



GAMEAROUND

GAMEAROUND BLOCKCHAIN
WHITEPAPER 1.1



GAMEAROUND

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Introduction

This paper is an initial presentation of the key concepts of the Gamearound Blockchain, a decentralized and distributed NFT gaming blockchain, focused on play-to-earn competitive gaming experiences. This paper will be improved upon as the project develops.

The Gamearound Blockchain is not only focused on players and NFT investors, We are also heavily focused on encouraging other game studios to join the Gamearound Blockchain via the GA SDK, reducing user acquisition costs as well as storage costs via decentralized digital storage.

The Fault in Our Metaverse

Most of the blockchain, metaverse and play-to-earn games currently on the market are just centralized multiplayer games with a built-in connection to a blockchain network to offer players NFT and game assets ownership. While this is a step forward from regular games as players have a much easier time converting in-game assets and currency into real money, it is not the decentralized dream gamers all over the world are being sold.

All the virtual worlds and the content within them, including the player's game data and progress, are stored in a centralized manner. Even in solutions that use decentralized storage, like IPFS, you still depend on game studios paying for the storage pinning (IPFS does not automatically and freely guarantee your files will be preserved), and the real game operates on centralized servers.

This means that even if the NFT and game asset ownership is decentralized, the rest of the experience could fail, as it depends on the existence of the original game company. If the game studio backend fails, maybe because the game studio ends its activities, the player will lose access to all their assets, because the NFT contains only a pointer to this centralized infrastructure, and the metaverse playing depends on the game studio servers.

A true metaverse, which offers actual decentralization of game data, player's data and in-game content etc, can only be created if we address the real challenge which is to create a decentralized games blockchain. At Gamearound, we are building a blockchain in which the game itself, assets, servers, connectivity and game data will be held on the blockchain itself.



Mainstream and Generic Blockchains

Another issue with the blockchain games currently available is that they use generic mainstream blockchains for their tokens and NFTs. This leads to expensive transaction costs, extremely slow transactions, and limited NFT smart contract capabilities due to the nature of these general-purpose blockchains. This is because general-purpose NFTs such as ERC 721 tokens cannot hold anywhere near the level of data needed for a full in-game character with skins, animations etc. to be held within it. In the same way that most games run poorly on generic devices, blockchain games struggle on generic blockchains.

Even layer 2 protocols that have been developed for gaming such as Ronin are a short-term fix for a structural long-term issue, while they achieve low transaction costs, they are more centralized and not as secure as a purpose-built Layer 1.

A truly decentralized blockchain gaming experience must be supported by a Layer 1 blockchain that is optimized for gaming. This means it needs to be able to handle massive volumes of transactions while maintaining low fees, as well as feature dedicated smart contracts tailored for producing in-game NFTs, capable of carrying the amount of data necessary.

A Decentralized Blockchain for Games

The primary goal of the Gamearound Blockchain is to create a distributed and decentralized gaming blockchain, NFT and play-to-earn games, empowering gamers and giving them a fair reward for their contribution to the blockchain. The secondary, but also crucial goal, is to empower game studios to port their games into this new decentralized environment.

The Gamearound Blockchain will do this by building a network of P2P nodes that provide not only the traditional blockchain features (Regular tokens and NFTs) but also storage, database and processing capabilities that are necessary for the gaming experience. Therefore, if a game studio collapsed, abandoned a game etc. the game, its servers and all the data would remain on the P2P node system.

The Gamearound Blockchain's implementation of these four key features, (storage, database, processing and traditional blockchain features) is optimized for blockchain gaming and built around the real-life requirements for the implementation of the four key features in current gaming experiences.

