GNUS.AI: Making AI Accessible to Everyone, Everywhere

GNUS.AI

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"The measure of intelligence is the ability to change."-Albert Einstein

Abstract

Historically, access to high-performance computer systems was reserved for large companies with the human, technical, and financial resources to own and manage them. Developers are seeking new tools and methods to handle the data surge, leading to more complex computer solution requirements. A growing number of areas are emerging that depend on these advanced computing solutions.

In response to this growing demand, companies such as Amazon EC2 and Google Compute Engine have recently introduced cloud-based computing services for small and medium-sized developers who need IT resources for a wide range of applications. However, as developers and market demand evolve towards high-level cloud computing, the existing centralized architecture becomes outdated. Distributed computing provides the solution to the problem of scalability: a global computer network is much more powerful than any supercomputer.

This global architecture, unfortunately, does not address the challenge of mediating transactions between users' projects and the computer nodes executing the work. GNUS.ai is a distributed multi-purpose service with a cryptographic payment system allocating computing resources to integrated user projects in real-world use cases, as described in this document. This involves the use of GENIUS tokens to quantify and reward work done on a computer. Specifically, users requiring computer power for any of our services must purchase GENIUS tokens. These tokens can then be exchanged directly for computing power from the network or traded for conventional currency on an exchange.

GNUS.ai is a system and method for distributed general-purpose computing, featuring a cryptotoken payment system that integrates a slow Blockchain Cryptotoken with a fast Directed Acyclic Graph Blockchain Cryptotoken. This provides:

- A Hybrid Cryptocurrency system that allows for high-speed transactions to occur decoupled from the slow operations of normal Cryptocurrencies.
- A mechanism to verify the processing of data and payments to the End User's wallet for the processing of data used for In-App purchases or in-game purchases of items.
- Mechanisms for the transfer of unprocessed and processed data to the client or customer.

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1 Background

Considering the exponential growth of data in our era, industries, academia, and entertainment are realizing the need for a fundamental transformation in the way operations and innovations are carried out. Due to the convergence of several technologies, including ubiquitous wireless communication, real-time scanning, machine learning, and integrated systems, computational robotics is becoming inevitable. Cloud computing has already emerged as a highly demanded service or utility due to its advantages of high computing power, low cost of services, high performance, scalability, accessibility, and availability. The International Data Corporation (IDC) predicts that the high-performance computing (HPC) sector will experience a compound annual growth rate (CAGR) of 27.9%, raising the total market to $103.1 billion by 2027.

1.1 Video and Image Processing

According to Grand View Research, the global visualization and 3D rendering software market size was valued at USD 2.20 billion in 2022 and is expected to grow at a CAGR of 30.6% from 2023 to 2030. 3D visualization devices, virtual and augmented reality and high-end video games fuels this growth.

1.2 Big Data and Business Analysis

The global big data analytics market size was valued at $307.51 billion in 2023 and is projected to grow from $348.21 billion in 2024 to $924.39 billion by 2032. The use of big data is playing a crucial role for the global key players to outperform their competitors across sectors. For instance, in December 2020 Amazon, Inc. launched Amazon Healthlake, a HIPPA-compliant big data analytics service for the healthcare industry that provides real-time patient data. This trend for data analysis will only grow over time as the infrastructure for computing increases.

1.3 Advanced Risk Analysis

The global market for risk analytics is projected to grow from $59.7 billion in 2024 to $180.9 billion in 2029, at a CAGR of 24.8%. Risk analytics is important in the global

market due to its ability to identify, assess, and mitigate various risks that businesses encounter.

New technologies, such as artificial intelligence, allow institutions to improve underwriting decisions and increase revenues while reducing risk costs.
Computer and Block Desktop grids, (such as those that GNUS.AI has developed and patented), can potentially disrupt all clouds, large data, and HPC economics.

Currently, there are some solutions for high-speed processing of transactions via a Blockchain cryptotoken. Some of these solutions attempt to use different techniques to speed up the verification of transactions, but these solutions fail to meet the needs of the industry because the current systems' verification of transactions takes several seconds to several minutes. Other solutions attempt to solve this issue by using Directed Acyclic Blockchain cryptotokens, but still, fall short as decentralized applications are integrated.

2 Blueprint for Distributed General-Purpose Computing with Cryptotoken Payment System

GNUS.AI aims at providing a system and method for distributed general-purpose computing with crypto token payment system which offers a full system that integrates a slow Blockchain Cryptotoken with a fast Directed Acyclic Graph Blockchain Cryptotoken. This technology is based on smart contracts in the form of "Genius Tokens," allowing the creation of a virtual cloud infrastructure that provides high-performance computing services on demand.
GNUS.AI seeks to implement a scalable, high-performance, secure and manageable infrastructure side chain that promotes a new form of distributed management, including key leaders in the computing, large data, and cloud industries.

We believe in the future of decentralized infrastructures and market networks, where Big Data and HPC applications, high-value data sets and computing resources (storage, processors, GPU) are monetized on the blockchain with the highest level of transparency, resistance and security, and Genius Venture as a critical platform for the future.

We are building a highly-scalable hybrid blockchain for every computing need and solution. Be a part of this revolution!

3 Market Challenges and Opportunities

3.1 Blockchain Computing Challenges

Blockchains like Ethereum offer a new approach to decentralized applications (also called DApps). Ethereum allows developers to write smart contracts, which are code that runs in a virtual machine. This represents a potential revolution in the design and implementation of services such as investments, finance, corporate financing, the Internet, insurance, forecasting markets, gambling, distributed data processing, and more.

