can use Bethel's decentralized storage to securely store and share these documents while maintaining privacy and compliance with regulations.

4. **IoT Data Storage:** With the proliferation of Internet of Things (IoT) devices generating vast amounts of data, Bethel's decentralized storage can provide a scalable and efficient solution for storing this data.

5. **Decentralized Applications (dApps):** Developers of dApps can use Bethel's decentralized storage as a backend for their applications, providing their users with a seamless and secure data storage solution.

These are just a few examples of the potential use cases for Bethel's decentralized storage. The flexibility and scalability of the solution mean that it can be adapted to a wide range of other applications across different sectors.

3. Bethel Decentralized Database Storage

3.1 Overview

Bethel's decentralized database storage extends the concept of decentralized storage to databases, providing a robust solution for managing structured data. This innovative approach combines the benefits of blockchain technology with the functionality of traditional databases, resulting in a system that is secure, scalable, and efficient.

In a traditional database system, data is stored on a central server, which can become a bottleneck in terms of performance and a single point of failure. Bethel's decentralized database storage, on the other hand, distributes the data across a network of nodes, eliminating these issues.

Each node in the Bethel network stores a portion of the database, and the data is replicated across multiple nodes to ensure redundancy and high availability. This means that even if a node fails, the data is still accessible from other nodes in the network.

Furthermore, the decentralized nature of the database means that it can scale organically with the size of the network. As more nodes join the network, the capacity of the database increases, allowing it to handle larger volumes of data without a loss in performance.

Bethel's decentralized database storage also incorporates advanced security features. All data stored in the database is encrypted, and access control mechanisms ensure that only authorized users can access the data.

In summary, Bethel's decentralized database storage offers a powerful and flexible solution for managing structured data. It combines the security, transparency, and decentralization of blockchain technology with the functionality of traditional databases, providing a next-generation data management solution.

The algorithm for Bethel's decentralized database storage can be represented as follows:

```
def store_data_in_db(data, db, network):
    encrypted_data =
encrypt_data(data)

    distribute_data(encrypted_data,
db, network)

def
retrieve_data_from_db(data_id,
db, network):
    encrypted_data =
retrieve_data(data_id, db,
network)
    data =
decrypt_data(encrypted_data)
    return data
```


3.2 Use Cases

Bethel's decentralized database storage can be applied in a variety of scenarios across different sectors. Here are a few examples:

1. **Supply Chain Management:** Companies can use Bethel's decentralized database storage to track and verify the movement of goods across the supply chain. The transparency and immutability of the data can help reduce fraud and improve efficiency.

2. **Healthcare Records:** Healthcare providers can use Bethel's decentralized database storage to securely store and share patient records. The high level of security and privacy offered by the platform can help providers comply with regulations such as HIPAA.

3. **Financial Services:** Banks and other financial institutions can use Bethel's decentralized database storage for secure and efficient management of financial data. The platform can help reduce the risk of data breaches and improve operational efficiency.

4. **Government Services:** Government agencies can use Bethel's decentralized database storage to manage public records, such as land registries or citizen databases. The transparency and security of the platform can help improve public trust and reduce corruption.

5. **Decentralized Applications (dApps):** Developers can use Bethel's decentralized database storage as a backend for their dApps. This can provide a scalable and efficient solution for managing application data.

These are just a few examples of the potential use cases for Bethel's

decentralized database storage. The flexibility and scalability of the solution mean that it can be adapted to a wide range of other applications across different sectors.

4. Bethel Decentralized Containers

4.1 Overview

Bethel's decentralized containers represent a significant innovation in the realm of software deployment and distribution. Leveraging the principles of decentralization, these containers provide a secure, efficient, and scalable solution for packaging and distributing software across the Bethel network.

In traditional software deployment, applications are often tied to the specific environment in which they were developed, leading to inconsistencies and potential failures when deployed in a different environment. Containerization addresses this issue by packaging the application along with its dependencies into a standalone unit that can run consistently across different environments.

