

Opinion Editorial

Why developers are choosing Polygon, over other solutions

Polygon claims it's ethereum's network of blockchains, and everyone is suddenly believing it. Is it true?

This 2017-launched project entered the blockchain world as Matic and then rebranded to Polygon in February 2021. Polygon is recently enjoying a good deal of traction from developers. Is it just the name change, or is there something more?

Let's find out. Before that, join me as I drive through Polygon's architecture, functionality, and the technologies that run it.

About Polygon

Polygon is a sidechain network on the ethereum mainnet that aims to solve the scalability problem that plagues the parent chain network- ethereum. This includes high gas fees, throughput, and sluggish transactions.



The initially known Matic Network aims to bring sidechain scalability through Plasma technology by processing transactions off-chain and finalizing them on the ethereum mainnet.

However, the new Polygon goes further to become a platform for launching Ethereum-compatible interoperable blockchains by utilizing Plasma and other technologies.

It offers a range of scalability options to developers alongside the security of the ethereum network. Even more interesting to note is that developers can customize the functionality of their blockchain.

Polygon Architecture

Polygon is designed to support two models of ethereum-compatible blockchain networks, namely stand-alone networks and secured chain networks.

The stand-alone network, as the name implies, runs on its security outfit. This type of model offers sovereignty and flexibility to the child chain. However, it downplays the importance of security and hence is less secure than its counterpart. It utilizes a Proof-of-Stake consensus protocol and is very suitable for enterprise blockchain networks with a large community.

On the other hand, the Security Chains model uses ‘security-as-service,’ provided by Ethereum or a validator pool. Ethereum offers security to sidechains through a proof of fraud system used by plasma. The security of the network can also be realized from a validator pool on the Polygon network.

This model possesses the highest level of security and gives up independence and flexibility—an arrangement preferred by startups and security-intensive projects.

To go further, we will consider the functionality of the Polygon architecture, which comprises four distinct layers- the Ethereum layer, the Security layer, the Polygon layer, and the execution layer.

Ethereum Layer- With this layer, Polygon taps into the security of the Ethereum network implemented with a smart contract. This layer is used for checkpointing, dispute resolution, staking, finality, and messaging between Ethereum and Polygon chains.

Security Layer- This layer offers security to the Polygon-deployed network with its ‘validator-as-a-service’ protocol. This function gives the Polygon chain access to Ethereum’s validator pool.

The Security layer runs parallel to Ethereum, and its function includes- rewards, shuffling, registering/deregistering, and Polygon chain validation.

Developers who want to deploy on the Polygon network are not mandated to utilize the Ethereum and Security layers of the Polygon architecture.

Polygon Network Layer- To developers, this could be the most interesting part of the Polygon architecture. It is where all the Ethereum-compatible blockchains are deployed. This layer is compulsory for all blockchain running on the Polygon network. Each blockchain in this layer has its community and watches over its local consensus.

Execution Layer- The execution layer can be the run environment for all the blockchains deployed in the previous layer. The Ethereum Virtual Machine, EVM, is implemented here and utilized in running smart contracts.

The Polygon network prides itself on such a multiverse ecosystem of interoperable networks under her watch. The participating blockchain networks are offered the ability to communicate with one another and with the Ethereum mainnet; such flexibility is not found elsewhere.

Polygon architecture has something for everyone. It gives developers with varying needs the option to optimize their network to suit their demands.

For instance, a network that handles billions of dollars will probably want to access the best level of security. In this case, it becomes a no-brainer to start with the Ethereum layer, sacrificing sovereignty and transaction speed.

Down the line, an NFT marketplace looking to offer the best transaction fee to its customers will skip the Ethereum layer. In contrast, a gaming platform will offer consumers an excellent throughput and speed by starting with the Polygon layer.

To make this architecture even more flexible, developers are not tied to their initial setup. They can change their scalability options as demands or circumstances in the marketplace change. This keeps them functional and competitive.

Technologies Behind Polygon

To understand what made Polygon different, it will be pertinent to discuss the underlying technologies driving the ecosystem.

POS Chain- This is a permissionless sidechain that runs in parallel to the Ethereum network. It utilizes proof of stake consensus for its security protocol and has its validators. It is the alternative of Proof of work as a step towards scalability and adoption, which is hindered by the latter.

Plasma Chain- Plasma chain is a layer 2 scaling solution that lifts transactions from the Ethereum main chain to be processed in a side chain. This removes congestion from the mainchain- Ethereum.

Zero-Knowledge Rollups- The zk-rollups collateralize data using smart contracts which are deployed on the main chain and then transferred off-chain for processing and computing. It is called zero-knowledge because the information conveyed by verifiers is not disclosed.