Despite their unique promise, blockchains offer minimal computing capabilities to run distributed applications: several kilobytes of storage, a very inefficient virtual machine, and a high-latency protocol. In the end, blockchain technology will likely be developed to solve some of these problems, but it is increasingly necessary for all but the simplest applications. The complexity of scalability limitations is revealed by the proliferation of layer 2s and app-chains, high transaction fees, and transaction processing difficulties on high-throughput monolithic chains.

3.2 Traditional Computing Infrastructure Challenges

Existing clouds cannot meet the DApp requirements that require an utterly decentralized infrastructure for their execution. At the same time, industry and scientific communities are increasingly demanding computing power to deploy large-scale applications and manage large amounts of data.

The power of a computer to run large data applications is provided by cloud computing and HPC's high performance. This means that small, innovative companies often lack the resources and experience to acquire and manage HPC platforms. Meanwhile, traditional cloud service providers, such as Amazon AWS, remain very expensive for demanding applications, graphics processing, and others.

Additionally, data centers consume significant amounts of energy to operate servers and cooling systems. This not only incurs high costs but also has a considerable negative impact on the environment. In response, we've developed a new form of decentralized cloud computing that harnesses blockchain technology to reduce infrastructure usage costs.

4 The GNUS.AI Solution

GNUS.AI supports the emerging class of blockchain-based distributed applications and enables cost-effective high-performance computing by constructing a decentralized cloud infrastructure that utilizes Directed Acyclic Graph Blockchain Cryptotokens integrated with decentralized applications.

Our system is unique when compared to other known systems and solutions, as it integrates a slow Blockchain Cryptotoken with a fast Directed Acyclic Graph Blockchain Cryptotoken. Similarly, the software disclosed is unique compared to other known solutions, as it offers a distinctive method for applications and games to utilize unused computing cycles to earn Cryptotokens by processing real data, such as Artificial Intelligence or Machine Learning data.

Typically, other cryptocurrencies and Cryptotokens are earned through mining, which involves using computing devices to solve complex mathematical problems to verify a block on the blockchain. However, this mining does not process real data and is merely a competition to determine who receives the mining payments.

A blockchain-based decentralized cloud, coupled with a hybrid cryptocurrency/cryptoken payment system, facilitates on-demand, secure, and low-cost access to the most competitive computing infrastructures. DApps rely on GNUS.AI to automatically search, find, provision, utilize, and release all the computing resources they require: applications, datasets, and servers.

We envision a new ecosystem of companies offering storage, computer farms, data providers, web hosting, and SaaS applications, all conducting business with each other through GNUS.AI. This localized cloud can open new markets for aggressive utilization of existing computing infrastructures.

4.1 Core Value Proposition

At GNUS.AI, we aim to address the needs of all decentralized businesses as outlined below:

1. DApp providers can perform off-chain computations on demand.
2. Application suppliers can lower the computing prices of their decentralized applications by employing a safe, reliable, and robust infrastructure.

3. Customers can select A.I. or Machine Learning algorithms through a customer portal, and data can be uploaded to customers' secure servers.
4. Stand-alone applications, embedded systems, or games with the SDK integrated can run the processing.
5. Server suppliers can monetize underused computing resources and increase the return on investment on their existing infrastructure by seeking higher profits in providing their servers.
6. The hybrid Cryptotoken system uses a fast internal Directed Acyclic Graph (DAG) based blockchain that executes transactions in microseconds.
7. Development of the SDK is targeted for mobile devices first and can be used on any computer system.
8. The code and SDK work on all devices, including Windows, macOS, iOS, Android, and Linux.

4.2 Decentralized Applications or Cloud Infrastructure Users

GNUS.AI can offer computing resources to decentralized applications at a significantly lower cost than traditional blockchain computing resources, enabling them to deliver more value to their customers. The transparency of resource suppliers can reward reliable suppliers, with integrated Quality-of-Service controls ensuring the required level of computing resources. Support for various resource suppliers and full visibility into partial contributions from each supplier contributes to transparency.

4.3 Genius Token Blockchain

Utilizing unused cycles of Compute Devices on computers, mobile devices, and IOT devices, the system processes Artificial Intelligence and Machine Learning data on an end-user device. The end-user gets paid in Genius Cryptotokens that can be reused for In-App purchases or converted back to other currencies. The entire system easily integrates into a computer or mobile games and applications.

5 Market Overview – Opportunities

5.1 The Perfect Timing

1. The convergence of several trends has created an optimal business environment for a decentralized cloud infrastructure. In addition to the traditional users of cloud computing, the new generation of distributed applications (DApps) is becoming important, changing dynamics, and exhibiting excellent potential for the future.

2. Proof-of-work tokens have led to the creation of large groups of optimized computer resources seeking the highest return on investment (ROI), thus providing significant resources on the supply side.

3. Smart Contracts have reached a point where they can encompass all the complexities of the decentralized computing resource market, significantly simplifying the infrastructure.

The sum of these trends justifies a specific market initiative to launch cloud computing initiatives and be prepared to meet the growing demand for cloud computing resources in the coming years.

5.2 The DApps Market

Smart contracts face certain technical challenges, especially in areas like cross-chain interaction. Currently, different blockchain platforms and ecosystems employ their own smart contract languages and implementation methods, complicating the cross-chain interaction of both smart contracts and decentralized applications (DApps). Addressing how to achieve interoperability and data transmission between different blockchain platforms is a pressing concern. Academic Journal of Computing & Information Science ISSN 2616-5775 Vol. 7, Issue 3: 55-62, DOI: 10.25236/AJCIS.2024.070308 Published by Francis Academic Press, UK -58- fields.

