What is Astar, and How Did It Get To The Top of Polkadot Ecosystem?

If you've delved into the world of blockchain just a little further than the surface, you've probably heard of Astar. It's one of the biggest Polkadot parachains and it's creating a buzz in the blockchain community.

A project, which granted itself the title of <innovation> in the already innovative sphere of crypto, Astar is already well-recognized beyond the typical web3 crowd among financial institutions.

Let's take a closer look at one of the brightest objects in the Polkadot universe and a promising player in the overall blockchain team.

Key points:

- Astar is a scalable smart contract platform and a parachain on Polkadot
- Astar has a vibrant community and a palpable value locked in its network, both of which are growing even further.
- Development of Astar is led by an established blockchain researcher and entrepreneur Sota Watanabe, who fast tracked it from Layer-2 solution to a leading Polkadot Level-1 Parachain in just 2 years.
- Astar has a two-layer structure. The first layer connects Astar to the Relay Chain of Polkadot. The second layer is responsible for running smart-contracts.
- Astar offers solutions to the eternal problem of interoperability and scalability in blockchain.
- Support for both EVM and WASM is a distinguishing feature of Astar
- dApp Staking is another innovation of Astar, which implements <basic income> and a balanced profiting system for dApp developers
- Astar's integrity and security is protected by its canary network - Shiden. While essentially being Astar's stuntman, Shiden is also an ecosystem of its own, bearing value and providing an environment for independent projects.

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1. What is Astar?

1.1 Overview

Astar is a scalable smart contract platform and a leading level-1 parachain on Polkadot. It supports development of dApps using two programming languages - WASM and EVM. Astar's team also runs an incentive program to get more devs to build on their parachain and run smart contracts and dApps.

Polkadot's Relay Chain doesn't provide support for smart-contracts, but Astar has brought the possibility to write and run smart contracts on this network and made it the environment for web3 dApp development.

Astar also aims at solving the interoperability problem in crypto with its breakthrough 2-layers design.

In the end, Aster Network is an open-source project that offers plenty of new opportunities, and is definitely worth your attention.

1.2 Astar's community

Astar is Despite being a relatively new platform, Astar hosts:

- at least 44 dApps (according to dAppRarad) with over 9k Unique active wallets combined in the last 30 days.
- Just short of a half a million of active holders
- $186.4M of total value locked in the network
- 17,992 stakers
- $113.3M of total value locked in dApp staking.

Astar's social media presence is pretty strong and alive too. Check it out for yourself:

- Medium
- Github
- Telegram
- Discord
- Twitter

How did Astar come to be?

The project which will later become Astar started out as *Plasm network*. It was founded in 2019 by Sota Watanabe, an established entrepreneur and developer in the crypto sphere. Watanabe became the Director at the Japan Blockchain Association and made it to the 30 under 30 list of Forbes Asia even before the launch of Astar. His extensive experience highlights also include working in Chronicled in San Francisco, blockchain research at the University of Tokyo.

Plasm started out pretty modest as just a Level-2 solution on Polkadot. But after two years of development the vision of the project expanded dramatically to a Layer-1 dApp hub that supports both Ethereum Virtual Machines, WebAssembly, and other layer2 solutions. <*A Star is born*>, stated Watanabe during the grand rebranding announcement. Since then the project has been known as *Astar*.

After scaling up its ambitions, *Astar* would go on to easily win one of the parachain in the first batch of Polkadot parachain auctions. In January 2022, Astar received $22 million in strategic funding from crypto venture capital firms Polychain, Alameda Research, Animal Ventures, Crypto.com Capital, Digital Finance Group, GSR, Injective Protocol, and Scytale Ventures.

Among the latest developments for Astar was its collaboration with Japan's top mobile carrier NTT Docomo to push for mass adoption of Web3.

Astar Network also recently announced a partnership with blockchain development platform Alchemy. The tie-up will let developers use Alchemy's so-called Supernode—a crypto API for Ethereum, Polygon, Arbitrum, and the recently added Solana, making it easier to create decentralized applications (dApps).

Sota Watanabe is known to have strong ties with the Japanese government, and rubbed shoulders with some of the most prominent CEOs around the world. However, despite his ties to the traditional world of finance and politics, his project - <Astar>, is a largely and predominantly community-oriented chain.

2. How does Astar work?

The Astar Network has two layers:

- **The first layer** (called the base layer) is a blockchain built using the Substrate blockchain framework - an SDK provided by the team behind Polkadot to build parachains. The base layer functions as a parachain in Polkadot that connects to the Polkadot Relay Chain.

