LIGHTPAPER

JULY 2022

TABLE OF CONTENTS

INTRODUCTION

1. Foreword: Our Story in a Nutshell

We are gamers at heart who wanted to build our own game. We wanted it to be decentralized, to give more power and control to gamers.

But we also believed that at the core of any great game is gameplay — and existing blockchain games simply couldn't compete due to their technical limitations. So, we set out to create a blockchain game that was just as playable as our favorites.

But we encountered some big challenges. The first was the development engine. We wanted a simple way to develop a decentralized game on Unity. But it didn't exist. So, we built it...

The second was performance. We wanted to develop a game that eliminated the latency issues caused by smart contracts. We wanted to enable more complex logic at far greater speed. But it didn't exist. So, we made it happen...

That's when we realized this is about more than just one game — it's about ALL games. Why not share our platform with others to accelerate the development and adoption of high-quality decentralized games? Why not make these games interoperable, to create a wider ecosystem of in-game assets? Why not empower gamers to own and control their assets? Why not give gamers a greater stake in the future of the games they love?

This was the birth of Ajuna.

2. Ajuna at a Glance

Ajuna is a decentralized gaming platform that delivers real value to gamers, without compromising on gameplay. It makes the world's leading development engines — Unity and Unreal — fully integrated with the world of blockchain based in-game assets. Now gamers don't have to choose between real value and real games — Ajuna gives them both.

- **Real Value:** Gamers can own and control in-game virtual assets through a public and decentralized blockchain. Never again will their hard-earned weapons, clothing and items be rendered worthless by the decisions of game company executives.
- **Real Games:** Ajuna games can be created with industry-leading development platforms, while latency is massively reduced by running game engines in powerful, off-chain trusted execution environments (TEEs) linked to the Polkadot blockchain network.

3. Introduction to Ajuna

There used to be a very simple relationship between game developers and players. The game studios conceived and created the games and gamers played them. Computer games were more or less like any other type of product, involving a simple transaction between a producer and a buyer.

Over time, however, this relationship has evolved. It started in LAN clubs on college campuses, where groups of gamers met to play FPS games like Doom and Duke Nukem. As internet adoption rose, online communities formed dedicated to sharing mods and custom levels for their favorite RTS games like Command & Conquer. As internet connections got faster, MMORPGs like RuneScape emerged where the online community was the central characteristic of the game.

Fast forward to today, and for many games, the online community has become the defining attraction. Yet, the old power dynamic between games companies and players remains the same: you pay, you play, we earn, we decide. Popular games with active playing communities can be taken offline at the stroke of a pen, leaving gamers locked out of their favorite games, and rendering the DLC content they bought worthless. Gamers spend hundreds of hours of their time building and enhancing online worlds and receive nothing but platitudes in return.

The game has changed, but the industry has not. We need to reboot. We need a computer games industry that values the contribution of the gaming community with more than just words.

Blockchain-based games promise a decentralized alternative where gamers have a voice in the future of the industry and can share in the value they create. The sector is growing fast. A recent report showed that blockchain-based in-game collectibles accounted for $2.32 billion in sales in Q3 2021, representing 22% of all NFT trading volume. The report also illustrates rapidly accelerating adoption, with the number of gaming wallets increasing 2,453% in the first three quarters of 2021.

THE NEXT ERA OF GAMING

1. Digital Property

Long before social media became part of our lives, gamers were already identified by their nicknames and in-game avatars. Players have been spending their nights and early mornings fighting, competing, and exploring games for treasures and unique gear, and customizing and improving their virtual avatars for glory and fame amongst their friends and teammates. Fast forward to today, and this practice is exploding with the global online microtransaction market expected to grow to $51.09 billion by 2025. But the current market is centralized, owned, and controlled by the publishers. Players are left with a one-sided market interaction: buying. For example, players can spend years to reach special achievements and acquire in-game items but are not able to monetize their assets or their invested time. In addition, the functionality of these assets can be altered by game developers without the consent of players or rendered completely worthless if the underlying game is taken offline.

We are about to step into the next era of gaming, where immersive experiences will close the gap between reality and virtual worlds, where online is a persistent state, and digital property becomes part of your real-world wealth.

2. Blockchain Gaming's Limitations

Despite the crucial importance of an active and engaged gaming community, the current games industry fails to value the essential role of gamers in building these communities and co-creating the gaming experience. Blockchain-based games promise an alternative but have failed to gain widespread adoption due to their rudimentary gameplay and slow performance.

All the focus is on monetization rather than gameplay, while limitations caused by the speed of smart contracts on decentralized networks result in slow, simplistic, and outdated looking games that are a pale imitation of their rivals. As a result, many of the blockchain games listed on sites like DappRadar can only muster a relatively small number of active players. A good idea badly executed is still a bad experience for gamers.

If games aren't fun, players won't play.

3. The Gaming Community

Games like Cyberpunk 2077 have made it clear that not involving the community in game development can cause significant reputational damage. A lack of community feedback can often lead to a product that doesn't match user expectations. Just like a social network without any members, if an online game doesn't have an active player base, it is worthless. Furthermore, games like Minecraft and Fortnite demonstrate that gamers are no longer merely passive consumers, but co-creators of the gaming experience.

4. Developers and Studios: Steep Learning Curve, Poor Performance

Developers seeking to enter the decentralized gaming market are faced with two central challenges.

Unity and Unreal, the leading global game engines, are not integrated with blockchain out of the box. As a result, developers seeking to create blockchain games are often faced with a steep learning curve and hundreds of hours of additional development time.

The technical limitations of smart contracts on decentralized networks can result in poor performance and significant latency issues. As a result of these factors, many blockchain games are hampered by graphics and gameplay that is slow, unsophisticated, and outdated compared to conventional games.

5. The Problem

In order to change the status quo, we need the creative minds behind games to embrace, experiment and ultimately utilize all that blockchain technology can offer. To achieve this, game developers need a simpler way to integrate blockchain-based assets into their games, without needing to learn new languages or change their development tools. The same holds true for the gaming community at large. Gamers can play a new role in both game development and the in-game experience. Ajuna was created to understand and solve these problems.

- Technological barriers are still a big issue for game studios entering into the blockchain space. Among others: lack of blockchain competence, the challenge of choosing the right platform, limited access to blockchain developers, smart-contract knowledge... Solidity, Ink, Rust, Consensus, Signing, Hashing, Encrypting...
- The global gaming market is still unexplored in terms of real digital property and ownership. While blockchain games address this, current games cannot compete in terms of user experience or competitive game play.
- Community building is becoming increasingly difficult without incentivizing your core audience. Breaking through the noise is both expensive and time-consuming.
- Fundraising has always been a big issue for small to mid-sized game studios, which are often dependent on a big publisher that controls their creative output and takes a big stare of their revenue.