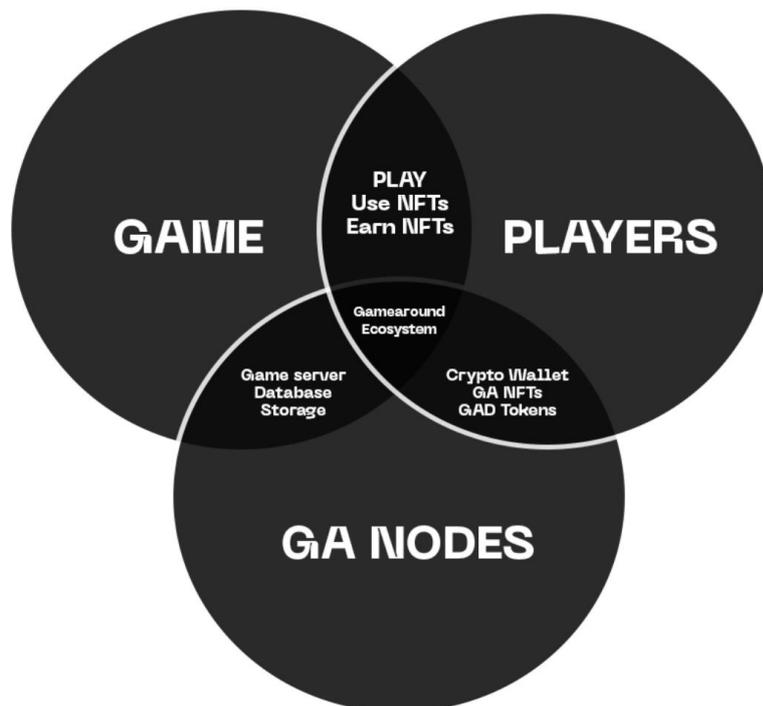


A New Paradigm for Games

The Gamearound Blockchain creates a new decentralized paradigm in the games industry, as it integrates the games infrastructure, the developer and the player in a single decentralized environment. By promoting the actors that are involved in fulfilling the gameplay experience, as well as those who provide value to the blockchain.

In the Gamearound Blockchain, anyone can own and maintain a node, whether you are a gamer, an investor, a developer, or a person interested in supporting the blockchain, and they will all get fairly rewarded for the essential work they do to maintain the blockchain.

All of the games' key infrastructure, (game download, assets storage, data storage, gameplay mechanics etc.) are supported by the decentralized chain of GA Nodes. They will be capable of storing and running PC, mobile and web games, and store in-game assets and NFTs.



The Gamearound Blockchain

Five key concepts were considered for the creation of the Gamearound Blockchain:

Decentralized: All game features and life cycles are based on a decentralized network of nodes, thus games can survive without their developer's support, as well as the blockchain without Gamearound itself.

Game optimized: All features supported by the nodes, must be optimized for games, including the nodes themselves, and run on devices typically used by gamers

NFT and Token-based: All features must natively use and connect with the in-game NFTs and crypto tokens on the Gamearound Blockchain, that will be used for digital asset ownership, as well as authentication, security and anti-cheating.

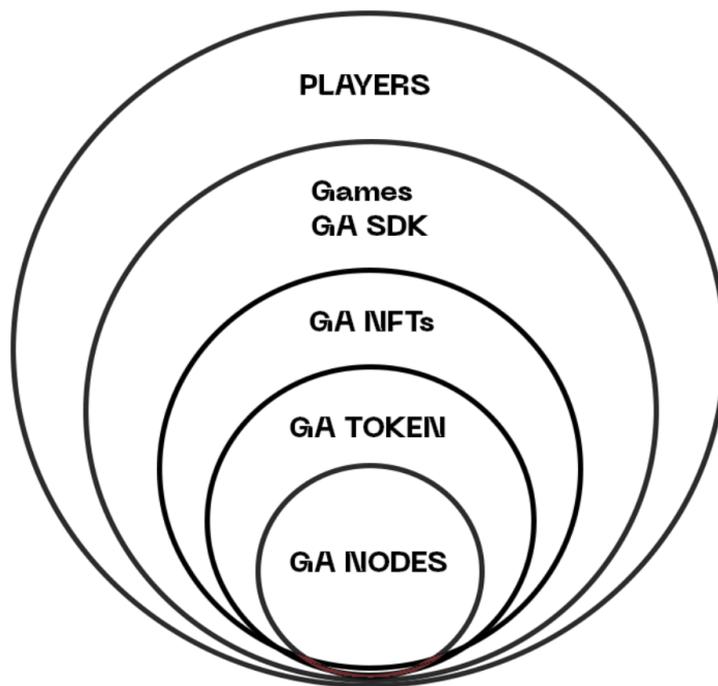
Play-to-earn: A Player's in-game items and currencies, as well as the game itself, must be owned by the player and easily tradable for other Cryptocurrencies, as well as off-ramp (Take out of Cryptocurrency).

Economy: All the actors involved in the Gamearound Blockchain economy: game developers, game studios, live ops teams, nodes owners as well as the gamers themselves; are fairly rewarded for their contribution to the gaming experience.

These five concepts are implemented in a design based on layers that overlap each other forming a blockchain focused primarily on serving the player, but also on fairly rewarding other contributors.

The GA Network of GA Nodes is the base level decentralized infrastructure that implements the blockchain, storage, database and processing capabilities necessary for a truly decentralized gaming experience. On top of this framework, game developers use our GA SDK (Software Development Kit) to implement in their games, the necessary features for a truly decentralized gaming experience to be enjoyed by the players.