When considering the type of DApps that can make the most computational impact, we must first look at the current DApp trend. 'Blockchain gaming remains at the forefront of the Web3 industry, as evidenced by our latest gaming reports. This quarter is no exception,' reported DappRadar for the first quarter of 2024. 'Blockchain gaming

claims a 30% dominance, attracting around 2.1 million daily unique active wallets this quarter, marking a 59% increase.'

GNUS.AI positions itself as an essential engineering tool, providing DApps with secure, scalable, and straightforward access to computing resources.

We believe that these resources and innovations ensure computational support for a wide array of CPU or GPU-intensive DApps, spanning industries such as gaming, artificial intelligence, cryptography, 3D rendering, and scientific computing.

Our focus initially lies on DApps integrated into a hybrid cryptocurrency/cryptotoken system, forming the cornerstone of our adoption strategy. We envision an ecosystem filled with more valuable and diversified applications leveraging the unique properties of blockchain technology, poised to revolutionize various industries and compete with traditional platforms as they evolve.

5.3 The Edge and Fog Computing Market

Fog computing in IoT is a decentralized computing model that brings computation and data storage closer to the edge of the network. In other words, fog computing moves processing power and data storage away from centralized server farms and into local networks where IoT devices are located, as stated by the International Council of E-Commerce Consultants (2022).

According to Market.us (n.d.), the Global Fog computing market size is poised to grow from $246.9 million in 2023 to $9,698.2 million by 2032, growing at a CAGR of 52.1%.

The Internet of things is rapidly increasing its potential to transform everyday life with homes, cities, farms and smart manufacturing facilities. The prospects for growth in the market are enormous, and Gartner expects that Worldwide IT spending is expected to total $5.06 trillion in 2024, an increase of 8% from 2023, according to the latest forecast.

The development of an Internet-based solution requires cooperation, coordination, and uncompromised connectivity for each part of the system and the entire network. All devices must work together, integrate seamlessly with each other, and communicate transparently and securely with connected systems and infrastructure. Achieving this is possible, but it can be costly, time-consuming, and demands

significant technical expertise and resources. Additionally, ensuring seamless interoperability and robust security measures across the entire network demands meticulous planning, testing, and ongoing maintenance. Despite the challenges, the benefits of a fully integrated and secure Internet-based solution are immense, offering enhanced efficiency, scalability, and agility for businesses and users alike.

6 System Architecture Overview

6.1 The Genius Venture Invention - GNUS.ai

The Genius Venture invention is a system and method for distributed general-purpose computing with a cryptotoken payment system, providing a comprehensive solution that integrates a slow Blockchain Cryptotoken with a fast Directed Acyclic Graph Blockchain Cryptotoken. The instant invention provides:

- A Hybrid Cryptocurrency system that allows for high-speed transactions to occur decoupled from the slow operations of normal Cryptocurrencies.
- A mechanism to verify the processing of data and payments to the End User's wallet for the processing of data used for In-App purchases or in-game purchases of items.
- Mechanisms for the transfer of unprocessed and processed data to the client or customer.

Similarly, the associated software is unique in that it incorporates interfaces that allow applications and games to utilize unused cycles of one or more devices to process real data and receive payments for the processing of data.

6.2 Our Computer Process

6.2.1 Components

- Generic Blockchain Cryptotoken
- Directed Acyclic Graph Blockchain Cryptotoken
- Payment System
- Proof of Work

- Decentralized File System
- Data Delivery/Storage
- Processing
- Communications
- Software Development Kit
- Cryptocurrency Wallet
- Compute Devices

The associated computer process is made up of the following executable steps, all of which are required in all versions:

1. Customer pays currency into a converter system that converts it into a Cryptotoken and sends the transaction to the Generic Blockchain Cryptotoken component, which holds the payment as a deposit. The customer then sends the processed data to the Decentralized File System component which is stored in the Delivery/Storage component.
2. The customer initiates a processing request with the Decentralized File System component's location and the Generic Blockchain Cryptotoken deposit account. The Generic Blockchain Cryptotoken component calculates the cost of processing and reserves that amount of Cryptotoken for processing.
3. The Generic Blockchain Cryptotoken component then deposits equivalent amounts of the Directed Acyclic Graph Blockchain Cryptotoken into the Directed Acyclic Blockchain component.
4. The Directed Acyclic Graph Blockchain Cryptotoken component sends the processing request to the Communication component, which distributes the work to a multitude of End User Devices for processing through the Software Development Kit.
5. The Software Development Kit then sends the request to the Processing component.

6. The Processing component communicates with Compute Devices to process the data.
7. The Compute Devices process the data and send the processed data to the Delivery/Storage component, signaling back to the Processing component upon completion of the processing.
8. The Processing component signals back to the Software Development Kit component upon process completion.
9. The Software Development Kit signals the Communication component that the process for one device is complete.

All processing reports sent to the communication component trigger a signal to the Proof of Work component, which verifies the integrity of the processed data. Upon verification, the Proof of Work component signals the Generic Blockchain Cryptotoken component to release the hold on the Generic Blockchain Cryptotoken. Subsequently, the Generic Cryptotoken sends a signal to the Directed Acyclic Graph Blockchain token to release Cryptotokens to the End User's Cryptotoken Wallet.