6. The Ajuna Solution

CONNECT: We remove barriers

By seamlessly integrating the world's leading development engines — Unity and Unreal — with blockchain, we empower game developers to work in their natural environment. This gives them the opportunity to start building in minutes rather than months.

BUILD: We provide digital property and functionality

We equip game studios with a universal foundation for developing blockchain games by providing on-chain features in a toolbox manner. This enables developers to build responsive, fully decentralized games with complex logic. Ajuna delivers the benefits of blockchain, without the technical complexity.

LAUNCH: We involve stakeholders from day one

We enable game studios to leverage our growing ecosystem for fundraising. In addition, we offer an easy go-to-market strategy (support fundraising strategy, connect with fundraising network, design of token economics, use of Ajuna marketing channels, access to gaming community, etc.) and support the project through its entire life cycle (NFT incentivization, special editions, access to tournaments, community management, etc.), providing everything necessary to launch quickly and efficiently on our ecosystem cycle

GROW: With underlying future proof technology

Grow with Substrate's future-proof technology and Polkadot's shared security. Ajuna Network is a fully functional, trusted, and secure blockchain whose sole purpose is to provide essential needs and functionalities for gaming. As the network and ecosystems grow, so will Ajuna's interoperability on multiple levels: within its own ecosystem and all games running on Ajuna and across the Polkadot ecosystem. But also beyond, thanks to the many multichain interoperability initiatives currently underway with other Layer 1 protocols.

7. We build on the best

We are 100% committed to the Polkadot ecosystem. We have received grants from the Web3 Foundation's Open Grant Program, and we are participants in Parity Technologies' Substrate Builders Program. But most importantly, Polkadot's future-proof technology and shared security model allows us to build on our own full-featured blockchain.

THE AJUNA NETWORK

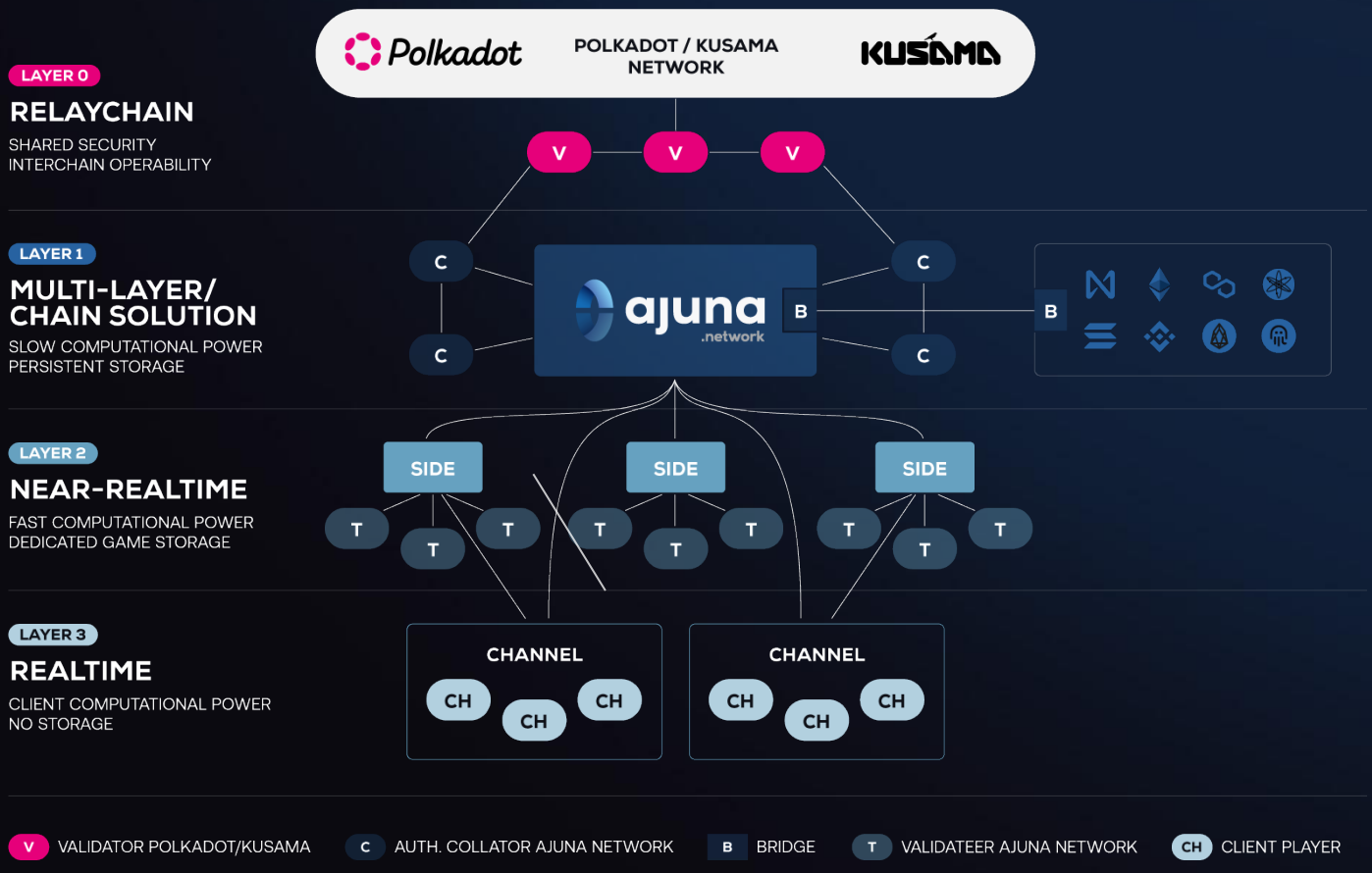
1. Introduction

On Polkadot, any type of data can be exchanged between any type of blockchain on the network. Interaction with external protocols like Ethereum is very well supported, unlocking a wide range of use cases. One of Polkadot's key benefits is that it provides strength in numbers by enabling many blockchain networks to pool their security resources.

The Polkadot Relay Chain will provide Ajuna with shared security and interoperable access to the whole ecosystem of other chains. Trusted execution environment (TEE) technology, supplied by our partner Integritee, enables entire game engines to be hosted on a fast and scalable sidechain layer. In addition, state channels are used to support the highest requirements in terms of user interaction and are enhanced through a TEE dispute layer.

By seamlessly integrating these three layers, Ajuna Network is able to offer an unmatched user experience on the client/player side and negate the need for traditional server infrastructure for game studios, all while ensuring decentralization at an unseen level. Additionally, Ajuna lowers implementation costs by enabling studios to use familiar development infrastructure and programming languages. As a result, our solution has the lowest barrier to entry for game developers and studios in the entire blockchain gaming ecosystem.

2. Technology



2.1. LAYER 0: Polkadot/Kusama

Polkadot is the first fully-sharded blockchain that enables scalability by allowing specialized blockchains to communicate with each other in a secure, trust-free environment.

It is built to connect and secure unique blockchains, whether they be public, permissionless networks, private consortium chains, or other Web3 technologies. It enables an internet where independent blockchains can exchange information under common security guarantees.