The Gamearound Node

The GA Node is the building block of the Gamearound Blockchain. It is an application that runs on a typical computer connected to the internet, using Windows, Mac or Linux.

The GA Nodes find and connect to each other, forming a P2P (peer to peer) network of decentralized nodes and supporting each other in maintaining the game's infrastructure.

All the nodes run on the same application, capable of providing storage, processing, database and blockchain services for the Ecosystem. While all the nodes will run on the same application, there will be two different types of GA Node: GA Open Node and GA Staked Node. Both will be free to run, however, the GA Staked Nodes will require a certain threshold of stake in the network, this is because they will be the ones that validate transactions; hence they must have a financial incentive to validate the transaction correctly which is greater than the incentive of being a malicious actor on the Gamearound Blockchain.

A GA Open Node will store data and still contribute heavily to the maintenance of the network, however, they will not receive the PoS rewards. Instead, to incentivize open nodes to stay up and running, the wallet connected to each node will receive a share of the Nodes Maintenance Pool (NMP) distribution.



Distributed and Decentralized Storage

The GA Nodes implement a robust distributed and decentralized storage solution optimized to store:

- NFT images and NFT in-game assets.
- Game assets and user-generated content.
- Game builds for download.
- Web games hosting

The storage is distributed using a unique identifier for each asset (like IPFS) but is also decentralized, as no single entity controls the content storage, and all the content is stored in multiple nodes along the network to provide constant availability and global proximity.

Distributed and Decentralized Database

The GA Nodes implement a non-relational distributed and decentralized database to store persistent player and gameplay data, including:

- Game backend data.
- Gameplay persistent data.
- Player profile and progress information.
- Game LiveOps data.
- Game leader boards and competition data.

The GA Nodes form a single global distributed and decentralized database, where the game data is stored and distributed to maintain the data availability, and reduce the data access time.



Distributed and Decentralized Processing

The GA Nodes implement a distributed and decentralized game optimized real-time processing virtual machine that can be used for:

- Gameplay virtual servers.
- Multiplayer services.
- Game API services.
- Blockchain access, and NFT and Token transaction services.

The nodes distribute the code base and form clusters of decentralized virtual machines to run the game backend with no central authority or single point of failure. Each gameplay session runs independently, and the clusters that will implement the virtual server are formed in real-time by nodes.

Game Optimized Blockchain

The GA Nodes implement a lightweight blockchain optimized for games, with smart contract capabilities, allowing the deployment of:

- \$GAD coin/token.
- In-game NFT optimized smart contracts.
- Game specific smart contracts.
- Other consensus specific applications.



Gamearound Nodes Consensus

One of the key aspects of any decentralized system is the consensus mechanism. When you decentralize the storage, data, processing and monetization, anyone can potentially hack a node and create a version that tries to manipulate or overcome the initial purpose of the decentralized system. This is an issue in any blockchain, including the largest such as Bitcoin and Ethereum.

The solution in general terms is to make the cost to hack the network, by compromising one or more nodes, much higher than the benefit of this action. Also, to make the effort to produce this action is unreasonable in practical terms. This means that Bitcoin or Ethereum are technically hackable, but the cost and resources necessary to do so is immeasurable, preventing it from being a real option.

To solve this problem, there are many different solutions, the first one is Proof of Work (PoW), the consensus mechanism of Bitcoin, where each node competes to solve a computer heavy crypto puzzle, to validate each block. The winner nodes then submit the solution to the other nodes that can easily verify its validity. This solution proves to be effective, but it depends heavily on powerful dedicated, expensive hardware, and a lot of energy consumption; and all the energy used by competing nodes that don't win each block is wasted.

The second one is Proof of Stake (PoS), where one node is randomly selected to be the validator, and to guarantee the solution is valid (not manipulated) a group of nodes, named the GA Validation Committee, confirm the solution. This mechanism reduces the need for high-end computers and high energy consumption and relies on the stakeholders and the nodes that are financially compromised (staked) on the blockchain, to guarantee a majority consensus.