6.3 Distributed General-Purpose Computing System

6.3.1 Crypto Payment System

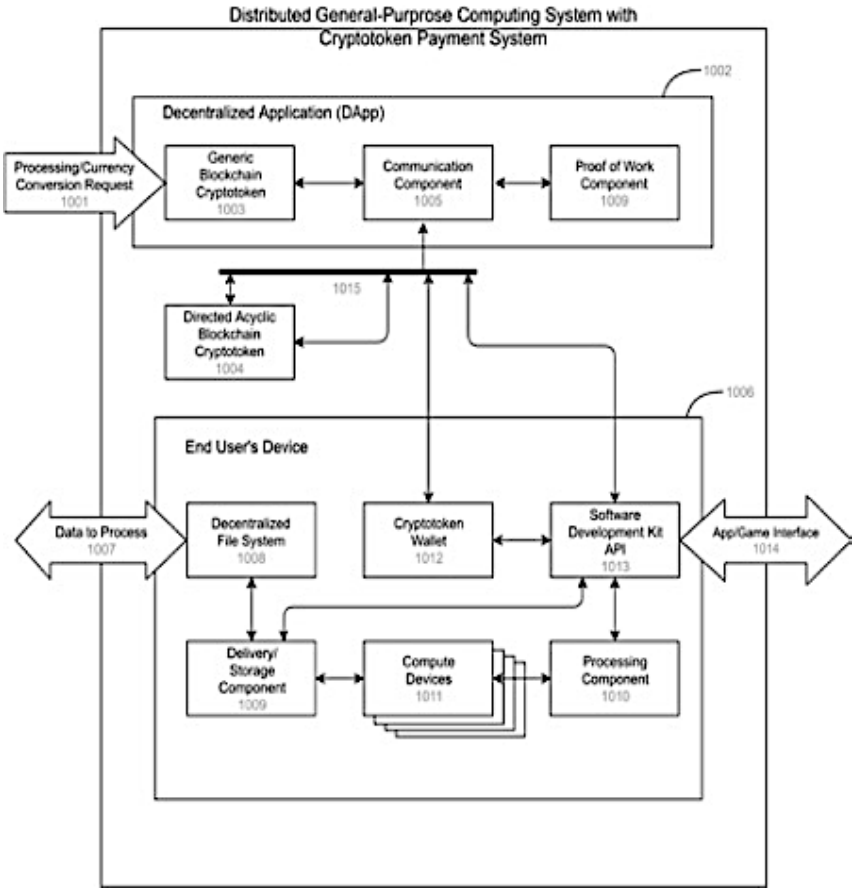

Fig. 1-Distributed General Purpose Schematic Diagram

Decentralized Application 1002

As illustrated in FIG. 1 above, the Distributed General-Purpose Computing System (1000) comprises a Decentralized Application (1002), an End User's Device (1006), and a Directed Acyclic Graph Blockchain Cryptotoken Component 1004. The Decentralized Application (1002) communicates with the End User's Device (1006) and the Directed Acyclic Graph Blockchain Cryptotoken (1004) through the Communication Component (1005) and via a network (1015). This network (1015) may encompass various types, including local area networks (LAN), extensive area networks (WAN), virtual networks, telecommunications networks, cellular networks, wireless LANs (WLAN), and others, facilitating communication among the Decentralized Application

(1002), the Directed Acyclic Graph Blockchain Cryptotoken component (1004), and the End User's Device (1006). It can be implemented as a wired network and/or wireless network, or utilize communication technologies such as Bluetooth, NFC, and others.

The Decentralized Application (1002) consists of three components:

- Generic Blockchain Cryptotoken component (1003)
- Communication Component (1005)
- Proof of Work component (1009)

The End User's Device (1006) encompasses six components:

- Decentralized File System (1008)
- Cryptotoken Wallet (1012)
- Software Development Kit API (1013)
- Delivery/Storage component (1009)
- Processing component (1010)

The Directed Acyclic Graph Blockchain Cryptotoken (1004) operates as a stand-alone component.

(For further information, please refer to the Super Genius technical details.)(Github-Genius.ai)