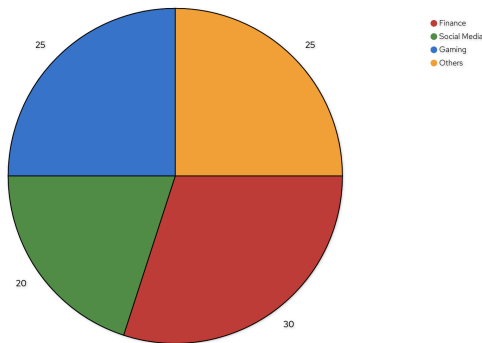
Bethel takes this concept a step further by decentralizing the distribution and execution of these containers. Instead of running on a single server, Bethel containers are distributed across the network of nodes, similar to how data is stored in Bethel's decentralized storage and database systems.

Each node in the Bethel network can run one or more containers, and the workload is automatically balanced across the network to ensure optimal performance. This not only enhances the scalability and reliability of the application but also improves its security, as the decentralized nature of the system makes it more resilient to attacks.

Furthermore, Bethel's decentralized containers are designed to be language-agnostic, meaning they can support applications written in any programming language. This makes the platform highly versatile and accessible to developers with different skill sets.

In summary, Bethel's decentralized containers offer a transformative approach to software deployment and distribution. By combining the benefits of containerization with the power of decentralization, they provide a solution that is secure, scalable, and efficient.

Distribution of dApps on Bethel Platform



This pie chart shows the distribution of different types of decentralized applications (dApps) on the Bethel platform.

The algorithm for Bethel's decentralized containers can be represented as follows:

```
def deploy_container(container,
network):

distribute_container(container,
network)

def run_container(container_id,
network):
    nodes =
find_nodes(container_id,
network)
    for node in nodes:

run_container_on_node(container_
```

```
id, node)
```

4.2 Use Cases

Bethel's decentralized containers can be utilized in a multitude of scenarios across various sectors. Here are a few examples:

1. Software Development and Deployment: Developers can use Bethel's decentralized containers to package and distribute their applications across the network. This ensures consistent performance regardless of the deployment environment and allows for efficient scaling as the user base grows.

2. Microservices Architecture: Companies implementing a microservices architecture can use Bethel's decentralized containers to deploy and manage their services. The decentralized nature of the platform allows for efficient load balancing and fault tolerance.

3. Machine Learning and AI: Researchers and data scientists can use Bethel's decentralized containers to distribute their machine learning models and AI algorithms. This can provide a scalable and efficient solution for processing large volumes of data.

4. Edge Computing: In edge computing scenarios, Bethel's decentralized containers can be used to deploy applications closer to the data source, reducing latency and improving performance.

5. Decentralized Applications (dApps): Developers of dApps can use Bethel's decentralized containers as a backend for their applications. This can provide a scalable and efficient solution for managing application logic and processing data.

These are just a few examples of the potential use cases for Bethel's decentralized containers. The flexibility and scalability of the solution mean that it can be adapted to a wide range of other applications across different sectors.

5. Integration of Advanced Decentralized zkStorage Features

While Bethel is a unique platform with its own set of innovative features, it also integrates advanced decentralized storage features inspired by leading solutions in the field. These features are designed to enhance the functionality of the Bethel platform and provide users with a more robust and versatile decentralized storage solution.

One of these features is the marketplace model for storage. In this model, users with excess storage capacity can rent out their space to others who need it. This creates a dynamic and self-sustaining ecosystem where storage resources are efficiently utilized, and users can earn rewards for their contribution.

Another feature is the use of storage contracts. These contracts define the terms of the storage agreement between the user and the provider, including the amount of storage space, the duration of the contract, and the price. These contracts are transparent and immutable, providing a secure and reliable framework for storage transactions.

Bethel also incorporates advanced proof-of-storage mechanisms to ensure the integrity and availability of the data. These mechanisms allow the platform to verify that the data is being stored correctly and is available for retrieval when needed.

In summary, while maintaining its unique identity and innovative approach, Bethel integrates advanced decentralized storage features to provide users with a secure, efficient, and versatile solution for their data storage needs.

The formula representing the advanced decentralized storage features in Bethel can be represented as follows:

$$S = P * (C + I) / T$$

where:

S = Storage capacity

P = Number of participating nodes

C = Base storage capacity per node

I = Incentive for providing additional storage

T = Time duration of the storage contract

5.1 Advanced Decentralized Contract Features in Bethel

In addition to its unique offerings, Bethel also integrates advanced features inspired by leading decentralized storage solutions. These features aim to enhance the functionality of the Bethel platform, providing users with a more comprehensive and versatile decentralized storage solution.