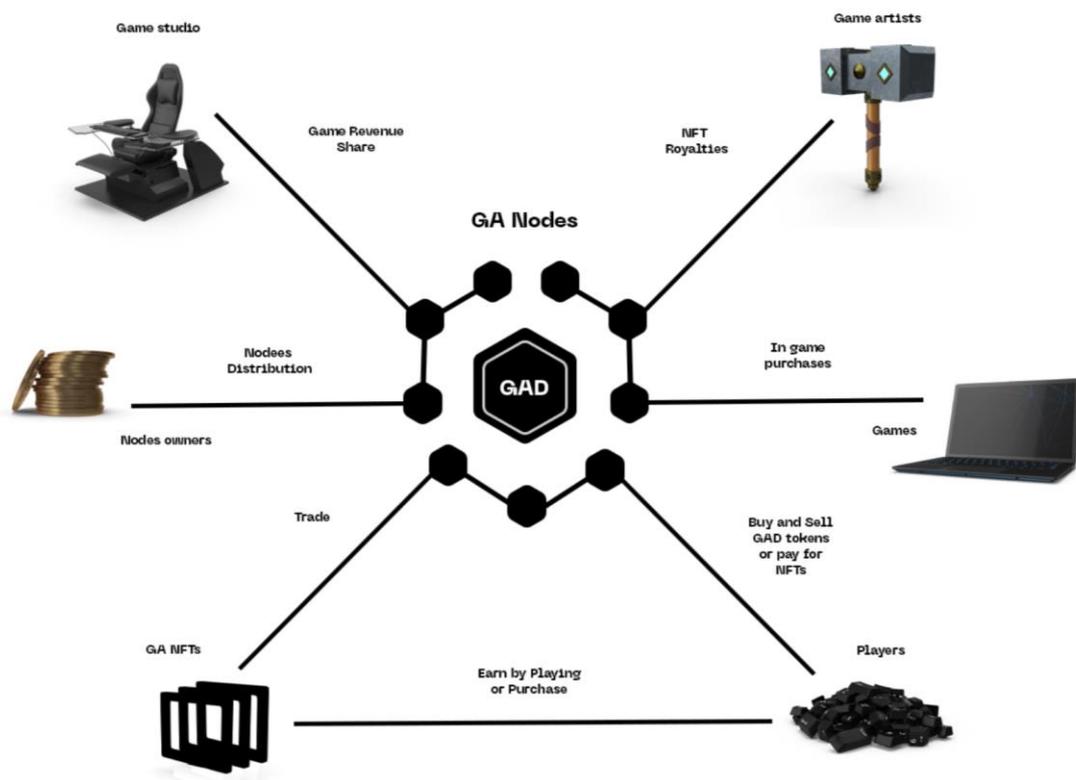
But there are also several new consensus algorithms being developed and tested that could lead to better consensus mechanics in the future. GA Nodes use PoS as its consensus mechanics, and zero-knowledge proof as verification protocol, validating all the storage, database, processing and blockchain transactions on-chain.

Another use of consensus within the GA Network is the threshold of stake in the network necessary to run a GA Staked Node. As the contribution of each node to the network, meaning its uptime and work in securing the network, is crucial for the Gamearound Blockchain economy, this availability will be measured and audited using a committee and the PoS consensus. This way we can improve the node mining and reward system by considering a valid availability measure.

Gamearound Blockchain Economy



The key philosophy of the Geararound Blockchain's economy is that it must fairly reward all the actors involved in the blockchain, such as game developers, game studios, live ops teams, nodes owners and investors and crucially; the gamers themselves. The cornerstone of the Geararound Blockchain economy is its built-in currency \$GAD. \$GAD provides the liquidity layer to allow exchanges between in-game digital assets and NFTs and a mechanism for paying the storage, processing, database and transaction fees.



The Gamearound Blockchain economy is based on GA Nodes that distribute \$GAD tokens to the blockchain stakeholders. The main guidelines are:

- Game Studios

- Contribution: Develop and publish games using GA SDK.

- Reward: Receive a share of the revenue in \$GAD by player expenses and NFT sales.

- Node Owners

- Contribution: Deploy, host and manage GA Nodes.

- Reward: Receive daily \$GAD based on each node activity.

- Players

- Contribution: Buy NFTs and \$GAD. Play games and build user-based content.

- Reward: Earn tradable NFTs by playing and winning in-game assets. Convert their user-based content into tradable NFTs. Trade NFTs for \$GAD tokens.



\$GAD Built-in Currency

The Gamearound Blockchain network uses its built-in currency, \$GAD, which supports all the digital assets exchanges and fees payment. For the denomination of fractions, we will use the Unified Code for Units of Measure, which is based on ISO and SI, which will help to give a universal understanding of the currency fractions. The main fraction denominations are pre-labelled as:

- 1 atto = $1e-18$ \$GAD
- 1 pico = $1e-12$ \$GAD
- 1 micro = $1e-6$ \$GAD
- 1 milli = $1e-3$ \$GAD
- 1 \$GAD = 1 \$GAD

The fractions atto and pico will be used mainly for development, the micro and milli will be used in fees and microtransactions, and \$GAD will be used on regular transactions.