6.4 Internal Components of the software development Kit API

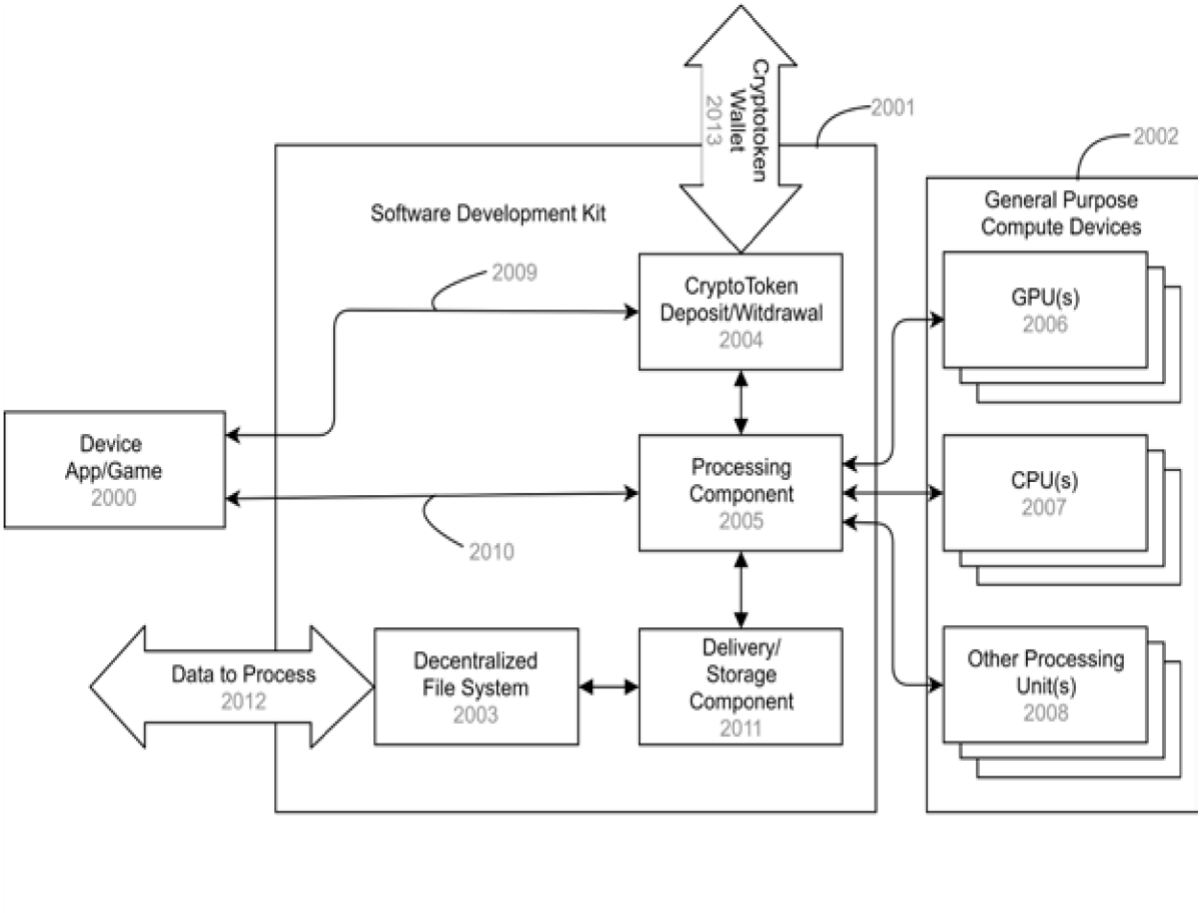

Fig. 2-Software Development Kit (2001)/API(1013) Schematic

FIG. 2, depicted above, presents a schematic diagram detailing the internal components of the Software Development Kit (2001) and the Software Development Kit API (1013). The General-Purpose Compute Devices (2002) represent various computing devices, including Graphics Processing Units (GPUs) (2006), Central Processing Units (CPUs) (2007), and other types of Processing Units 2008. A Device App/Game (2000) is connected to the Software Development Kit (2001) via an Application Programming Interface (API) (2009), (2010). For more information, please see Super Genius Technical Details.