One such feature is the implementation of storage contracts. These contracts, which are transparent and immutable, define the terms of the storage agreement between the user and the provider. This includes details such as the amount of storage space, the duration of the contract, and the price. The use of these contracts provides a secure and reliable framework for storage transactions.

Another feature is the use of a multi-signature scheme for transactions. This scheme enhances the security of transactions on the platform, requiring multiple parties to authorize a transaction before it can be executed. This helps to prevent unauthorized transactions and enhances the overall security of the platform.

Bethel also incorporates advanced proof-of-storage mechanisms to ensure the integrity and availability of the data. These mechanisms allow the platform to verify that the data is being stored correctly and is available for retrieval when needed.

In summary, Bethel integrates advanced features inspired by leading solutions in the field, providing users with a secure, efficient, and versatile solution for their data storage needs. These features, combined with Bethel's unique offerings, make it a comprehensive and innovative platform for decentralized storage.

The formula representing the advanced decentralized contract features in Bethel can be represented as follows:

$$C = S * D * P$$

where:

C = Cost of the storage contract

S = Storage space required

D = Duration of the contract

P = Price per unit of storage per unit of time

Representing a complex system like the Bethel Platform in a single formula is challenging due to the multifaceted nature of the platform. However, we can attempt to create a high-level formula that captures the essence of the platform's operations.

Let's denote:

U as the user

D as the data

C as the container

SM as the storage marketplace

CO as the container orchestrator

B as the blockchain

SN as the storage node

DN as the deployment node

We can then represent the

operations of the Bethel

Platform as follows:

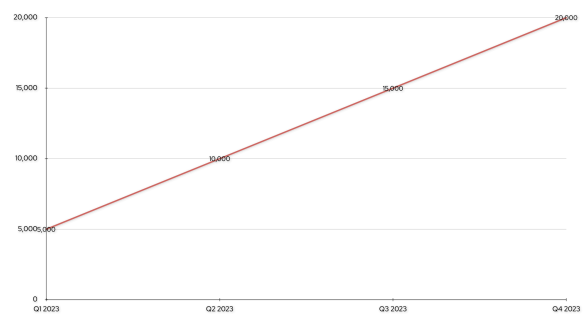
$$BethelPlatform(U, D, C) =$$

$$B(SM(U, D), CO(U, C))$$

This formula represents the Bethel Platform as a function of the user U, the data D, and the container C. The platform is represented as the blockchain B of the storage marketplace SM and the container orchestrator CO. The storage marketplace is a function of the user and the data, representing the process of storing data, and the container orchestrator is a function of the user and the container, representing the process of deploying containers.

Please note that this is a highly abstracted representation and does not capture all the details and complexities of the Bethel Platform. The actual implementation would involve many more variables and operations.

Growth of Bethel's User Base Over Time



This line chart shows the growth of Bethel's user base over time.

6. Conclusion

The Bethel Platform represents a significant advancement in the realm of blockchain technology and decentralized data management. By offering decentralized storage, database storage, and container solutions, Bethel provides a comprehensive and versatile platform that can cater to a wide range of data management needs across various sectors.

Bethel's decentralized zero-knowledge storage solution leverages the power of blockchain technology to provide a secure, efficient, and scalable solution for data storage. The decentralized database storage extends this concept to structured data, offering a robust solution for managing databases in a decentralized manner. Furthermore, the decentralized containers provide a revolutionary approach to software deployment and distribution, ensuring consistent performance across different environments.

The platform integrates advanced features inspired by leading solutions in the field, enhancing its functionality and versatility. These features, combined with Bethel's unique offerings, make it a comprehensive and innovative platform for decentralized data management.

In essence, the Bethel Platform is poised to revolutionize the way we store and manage data. By leveraging the strengths of decentralization, it offers a solution that is not only secure and efficient but also scalable and adaptable to future needs. As we move towards a more digital and interconnected world, solutions like Bethel will play a crucial role in ensuring the secure and efficient management of data.

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