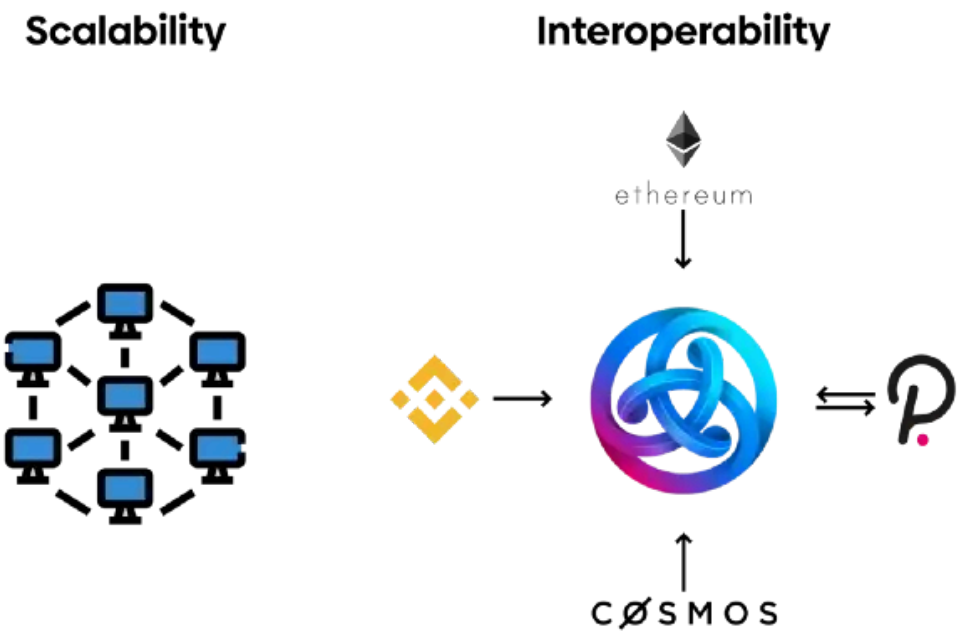
  Being a parachain - parallel chain in Polkadot - means that the Astar network relies on the Consensus mechanism of Polkadot. Blocks produced by Astar are validated separately and added to the Relay Chain of Polkadot. This design structure allows parachains to execute transactions faster and at cheaper rates, also bringing a data-security advantage to the table, since Parachains don't need to disclose user data to the public network. Astar can also interact seamlessly with the entire network of Polkadot through the XCM format.

- **The second layer** is a scaling solution that is created by using an Optimistic Virtual Machine (OVM) developed in-house.

As you might know, Podakot Relay Chain design does not offer facilities for smart contracts development and most other functions. And Astar is there to employ the potential of Polkadot and introduce smart-contracts to its network while also allowing EVM and WASM compatibility. It also has Layer2 scalability solutions such as ZK Rollups and Optimistic Rollups.

3. Features of Astar:

3.1 Astar provides solutions to **Scalability and Interoperability** problems in blockchain.



- **Scalability**

  Astar not only provides an opportunity to create smart-contracts on Polkadot, but also a functionality to make them easily scalable. Developers are free to build a variety of dApps knowing that they can be scaled up with ease.

  Moreover, the scalability of Astar goes in both directions - horizontally and vertically. Horizontal scalability takes care of the layer 1 computing capacity. (e.g. sharding and Segwit). And vertical scalability allows to delegate more action to layer 2 or put them off-chain. (e.g. Plasma and State Channel).

  This leads to higher speeds, first finality, flexible dApps development and significantly lower transaction(gas) costs.

- **Interoperability**

  Astar allows moving value from one L1 blockchain to another using bridges, for example, to exchange ETH to BTC. And these types of transactions are possible using Astar without the need for centralized exchanges, which often create problems, such as the duration of the process and the need for trust in that exchange.

3.2 Both scalability and interoperability of Astar are also being solved by the network **supporting EVM and WASM.**

Choosing a WASM virtual machine for your blockchain today is often seen as a more advanced solution for blockchain development. WASM is also backed by a growing list of sponsors and developers including behemoths like Google and Microsoft. There are WASM exclusives including NEAR and EOS. And even ETH 2.0 is said to transit from EVM to eWASM in the future (although, no telling if this future is foreseeable). However, WASM is still currently a niche virtual machine without mainstream adoption.

Meanwhile, EVM is by far the most popular technology among developers and will most likely keep holding this position for quite some time in the future. It has the most onboarded users, the most liquidity and is the staple of dApp development.

This is why Astar's compatibility with both EVM and WASM has such a defining and important role. This is what makes Astar a fitting platform for both short-term and long-term, current and future situations.

3.3 dApp Staking

Another significant feature of Astar is called dApp Staking. It works kind of like <basic income>, but for smart-contract developers. Funding in crypto is quite different from the regular companies. Crypto startups can't rely on constant cash flow from the services or goods sales. But they need financial incentives for building great dApps. And this is where dApp Staking comes into play.

Other blockchains such as Bitcoin and Ethereum only reward transaction fees to the miners, and developers, who truly contribute to the ecosystem, have to pay the price for deploying applications in the form of Gas.

Astar have divided the block reward into two parts: 50% of the block rewards on the Astar root chain are distributed to DApps developers who increase the value of the network and the remaining 50% of the rewards are distributed to the block's validators.

By having an income, developers can keep building and improving their dApps. At its core, dApp staking is similar to staking on validators. The difference is that dApp stakers — also known as nominators — can nominate their Astar tokens on dApps they want to support.

3.4 Building Layer-2 dApps.

Astar allows for Layer2 dApps to arrive to chains where they did not have a presence before. Best of all, they arrive at a very simple solution, instead of having to go through major changes in their own structure or something of the sort.

4. Astar & Shiden

Shiden is Astar's canary chain on Kusama - canary network of Polkadot. This means that Astar's technical updates and initiatives are first implemented and tested on Shiden. And only once the protocols are found to be stable and secure they can be rolled out to Astar. However, Shiden is just not a testnet — it is an active and sovereign network with value bearing assets. It has higher volatility due to its <stunt-man> role, but it hosts a series of independent projects and can one day even go on to become an independent blockchain solution on its own.

Conclusion

Astar Network is currently the leading smart contract hub that connects the Polkadot ecosystem to Ethereum, Cosmos, and all major layer 1 blockchains. It's really justifying its name, being one of the brightest objects in the Polkadot universe with potential to shine even brighter in the broader crypto world. Astar provides developers not only with a highly flexible and interoperable environment, but with effective financial incentives. User benefits of Astar are pretty palpable too: the speed, transaction cost and an already broad set of dApps are among the things that made Astar rise to the top of the Polkadot ecosystem.