2.2. LAYER 1: Ajuna Parachain

Parachains[1] are next-generation layer-1 blockchains that put the 'multi' in multichain, forming the backbone of the Polkadot network and creating a free alliance of sovereign chains. Polkadot is the layer-0 protocol that underlies and supports this network of layer-1 parachains.

Specialization

As a parachain, Ajuna Network can fully focus on its main purpose of providing a platform for decentralized gaming applications. This involves providing a dedicated layer-1 solution and multiple additional layers for maximum usability. By operating Ajuna Network on a parachain, we can solely focus on our core purpose of becoming the most full-featured gaming platform in the Polkadot ecosystem and the blockchain space.

Flexibility

As a parachain, the only technical requirement for Ajuna Network is that it must be able to prove to Polkadot validators that every block follows the agreed protocol.

> *Beyond that, the sky's the limit for designing the perfect gaming blockchain platform.*”

Substrate's modular approach gives Ajuna Network much greater flexibility compared to competing platforms based on smart contracts. When building on a smart contract layer, developers are locked into the design decisions of the underlying blockchain, which may not be optimal for their use case. A parachain allows Ajuna Network to tailor the logic of the underlying layer-1 chain to blockchain games, unlocking far greater possibilities, and enhanced scope for optimization.

> *The flexibility of the parachain model enables the broadest possible permutations of blockchain technology, fueling innovation in Web3 and overcoming the limitations and pitfalls of previous blockchain networks.*”

[1] Sources:
https://substrate.io/technology/
https://polkadot.network/parachains/

Interoperability

As a parachain, the Ajuna Network can communicate with blockchains of differing design. Polkadot's interoperability, also known as cross-chain composability, means blockchains are no longer isolated islands closed off from each other. Parachains end the era of siloed blockchains and isolated networks, creating a decentralized, connected internet of blockchains.

Crucially, Polkadot allows parachains to exchange not only tokens but any type of data, opening up broad possibilities for in-game assets, such as cross chain usability. This could enable thousands of virtual environments to be linked. Digital items will become central to the value and prestige of your personal virtual identity.

Security

New blockchains typically need to bootstrap their own security by building a network of validators or miners. This is an incredibly difficult and time-consuming process, and many blockchains are left with a level of security that leaves them vulnerable to attacks.

Parachains get robust security automatically when connecting to Polkadot. This built-in security feature, also called shared security, provides newer blockchain teams with bank-like security at minimal effort on their part. It also gives them fewer barriers to entry and significantly reduces the time necessary to launch a new network.

Upgradability

We live in a world of constant innovation, where technology is advanced one day and out of date the next. Like all software, blockchains need periodic updates to add new features, fix bugs, and incorporate more advanced technologies as they become available. But upgrading conventional blockchains is a laborious process often involving ‘forking’ or splitting the chain, which slows innovation and sometimes rips communities apart. Substrate offers forkless runtime upgrades, which allows the functionality and performance of the chain to be updated, without the need to fork.

Ease of development

Substrate is the primary Polkadot parachain SDK and helps teams to significantly reduce the time and complexity of building a parachain. Developers can take advantage of pre-built modules for common blockchain components that can be mixed and matched like building blocks to create a custom parachain best suited for their use case.

2.3. LAYER 2: Ajuna Side Chain

Slow block times can result in sluggish interaction times and poor performance for users. In addition, game engines often require privacy, complex game logic, heavy computational power and real randomness. To solve those needs, Ajuna has developed a unique second-layer solution that harnesses the power of TEEs. Moreover, all game logic can be deployed using familiar, native programming languages (such as C#, C++, and Rust), while being horizontally scalable. The TEE technology that Ajuna uses is based on a collaboration with its strategic partner Integritee

Fast Execution

Ajuna's TEE solution, presented at the Sub0 Conference in October 2021, demonstrated that an interaction time of 300ms is easily achievable. While this level of speed is unrivaled, a further decrease is to be expected in the upcoming months

Player Privacy

One of the main challenges associated with fully decentralized games is how to maintain privacy while retaining control of malicious gameplay. Common workarounds include hashing and revealing approaches, which work out but only give a validation in a later state of the game. Ajuna's Sidechain solves this challenge elegantly, since TEEs were built specifically for this purpose.

Complex Game Logic

Traditional games have a requirement to implement complex game logic, which enables more competitive and challenging gameplay. Implementing complex logic on a layer-1 network is inefficient, hampers performance, and increases network costs. Furthermore, it remains limited by the fact that you have to use smart contract language, which is restrictive in multiple ways.

Ajuna's sidechain implements the simplest solution: You can use native programming languages to create your own game logic, and deploy code written in C#, C++, Rust and more.

Heavy Computational Power

Certain game concepts may require heavy computation. This could pose significant performance problems in other blockchain environments. Ajuna's sidechain provides a dedicated trusted enclave with off-chain workers to overcome these limitations.

Real Randomness

> *Random numbers cannot be generated natively in Solidity due to the determinism of blockchains. (link)* ”

Randomness is a key factor for gameplay. Even when you build deterministic game engines, you will need randomness in the input seed.

Ajuna's sidechain TEE has access to a good source of entropy to build a high-quality random number generators. The RDRAND instruction provides access to the hardware implementation of the underlying digital random number generator (DRNG).

Horizontally Scalable

In gaming, a solution is only good if it can scale. This is particularly important to enable multiplayer support and given the projected growth of the sector to encompass millions of players.

Ajuna's sidechain supports sharding and can rapidly spin up additional shards or even assign more validators to the shards that are under heavy load.

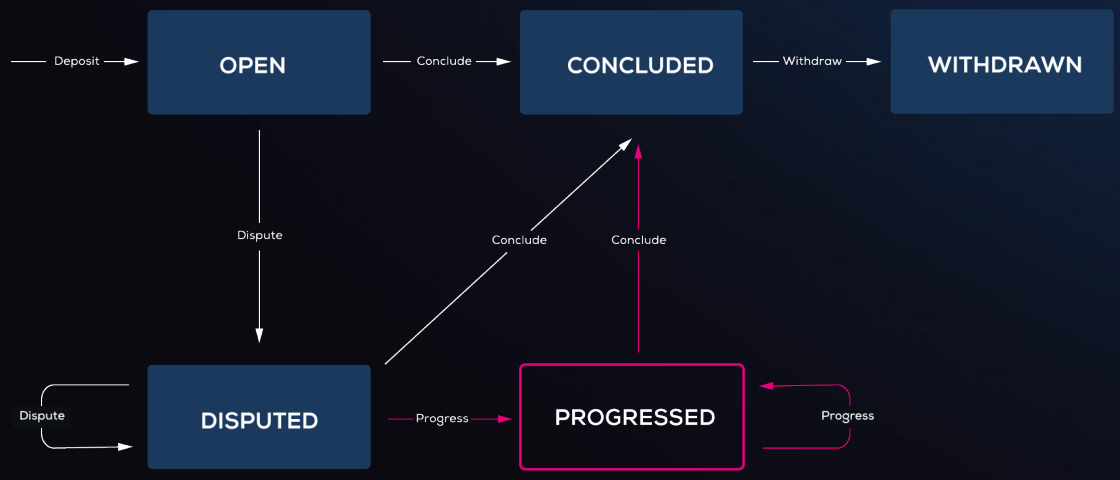
Ajuna's sidechains are secured and calculated by dedicated Ajuna TEEs (validators).