6.5 Customer Transaction

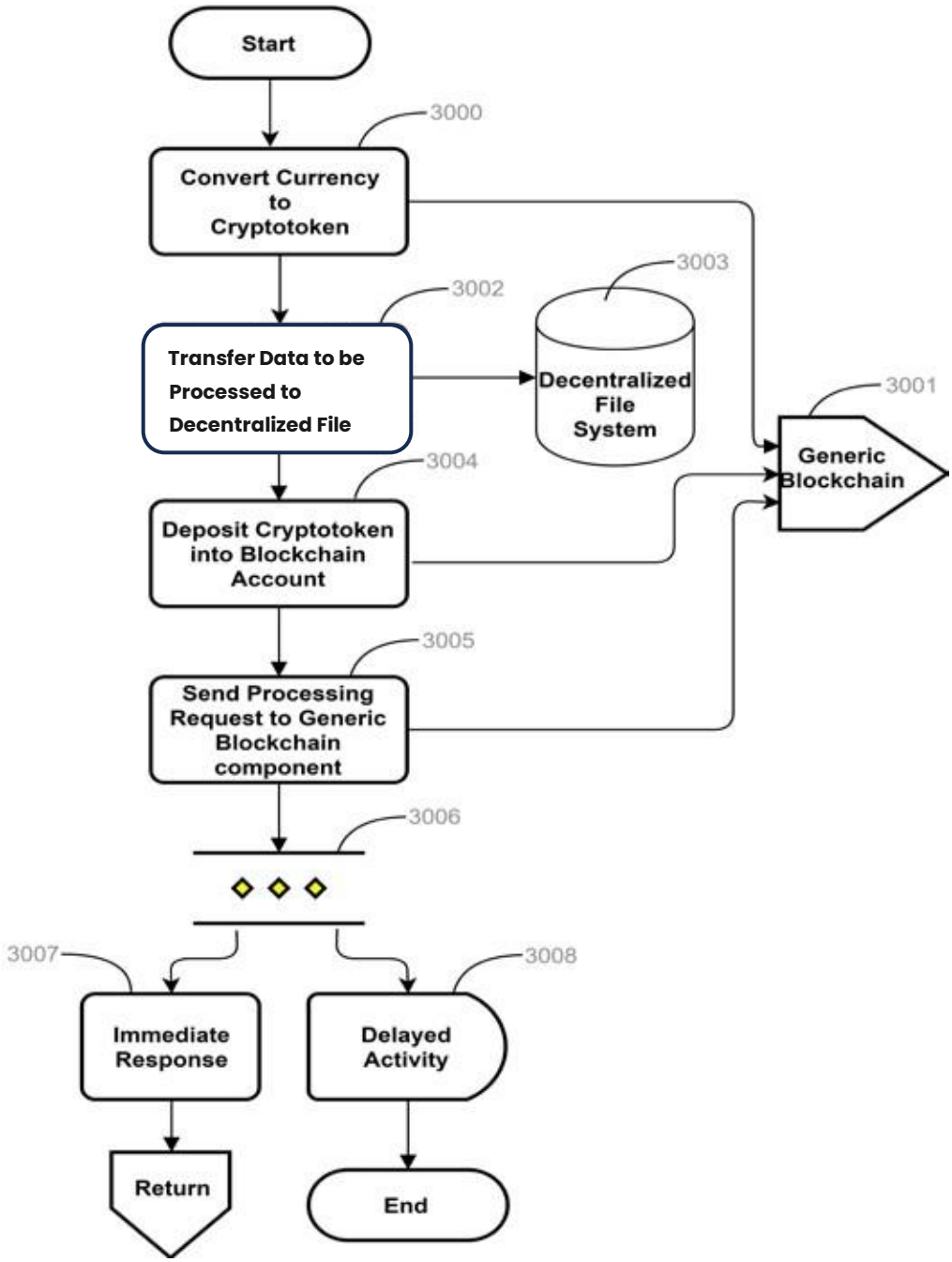

Fig. 3-User Transaction Flow

FIG. 3 illustrates a flow diagram of a typical user transaction, where the user converts any currency to a Cryptotoken (3000), which is then sent to the Generic Blockchain (3001).

6.6 Internal Workings of Request Processing.

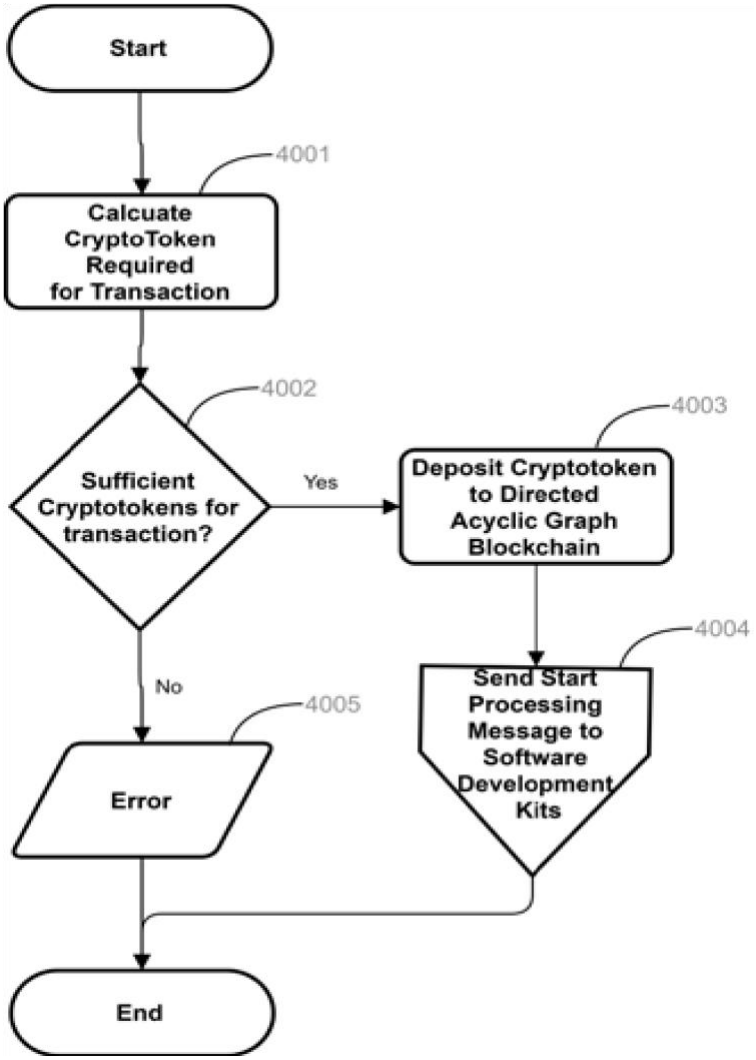

Fig. 4 -DApp Processing Request Flow Diagram

FIG. 4 depicts a flow diagram of the internal workings of the processing request inside the Decentralized App (DApp), where the DApp calculates the amount of Cryptotokens required for this transaction (4001).

The calculation factors in the required processing power and the size of the data to determine if there are sufficient Cryptotokens deposited to execute this transaction

(4002). If there are enough Cryptotokens available, they are transferred to the Directed Acyclic Graph Blockchain (4003). Subsequently, the Dapp sends the processing request to the Software Development Kit API (4004). However, if there are insufficient Cryptotokens, the application aborts and returns an error message (4005).