A specific \$GAD white paper will be released in due time, including the details about the currency, supply, insurance, and general tokenomics.

\$GAD Liquidity

A common issue at the initial stages of any blockchain system is liquidity. It is easy to buy the cryptocurrencies and assets, using another tradable crypto (BTC, ETH) or fiat (Dollars, Euros, Pounds), but sometimes it is hard to convert these tokens back to a more stable cryptocurrency when you want to cash out. This is usually solved in the latter stages of the project, or in times when the market is incentivized by new opportunities to provide liquidity.



To minimize this issue, and incentivize game studios, GA Node owners and GA gamers to provide liquidity to \$GAD, we will manage a liquidity fund for \$GAD exchanges. This fund will receive a predefined percentage of the income funds, so each time an actor buys \$GAD in BTC, Ether, or Fiat (Dollars, Euros, Pounds), we will automatically deposit a percentage of this amount to the Liquidity Fund. Periodically, and based on the market price, we will post buyback trade offers to the Gamearound Blockchain, so its members will have the opportunity to convert \$GAD into another tradable cryptocurrency or fiat.

The Liquidity Fund will be composed of three separate funds, one for game studios, one for GA Node owners, and one for players, this ensures a fair balance of liquidity opportunities between each stakeholder is maintained. This will allow work with different liquidity rates, depending on the contributions of each actor on the Gamearound Blockchain.

We will also deploy a wrapped \$GAD token on Ethereum, and other Ethereum-based (EVM compatible) blockchains, to allow direct conversions (1 to 1) from the \$GAD token on the Gamearound Blockchain, and tokens based on other blockchains, again improving access to liquidity.

GA Node Economy Overview

To help the expansion of the network, which is beneficial for all the actors involved on the Gamearound Blockchain, we will support two different types of node in the same application: GA Open Nodes and GA Staked Nodes.

GA Open Nodes

Gamearound Open Nodes are free to download, install and connect. The user downloads the node software, installs it, sets up the node wallet, and runs it. The node will be connected to the Gamearound decentralized nodes network.

The GA Network algorithm will randomly select a Committee of GA Nodes to monitor, validate and certify one GA Node's activity. This way each GA Node will have different GA Nodes in its Committee that will change frequently. As the GA Nodes in the Committee will certify one GA Node activity, it will also be able to ban this GA Node from the network, in case any irregular or dangerous activity is detected. This will avoid the free GA Nodes being used to hack the GA Network.

Note that a GA Open Node is not part of any Verification process or the Committee, and it is only verified by the PoS consensus. This means that a GA Open Node contributes to the network's maintenance and expansion, but does not receive any PoS mining rewards. To incentivize GA Open Nodes to stay up and running, the node wallet will receive a share of the Nodes Maintenance Pool (NMP) distribution. The NMP distributes small amounts of \$GAD to the node's wallets. NMP distribution is based on each node's certified availability.



GA Staked Nodes

Gamearound Staked Nodes are also free to download, install and connect. The difference is that GA Staked Nodes are free nodes where the owner staked a minimum threshold of \$GAD staked in the GA Network. Once the GA Open Node is registered at a Registry NFT with this Staked transaction, it becomes a GA Staked Node and can be part of the GA Validation Committee pool. This means that the transaction from Open to Staked Node is automatic and based on a certain threshold of \$GAD in the wallet connected to the node.

A GA Staked Node is part of the PoS GA Validation Committee process hence it will receive PoS mining rewards, this is intended to incentivize the upgrade to GA Staked Nodes, and strengthen the PoS consensus.

To guarantee the stability and fairness of the system, once a GA Node is staked, the staked amount will be held for a predefined period and can only be withdrawn under specific conditions.

Genesis Members

As the developers of the Gamearound Blockchain, we believe early supporters of the blockchain deserve to be rewarded as it grows, regardless of whether they are developers, node owners, gamers, or cryptocurrency investors. The way we are doing this is by giving these early adopters a chance to join the Genesis Guild, which will give them a financial stake in the Gamearound Blockchain.

By buying one of the 4350 Genesis NFT membership cards that will be sold, early adopters of the Gamearound Blockchain can join the Genesis Guild, this comes with special privileges in the Gamearound Blockchain, as well as giving holders of the NFT a financial stake in the Gamearound Blockchain. These rights will grow in time as the Gamearound Blockchain develops, for a more detailed look at the GA Genesis Guild project and the rewards for guild members, please read the GA Genesis Guild whitepaper on the Gamearound website <https://gamearound.com/genesis>.