2.4. LAYER 3: Ajuna State Channels

Ajuna state channels are built on top of the Perun Channels, in collaboration with Perun Network. The existing implementation for Polkadot implements payment channels, which are extended to generalized state channels. These are able to execute generic logic in addition to payment transactions.

Ajuna Network integrates state channels when direct communication in real time is required and the need for privacy is lower, such as for gameplay. The key benefit of state channels is that they can use TEEs as a dispute layer, solving the challenge of having to implement all state transition logic for the channel on a layer-1 dispute.

A channel is opened when funds are deposited into it. Once opened, it can be updated off-chain as many times as necessary. When the in-game activity ends, the channel is closed again, and the funds are withdrawn and distributed to the appropriate players. For example, after a battle, the funds might be distributed to the winning player. If the outcome of the in-game activity is disputed by the players, it can be resolved via a dispute resolution mechanism hosted on a TEE. The channel will remain open, and funds will not be withdrawn until the dispute has been resolved (W3F Grant Proposal).



Source

2.5. MULTICHAIN: Solution

Ajuna Network offers a unique solution that enhances any blockchain gaming experience independent of its current chain integration. By bridging gaming ecosystems built on other chains to Ajuna Network, games and markets can access a fully decentralized game engine infrastructure and profit from Ajuna's functionalities - independent of their initial ecosystem choice. Bridging to Ajuna Network is differentiated into three different use-cases,

- substrate-based chains (e.g., octopus network)
- EVM based chains like (e.g., Ethereum)
- non-EVM based chains (e.g., bitcoin)

There are already different approaches that offer the functionality of bridging. Ajuna Network evaluates the most efficient solution to provide seamless integration in terms of interaction time and user-friendly experience.

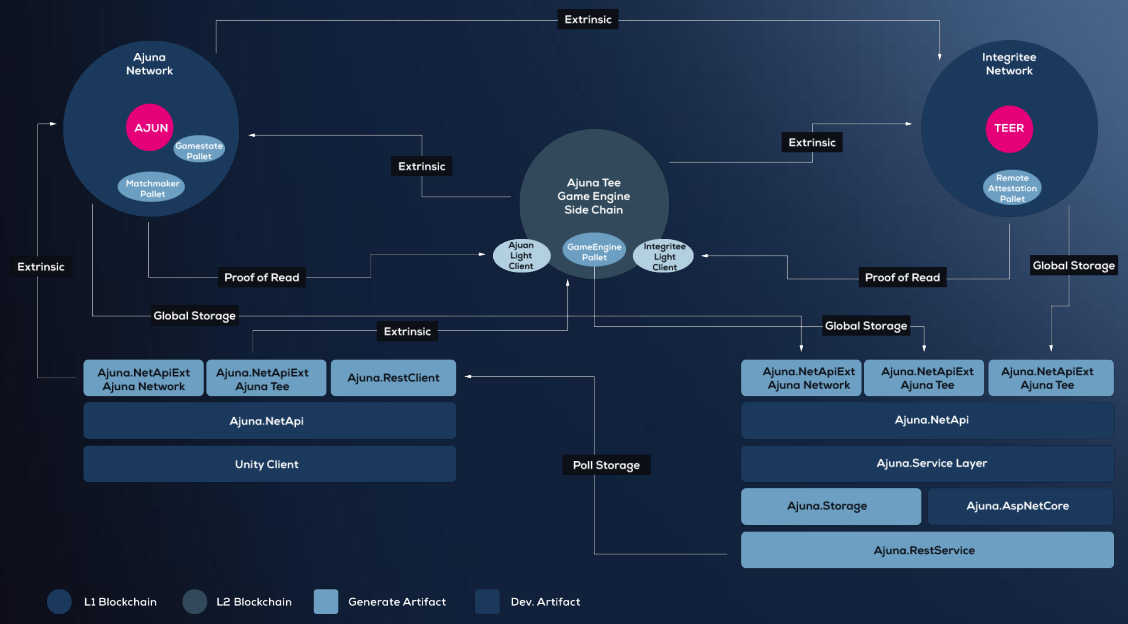
The current solutions, that are focused on:

- Trusted execution bridges (link)
- ChainBridge (link)
- Snowbridge (link)
- Parity Bridges (link)

The Multichain solution is targeted to scale Ajuna Network to further ecosystems and beyond.

In a second approach, Ajuna Network elaborates on making the Layer 2 and Layer 3 blockchain agnostic by implementing multiple light clients to provide a solution for other Layer 1 ecosystems, where Ajuna's parachains would act as the single point of service registration for those integrations.

3. Client Integration



Ajuna Network has developed and maintains the only full-featured Substrate .NET API that conforms to NET Standard 2.0. This provides the core framework for seamless integration into any application layer that supports NET Standard compatibility.

Version:
.NET Standard 2.0

Supported

.NET Implementation	Version Support
.NET and .NET Core	✗ 1.0 ✗ 1.1 ✔ 2.0 ✔ 2.1 ✔ 2.2 ✔ 3.0 ✔ 3.1 ✔ 5.0 ✔ 6.0
.NET Framework	✗ 4.5 ✗ 4.5.1 ✗ 4.5.2 ✗ 4.6 ✔ 4.6.1 ✔ 4.6.2 ✔ 4.7 ✔ 4.7.1 ✔ 4.7.2 ✔ 4.8
Mono	✗ 4.6 ✔ 5.4 ✔ 6.4
Xamarin.iOS	✗ 10.0 ✔ 10.14 ✔ 12.16
Xamarin.Android	✗ 7.0 ✔ 8.0 ✔ 10.0
Universal Windows Platform	✗ 8.0 ✗ 8.1 ✗ 10.0 ✔ 10.0.1 ✔ TBD
Unity	✔ 2018.1

Source

An early version of the API was made open-source as part of Ajuna's first Web3 Foundation Open-Grant in Wave 9 (DOTMog). During the last year, Substrate has improved and significantly evolved. As such, one of the major new features of Substrate was the added pull request (Enrich metadata with type information) in October 2021.

Since then, the API has evolved into an automated artifact generator, based on a model-driven approach. This allows users to generate specific integration artifacts in seconds, which are unique to their needs, and instantly usable.

- **Node Extension:** extending the base API to match the node.
- **Storage Extension:** adding all storage access.
- **REST Service:** creates the REST Service for a specific node.
- **REST Client:** creates the REST Client for a specific node.