6.7 In-App or In-Game Purchases

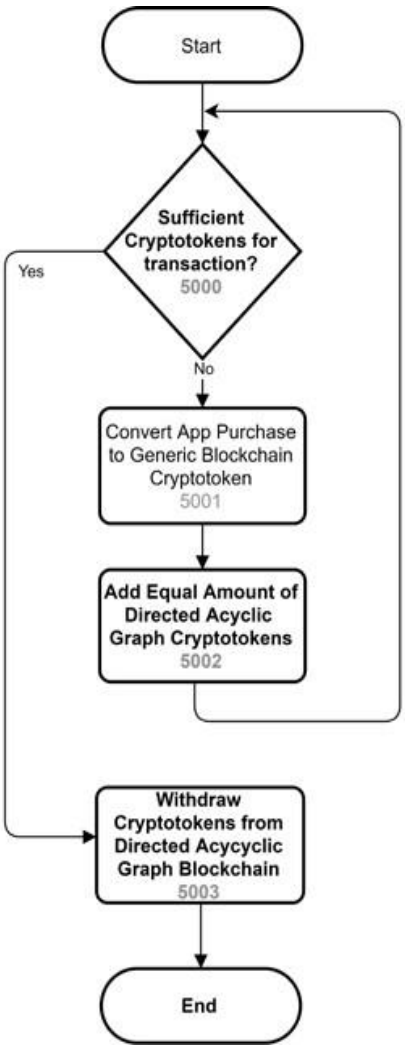

Fig. 5-App/Game Purchase Flow

FIG. 5 presents a flow diagram illustrating how an Application or Game (App/Game) might utilize Cryptotokens for in-app or in-game purchases. Initially, the App/Game checks the user's or player's wallet to determine if there are sufficient Cryptotokens for the transaction (5000). If enough Cryptotokens are available, a withdrawal from the Wallet is initiated (5003). However, if there are insufficient Cryptotokens, an in-app or in-game purchase is made. This purchase deposits a certain percentage into the Blockchain (5001) and then adds equal amounts to the Directed Acyclic Cryptotokens (5002) via a Cryptotoken wallet. The process then rechecks the amount of Cryptotokens available.

6.8 Data Flow

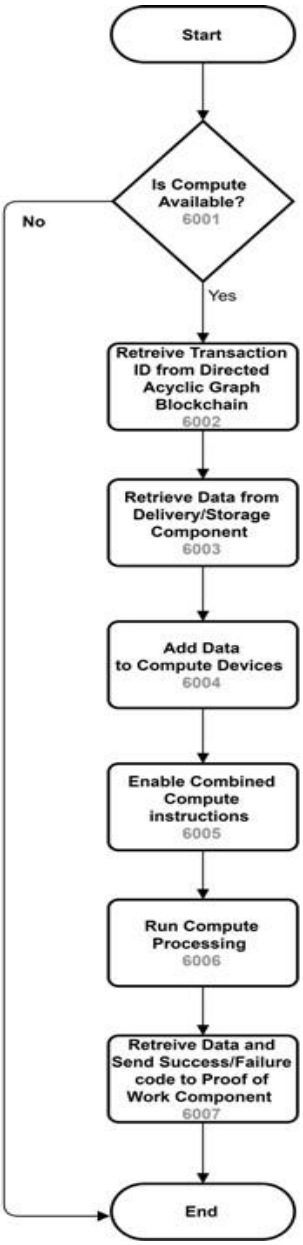

Fig.6-Data Processing Flow

FIG. 6 depicts a flow diagram illustrating the processing of data flow. The first check ensures that the devices have compute devices available for data processing. If not, the flow ends immediately. If available, the process retrieves the transaction ID from the Graph Blockchain system (6002). Subsequently, it retrieves the data from the Delivery/Storage Component (6003) and adds the data to the Compute Devices for processing (6004).

6.9 Verification – Data Processing (Proof-of-Work)

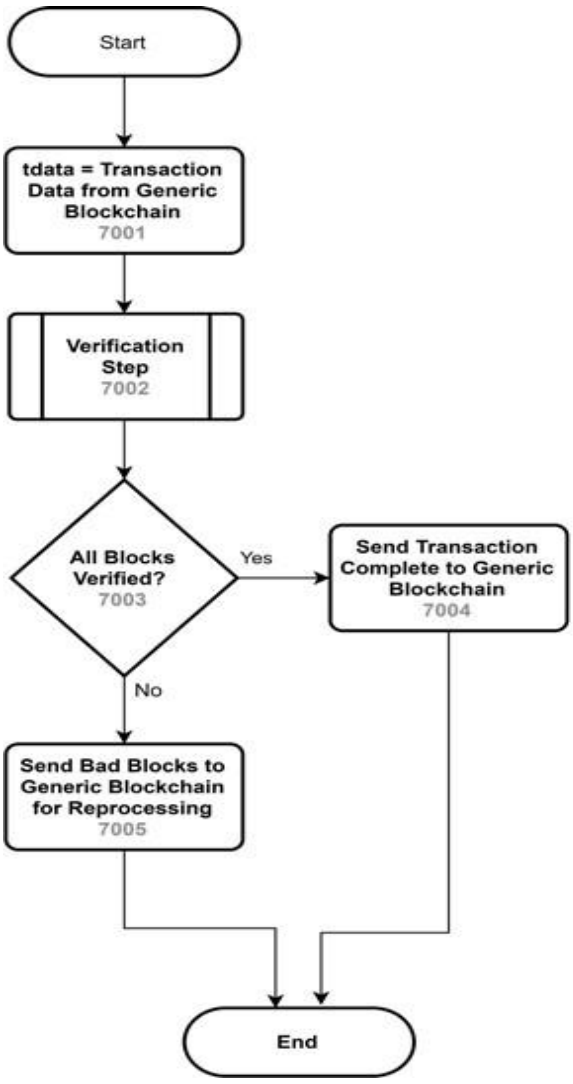

Fig. 7-Data Processing Flow Diagram

FIG. 7 depicts a flow diagram of the verification step to ascertain the processing of all data, also known as "Real Proof of Work." The process begins by extracting the transaction data from the Generic Blockchain (7001) as 'tdata.' Subsequently, 'tdata' is sent to the Verification Step (7002). If the Verification step confirms that all blocks are verified (7003), a message is then sent to the Generic Blockchain indicating the successful completion of the transaction (7004). If not all blocks have been verified, the process sends the problematic blocks back to the Generic Blockchain for reprocessing (7005).