3.1. Unity Support

Unity supports two .NET profiles: .NET Standard and .NET Framework. Each profile provides a different set of APIs so that C# code can interact with .NET class libraries. The API Compatibility Level property has two settings:

- .NET Standard: .NET Standard 2.0, as published by the .NET Foundation.
- .NET Framework 4.x, as published by Microsoft, plus additional APIs in .NET Standard 2.0.

Unity recommends, for cross-platform compatibility, to set the API Compatibility Level to .NET Standard. Where possible, Unity supports the APIs in the .NET Standard profile on all platforms. The .NET Framework profile includes all APIs in the .NET Standard profile and additional APIs, some of which might work on few or no platforms. Therefore, Ajuna provides every library intended for clients in .NET Standard 2.0. This ensures the best possible cross-platform compatibility.

Managed plug-in compilation target	API Compatibility Level	
	.NET Standard 2.0	**.NET 4.X**
.NET Standard (any version)	Supported	Supported
.NET Framework (any version)	Limited Supported	Supported
.NET Core (any version)	Not Supported	Not Supported

Support for managed plug-ins compiled for .NET Framework is limited when you use the **.NET Standard** profile in Unity. Any . NET Framework APIs that are also present in .NET Standard are supported. However, the .NET Framework API contains types and methods that are not availablein the **.NET Standard** profile.

Source

3.2. Unreal Support

Unreal support is provided through UnrealCLR. This plug-in natively integrates .NET hosts into the Unreal Engine using the Common Language Runtime to directly execute managed code. As a result, game/application logic can be built using the full power of C# 10.0, F# 6.0, and .NET facilities via the Unreal Engine API. The project is optimized for stability, performance, and maintainability.

Integrating the Ajuna artifacts as NuGet packages offers full independence from the compilation pipeline of assemblies.

UnrealCLR is designed to be flexible and extensible. The plug-in transparently manages the core functionality of the runtime, binding and caching the engine API for managed environments. The programmer has full control over execution flow through code and blueprints that allow the application to dynamically weave native events of the engine and its objects with managed logic. There are no hidden states, and the order of execution is not obscured behind the lifecycle of scripts.

3.3. Extending Support

Ajuna Network is currently evaluating other game engines, so that as many projects as possible can run on and integrate with Ajuna. This will also allow game developers to have the greatest possible scope for their future projects.

We are closely observing the market and will expand to support the integration of further relevant game engines. We are working to integrate the following engines in upcoming months:

- Godot Engine (link)
- CryEngine (link)
- Bevy (link)

4. In-Game Assets

In principle, there is no compulsory NFT Standard for projects launching on Ajuna Network. Developers are free to use whatever standard they wish. However, Ajuna offers predefined services, which only allow a certain amount of flexibility in choosing an NFT Standard. Thus, it may be beneficial for projects to integrate Ajuna's common standard in order to access all related services and integrate NFTs from other games.

4.1. Paratoken Standard

The Paratoken Standard is a unified interface that can represent any number of fungible and non-fungible (NFT) assets. Each ID may represent a new configurable asset type, which may have its own metadata, supply, and other attributes.

4.2. RMRK Standard

There will be pallet and smart contract versions of all RMRK 2.0 logic, and partner chains will be integrated to enable cheap and easy transfer of non-fungibles across dozens of chains.

AJUNA TOKEN ECONOMICS

1. Token Quick Facts

Ajuna will operate on two Substrate-based blockchains, Kusama and Polkadot. For clarity, on Polkadot the network will be referred to as Ajuna Network, whereas on Kusama, it will be referred to as Bajun Network. Bajun Network, which operates on a Kusama parachain, is the Sister Network of Ajuna Network and is a fully functional, independent network. Compared to Ajuna, Bajun has an easier slot leasing strategy to support smaller game studios and even independent groups of game developers. Hereafter, if not explicitly mentioned, when we speak of Ajuna Network or the Ajuna Network ecosystem, we also implicitly speak of Bajun Network.

On each of these networks, the Ajuna ecosystem will encompass three types of tokens: the primary utility tokens (AJUN/BAJU), game tokens, and the Trustscore token:

- The **AJUN token** will be the primary utility token of the Ajuna Network, used to access its services and for governance and staking mechanisms. **BAJU** will be the equivalent token on Kusama. While BAJU's token economic behavior will be the same, token supply and distribution are different in order to support the unique goals and attributes of the network.
- **Game tokens** will be used to pay for Ajuna's or Bajun's transaction fees generated by a specific game.
- The **Trustscore token** will be used as the basis of a reputation system to determine the trustworthiness of players and guard against malicious activity. It will not be tradeable and therefore has only in-game value.

1.1. Polkadot Ecosystem

AJUN is a utility token with a fixed supply of 500,000,000. The entire supply will be minted in the genesis block at launch.

- **Deployment Network:** Ajuna Network
- **Relay Chain:** Polkadot
- **Token Name:** Ajun Token (AJUN)
- **Anticipated Launch:** Q1 2023
- **Small Unity:** PICO (10^12) = 1 AJUN
- **Genesis Token Supply:** 500,000,000

1.2. Kusama Ecosystem

BAJU is a utility token with a fixed supply of 50,000,000. The entire supply will be minted in the genesis block at launch.

- **Deployment Network:** Bajun Network
- **Relay Chain:** Kusama
- **Token Name:** Baju Token (BAJU)
- **Launched in:** Q3 2022
- **Small Unity:** PICO (10^12) = 1 BAJU
- **Genesis Token Supply:** 50,000,000

2. Ajun Token (AJUN)

AJUN is the primary token of the Ajuna Network. AJUN is a cryptoeconomic primitive and native token that serves 3 key purposes:

1. It is the primary utility token for Ajuna Network.
2. It is used for governance processes on Ajuna Network.
3. It is used for staking and growth locking.

2.1. Utility

AJUN serves as a utility token across the all core functions of the Ajuna gaming platform.

- pay transaction fees generated by smaller games.
- incentivize network nodes to compute game logic that operates across the entire Ajuna ecosystem.
- allow game studios/devs to deploy new games on Ajuna Network by locking a certain amount of AJUN. Later, this will be handled through an auction, comparable to the Polkadot parachain auctions.
- pay all kinds of services offered on the Ajuna Network, including:
  - Token swaps
  - Fees to participate in tournaments & events
  - Trust Score System
  - In-game auctions
  - Premium & season passes
  - Store (NFTs and other extras)

2.2. Governance

AJUN is also used for the governance of the Ajuna network. Holders of the AJUN token are granted voting rights. This allows token holders to vote on proposals regarding AJUN Treasury governance, which can include*:

- Election of the members of the treasury council
- Upgrades and proposals (on-chain governance)
- Upgrades to the network and new decentralized gaming applications, hence empowering the community to be an active part in the development of the Ajuna Network
- Ajuna feature and upgrade requests and in-house games

* Starts once governance module is deployed

2.3. Staking and Growth Locking

The AJUN token can be used for staking or for the support of new games launching on the Ajuna Network.

- Token holders who stake AJUN are rewarded with AJUN tokens and GAME(s) tokens. These rewards are financed by levying a percentage of the player fees of the AJUN and GAME(s) tokens. In addition, stakers can also be rewarded with NFT's from Ajuna games.
- Token holders can stake AJUN in support of certain gaming projects, thereby supporting their favorite new games to secure a Gaming Chain slot on Ajuna. This mechanism operates in a similar fashion to Polkadot parachain crowdloans.

3. Baju Token (BAJU)

BAJU is a crypto economic primitive and serves 3 key purposes: First Utility Token of the Bajun Network, second the Governance of the Bajun Network and lastly Staking and Growth Locking.

3.1. Utility

BAJU's Role for Game Developers and Studios

1. Deploy games on a Game Chain: For Web3 games to achieve widespread adoption, they have to be competitive with traditional games in terms of speed and performance. Bajun provides access to second-layer side chains called Game Chains that massively reduce gameplay latency compared to conventional blockchain titles. Developers who want to deploy a game on a Bajun Game Chain need to stake BAJU to secure a slot.

2. Issue a native token: A Bajun Game Chain slot is also required in order to issue a native game token. Native game tokens are used to access and pay for all Bajun services related to a specific game. They also provide the game with a more distinctive identity and open up a wider array of options to the developer when establishing an in-game economy.

3. Pay network fees: Some smaller indie developers may wish to deploy games on Bajun that are less demanding in terms of speed and processing power. For instance, turn-based strategy games tend to have lower requirements in terms of latency. In these cases, the developer may opt not to use a side chain layer and to pay for Bajun transaction fees directly with BAJU instead.

BAJU's Role for Gamers

1. Access Gaming Services: For gamers, BAJU will open the door to a wide array of gaming services including tournaments, in-game auctions, season passes, and NFTs. In addition, BAJU will be required to access the Trust Score System, which is used to track the trustworthiness of other players when playing online or forming teams.

2. Back New Games: In the future, Bajun will establish an auction mechanism for allocating Game Chain slots. New up-and-coming developers will pitch their game concepts and ask the community for support to secure a Game Chain. Gamers will be able to stake BAJU to support their favorite projects and receive rewards from the developers in return, in a similar fashion to Kusama/Polkadot crowdloans.

3.2. Staking

All token holders who stake BAJU will be rewarded with more BAJU (only at the beginning, when there are no games running on the platform), game tokens, or NFTs from Bajun's games. Staking rewards will be financed through a levy on network fees. Initially, these staking rewards will be further subsidized through a token reserve of up to 1% of BAJU tokens.

3.3. Governance

All BAJU holders will be entitled to participate in governance* processes on the Bajun Network. This includes the right to elect the BAJU Treasury Council, vote on grant proposals, and vote on feature requests and upgrades for first-party games exclusive to the Bajun Network.

4. GAME Tokens

Game studios and developers can acquire their own individual game tokens. In order to acquire a game token, the first step is to apply for a Gaming Chain slot on Ajuna. Once a Gaming Chain slot has been successfully secured, this project will be rewarded with its own game token.

A game token has one primary function on the Ajuna Network: It serves as a utility token to access and pay for Ajuna Network services related to that specific game. For instance, the game token is used to pay for transaction fees arising from in-game actions and for using the game logic layer, if needed.

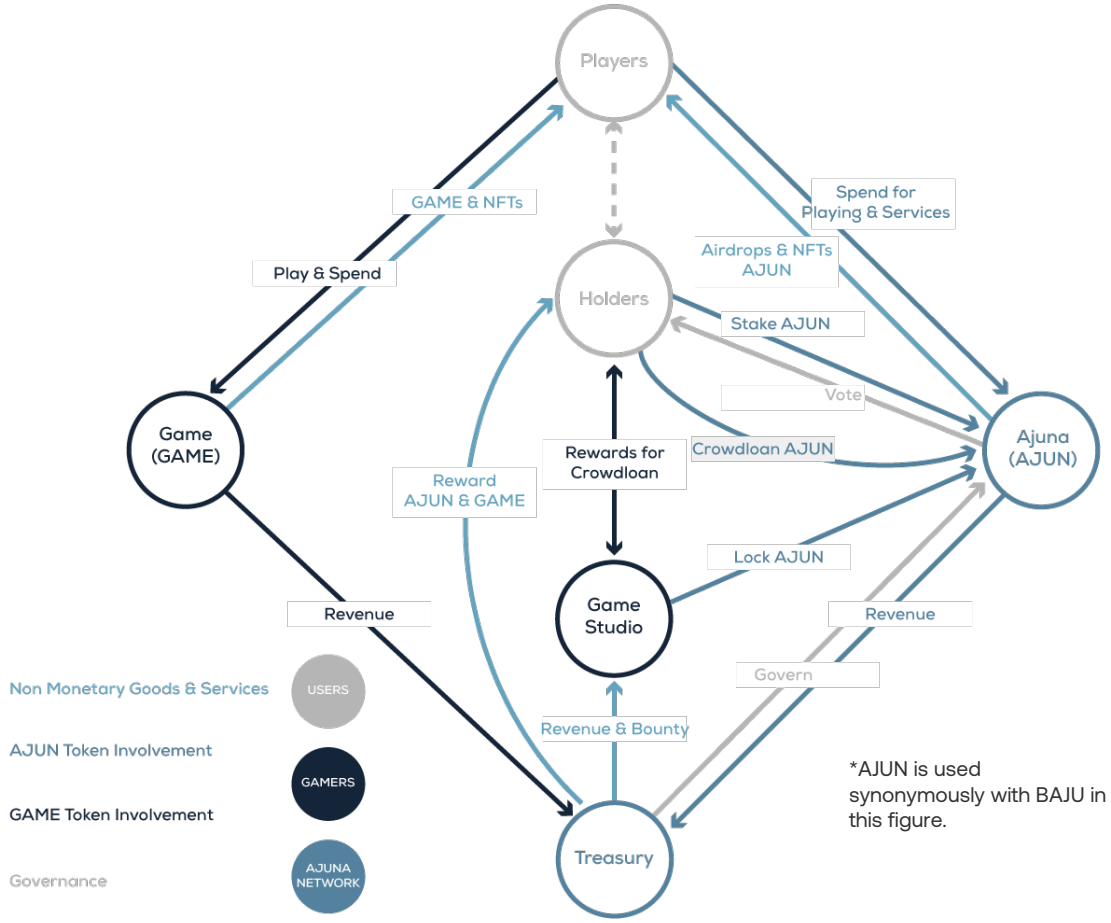
5. Trustscore Token

Players have the ability to apply for a trustscore token for their account. The Trustscore token has only one key purpose: to determine how trustworthy an account is. The Trustscore system is not limited to the Ajuna Network. The functionality is open to be used by any ecosystem that can provide the necessary infrastructure to build and integrate the functionality required for Ajuna Trustscore.