6.10 Verification – Blocks of a Transaction

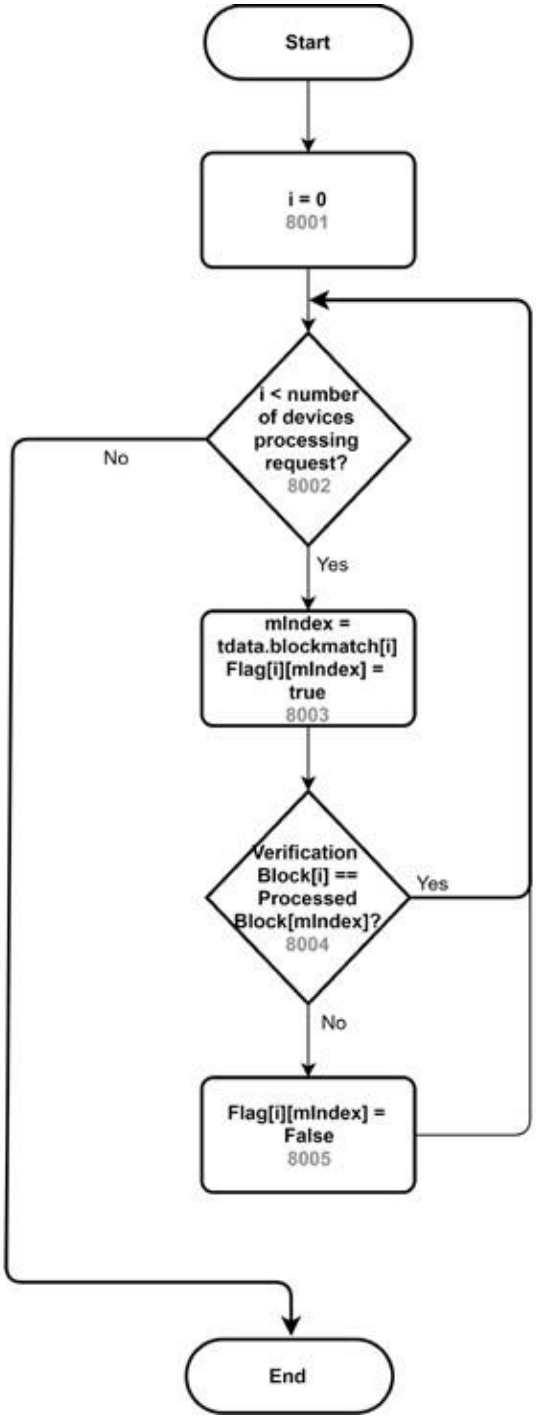

Fig. 8 Verification Block Flow Diagram

Flow diagram Fig. 8 verifies all blocks of a transaction request. For each request, a random block is selected from the verification device, which is a random End User Device. It receives and processes blocks from other devices for verification. A counter 'i' is initialized to 0 as the first block index (8001). The counter 'i' is checked against the number of devices involved. If true, the device is marked as verified (8003). The checksum of the verification block is compared with the random block (8004). If the checksum matches, the system checks the next device. If verification fails, the index is marked as false for the device (8005). This process continues until all devices' random verification blocks are checked, resulting in an array indicating pass or fail for each device.

7 Initial Coin Offering (ICO)

ICOs are a non-regulatory means of raising funds for new companies in the cryptographic field. In 2021 we initiated an Initial Coin Offering (ICO); however, due to the COVID-19 pandemic and subsequent Ukrainian/Russian war, which affected some developers working on the project at the time, we decided to withdraw the ICO. Our focus shifted towards improving our product to better serve multiple vertical markets.

8 Launch Pad

Start-up companies often utilize Launch Pads to bypass the rigorous and regulated capital-raising processes required by venture capitalists or banks. In February 2024, we conducted a presale round that concluded on March 4th, 2024. A total of 150,747 GNUS tokens were sold, and they are vesting daily until August 30th, 2024. You can view all vesting tokens on unvest.io.

9 Centralized/Decentralized Exchanges

In March 2024, GNUS first launched on Bitmart, a well-known CEX. As GNUS.ai expands its reach and user base, additional CEX platforms will be integrated to facilitate wider accessibility and trading opportunities.

The goal of GNUS.ai is to reach as many people as possible and make the greatest impact. Since its launch, multiple chains have been added via Uniswap, in addition to Polygon and Ethereum, which were the first two chains to house GNUS. We are currently listed on:

- Ethereum
- Polygon
- Binance Smart Chain (BSC)
- Base

For a comprehensive list of current contracts, please refer to the GNUS Contract.

Kenneth Hurley

CEO

Kenneth has been in engineering management for more than 25 years. He has earned expertise in leading strategy for technology platforms, partnerships and external relationships. He has built and managed great technology teams and ensures high technical standards throughout the organization.

Brent Arias

CTO

Brent is a software engineering leader, full-stack product developer, cloud architect, and hands-on technologies expert. He drives transformation & improvement across organizational and technical boundaries, over a breadth of industries: financial services, healthcare, IT security, retail, and telecom.

Henrique Klein

SENIOR SOFTWARE ENGINEER/DIRECTOR OF SOFTWARE

Henrique is a phenomenal C++ architect and software engineer and is our acting Director of Software. He has worked in many industries. His background in C++ and embedded systems brings a great degree of expertise.

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