* Starts once governance module is deployed

The Trustscore token has no fixed supply and can be minted in accordance within the Ajuna governance mechanics. The Trustscore token is not tradeable, therefore it has no value beyond its utility. A fixed initial amount of Trustscore tokens is delivered to each account to represent a neutral player who has neither gained, nor lost trust. On this basis, accounts with greater quantities of tokens can be deemed to be more trustworthy, whereas accounts with fewer tokens can be considered less reliable.

6. Token Flow



7. Participants in the Token Flow

7.1. Players & Holders

- **Gaming:** Smaller games on Ajuna Network or Bajun Network can use the AJUN or BAJU token instead of launched their own game token.
- **Gaming Platform Services:** the AJUN (BAJU) token is the sole means of payment for Ajuna network services. Services like registering for tournaments or swapping a game token will require AJUN (BAJU).

- **Staking:** Players and token holders can stake AJUN (BAJU) to get frequently rewarded with AJUN (BAJU) and other GAME tokens which run on Ajuna Network. Staking incentivizes users to hold the tokens and support the growth of the Ajuna Network ecosystem. Staking amounts above certain thresholds also provides eligibility to take part in certain events, ranging from NFT or game token drops, to real-world merchandising rewards and early access to games.
- **Governance:** This might be the most interesting use of AJUN (BAJU) for players: holders can participate in the governance and future trajectory of the Ajuna Network and its games. A key part of how they will govern relates to having a say on how Ajuna's Treasury funds are used.

7.2. Game Studios

- Players will pay game studios in the native game token for services like playing the game, purchasing NFTs, and using in-game services.
- Game studios can also apply for grants from Ajuna Network.

7.3. Revenue

- Ajuna Network generates revenue from transaction fees of smaller games and all additional services offered in the Ajuna ecosystem.
- All revenue flow into the treasury.

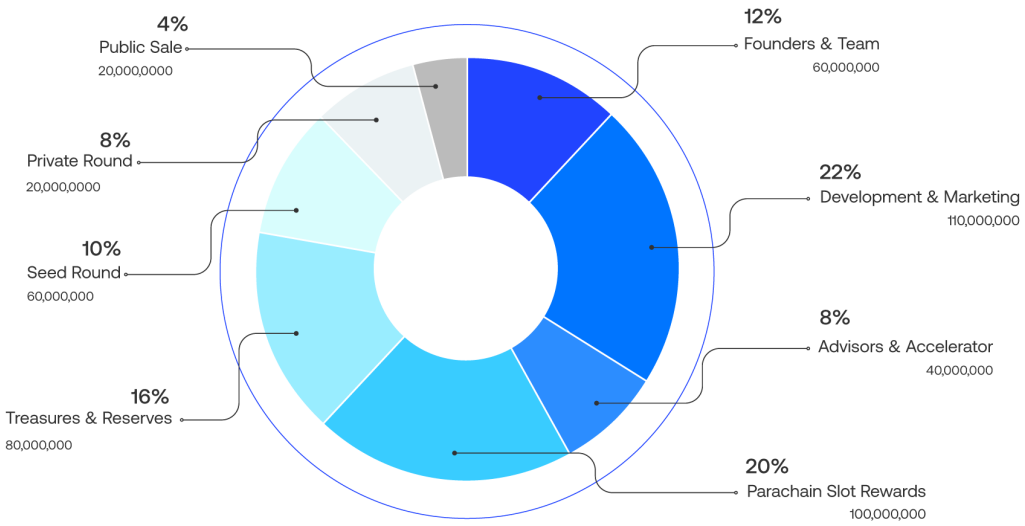
7.4. Treasury

- The treasury will be managed by the community of AJUN and BAJU token holders.
- Tokens that are staked or locked will be administered by the treasury and subsequently redistributed to respective holders.
- Game studio and Ajuna Network revenues flow firstly into the treasury and will be subsequently redistributed to players (as rewards) and game studios (as revenue).

8. Token Distribution

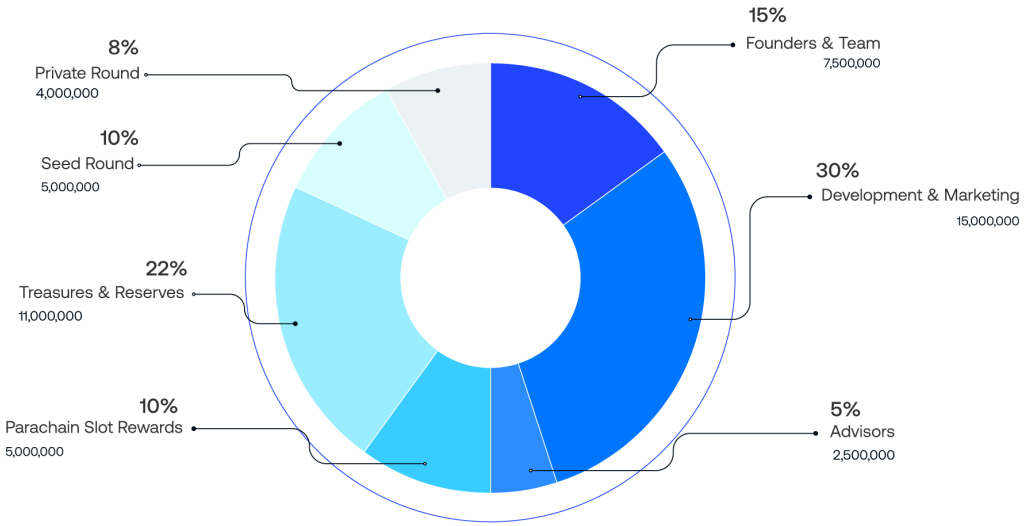
8.1. AJUN Token Distribution

The initial AJUN Token Generation Event (TGE) will be executed by BloGa AG and will create 500 million tokens. The initially available supply of AJUN will be distributed to BloGa AG (holder of the treasury), including: the core team, accelerator, advisors, investors and early contributors.



8.2. BAJU Token Distribution

The initial BAJU Token Generation Event (TGE) will be executed by BloGa AG and will create 50 million tokens. The initially available supply of BAJU will be distributed to BloGa AG (holder of the treasury), including: the core team, accelerator, advisors, investors and early contributors.



9. Total token supply and burning function

9.1. Ajuna Network Total token supply and burning function

AJUN is designed as a utility token with a fixed supply of 500 million tokens.

AJUN staking rewards are financed from Ajuna ecosystem fees and will be redistributed among staking participants. For a period of 18 months after the TGE, if necessary, the Ajuna

Network will subsidize the staking rewards (until there is sufficient traction on the network) with a token staking reserve of up to 1% of AJUN tokens. This provides attractive staking rewards without a need for inflationary incentives.

As soon as Ajuna's gaming platform runs with adequate traction, the community can vote to additionally implement a burning function. By burning a part of the fees before redistributing to the stakers, the AJUN token would become deflationary.

9.2. Bajun Network Total token supply and burning function

BAJU is designed as a utility token with a fixed supply of 50 million tokens.

BAJU's staking rewards are financed from Bajun ecosystem fees and will be redistributed among staking participants. From a certain date (to be announced) after the TGE, for a period of 18 months, the Bajun network will, if necessary, subsidize the deployment premiums with a deployment reserve of up to 1% of BAJU tokens (until sufficient traction is achieved in the network).

This provides attractive staking rewards without a need for inflationary incentives. As soon as Bajun's gaming platform runs with adequate traction, the community can vote to additionally implement a burning function. By burning a part of the fees before redistributing to the stakers, the BAJU token would become deflationary.

10. Parachain Slot Leasing

We plan to secure parachain slots for Ajuna on both Kusama and Polkadot. The Kusama slot will be secured first. Early crowdloan supporters who back our bid to secure a Kusama Parachain slot will receive a significant discount for our Polkadot parachain auction. This should lead to a strong, early supporter base in the community.

10.1. Kusama

The Bajun Network, which operates on a Kusama parachain, is the Sister Network of Ajuna Network and is fueled by the BAJU token.

The Bajun Network is a fully functional, independent network that hosts games. Compared to Ajuna, Bajun has an easier slot leasing strategy to support smaller game studios and even independent groups of game developers. Bajun strives to be a creative environment that can be used to pursue new kinds of game concepts and introduce new features and functionalities - all while being on a fully functional network.

After successful development and gaining sufficient traction to potentially win a game slot on the Ajuna Network, games can move from Bajun Network to Ajuna Network. Nevertheless, smaller games, which may have less exposure and lower chances to secure a game engine or later a parachain game slot on Ajuna can also stay on the Bajun Network and profit from the full functionality and services provided there.

10.2. Polkadot

The Ajuna Network, which will operate on a Polkadot parachain, is the productive enterprise solution. It will be used by the video game industry to enter the new world of decentralized gaming and is fueled by the AJUN token. Games launching on Ajuna Network will have already successfully tested on Bajun Network and will be ready to scale. There may also be fast lanes, however, depending on the quality and knowledge of the teams behind the project. The target for every successful game should be to ultimately launch on the Ajuna Network because it is the production environment of Polkadot, which is suitable for enterprise use, and has a stronger marketing reach and stable scalability.

11. Governance and the Role of BloGa AG

In the first phase, BloGa AG will develop and deploy the Ajuna Network parachains and an SDK for third parties to develop games on Ajuna Network.

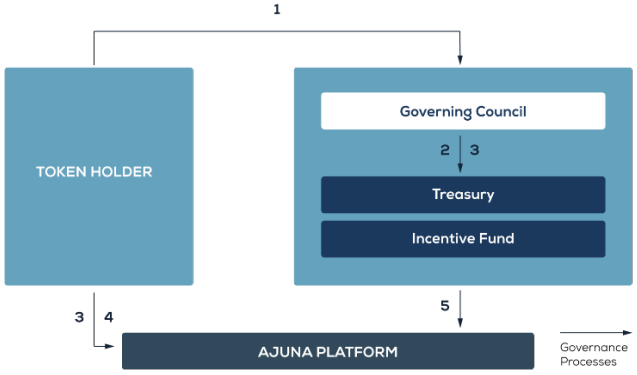
BloGa AG is the entity issuing the AJUN token during the TGE. It will distribute the token to early adopters of the platform who aim to obtain the token at a discounted rate. BloGA AG will ensure listing on various centralized and decentralized token exchanges to make the AJUN token easily accessible after the launch of the platform.

BloGa AG aims to decentralize the Ajuna Network parachain as quickly as possible. During the launch phase, it will still have absolute power over the parachain through a “sudo” account. As soon as stable operation has been demonstrated, control over the parachain will be handed over to an elected governing council. The AJUN token allows its holders to vote for individuals or entities seeking election to the council.

In order for this council to be decentralized, BloGa AG may not remain a major token holder. Therefore, BloGa AG intends to distribute tokens to stakeholders who are determined to further the goals of the Ajuna Network parachain.

By the time the “sudo” account is removed, BloGa AG will no longer be necessary for the sustainable operation of the Ajuna Network parachain. BloGa AG will continue to offer its services to the council, but competition is expected and desired to ensure a healthy ecosystem.

BloGa AG may continue to offer intermediary services or even a platform-as-a-service solution (PaaS) to game studios and game developers.



Governance Processes:

1. Token holders elect the Governing Council.
2. The Governing Council manages the funds.
3. Token holders or the Governing Council can propose changes.
4. Token holders vote on proposed changes and enhancements.
5. The parachain enforces the accepted changes and enhancements.

12. Parachains and Parathreads on Polkadot and Kusama

To obtain parachain slots on both Kusama and Polkadot for continuous operation, BloGa AG will launch incentive campaigns for supporters. It is expected that in order to secure parachain slots, a substantial amount of relay chain tokens will need to be staked (DOT/KSM).

Therefore, a great number of DOT/KSM holders must be incentivized to bond their tokens in support of Ajuna Network's parachain for several months or years. There is an opportunity cost associated with not staking DOT/KSM elsewhere, not trading DOT/KSM and not bonding DOT/KSM to other parachain projects during that time. Thus, Ajuna Network has devised an attractive and competitive incentive scheme for supporters.

12.1. Multi-Parachain Deployment

The Ajuna Network platform can span multiple parachains and parathreads on both Polkadot and Kusama. There are two tokens, one for parachains under Polkadot, the AJUN, and one for parachains under Kusama, the BAJU. They act as the native token on the respective parachains and parathreads, bridged at a 1:1 valuation.

12.2. Why both Polkadot and Kusama?

Kusama is the canary network of Polkadot where innovation happens quicker and new features can be evaluated "in the wild" before being deployed on Polkadot. Ajuna Network will follow this approach and deploy new features first on Kusama. This will enable Ajuna Network to ensure that only well-proven updates happen on Ajuna Network's Polkadot parachain(s). The usage fees on Kusama will be lower than on Polkadot. Fee burning rates may be set differently too. In the spirit of a canary network, parachain slot auctions will start on Kusama first. For these reasons, Ajuna Network has obtained a parachain slot on Kusama first (with Bajun Network). A Polkadot parachain will be obtained for Ajuna Network soon.".

12.3. Cross-Parachain Governance

Ajuna Network will have a single native token on Polkadot (AJUN), and a single native token on Kusama (BAJU), that can freely float among multiple parachains. Thus, governance — which relies on coin voting — should also be unified. Therefore, a single council will be elected and all acts involving coin voting will be aggregated across all parachains/parathreads.