Optimistic Rollups- This is another technology used by Polygon to ease off congestion on the Ethereum main chain. It is optimistic because there is no forestal against fraud, however, a proof of fraud protocol will be run in the case of fraud.

This technology offers lesser throughput than ZK rollups and Plasma.

Why Developers are interested in Polygon

There are many layer-2 solutions in the blockchain marketplace. All of them, including polygon, are gearing towards one thing- to solve the problem of Ethereum. But why is Polygon leading the pace?

At this junction, it is expected that we discuss the implications of Polygon's architecture and technologies that distinguished it from its counterparts.

EVM Compatibility- This feature enables developers to easily migrate from the Ethereum network. Due to the relative ease associated with working on EVM, developers do not need to start crunching up a new language to be able to deploy on Polygon.

A project like Aavegotchi made it a "... criteria for picking a viable L2 option is that it must be compatible with the Ethereum Virtual Machine and the contracts that run on it. Most L2 solutions do not fit these criteria"

This Polygon-deployed network stated clearly in their [medium handle](#) that they cannot go for the layer 2 solutions without EVM compatibility.

Offers Scalability- In pursuit of scalability, some factors are sacrificed in order to optimize another. Security can be optimized to get throughput. In Polygon, all arrangements are available for developers.



While other projects offer one tenet of scalability at the expense of others, Polygon has it all. In the former, developers are forced to align with a rigid arrangement irrespective of their needs. Thanks to Polygon, there is a home for all developers looking for scalability.

Interoperability- Despite being a home for all developers, Polygon put in an effort not to make its ecosystem islands of developers by incorporating a messaging protocol that allows cross-chain communication.

Cost-Efficient- According to a report published on [CyberPong](#), gas fees on a normal day on the Ethereum network get up to \$50 to \$100. At this rate, users are still willing to pay with closed eyes. However, it becomes exorbitantly high and unendurable on busy days with sudden spikes.

The gas fee problem has always been with Ethereum but it gets higher as the days go by because more users are coming in. Thanks to Polygon, this vicious circle is broken. With surprisingly low fees, Polygon came to the rescue while still leveraging the upsides of the Ethereum network.

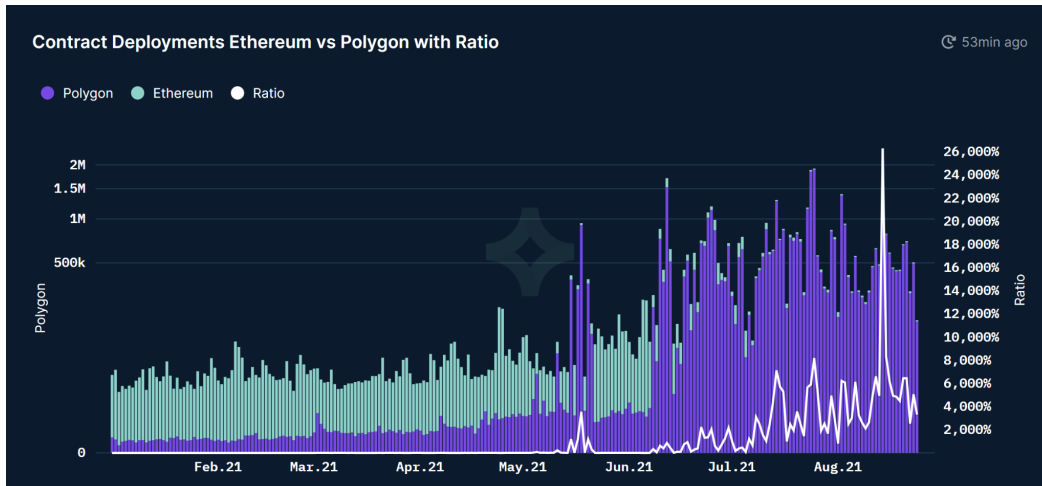
A glance at the table below as published on [Polygon gas station](#) will offer better insights into the situation at hand. It compares gas fees paid on the Ethereum and Polygon Network for different transactions.

Polygon Gas Station  

Interactions	On Eth	On Matic
ETH/MATIC transfer	\$ 7.75	\$ 0.00367
NFT minting	\$ 52.8	\$ 0.0250
NFT approval	\$ 19.9	\$ 0.00944
NFT transfer	\$ 30.7	\$ 0.0145
ERC20 approval	\$ 11.0	\$ 0.00523
ERC20 transfer	\$ 17.0	\$ 0.00807
Add liquidity: Uniswap/Quickswap	\$ 49.7	\$ 0.0236
Add liquidity: Curve	\$ 67.4	\$ 0.0320

75% of developers that participated in a hackathon event preferred Polygon as their host network over Ethereum. The wide margin is because developers find it easy and scalable to onboard the Polygon network.

It is even more interesting to note that despite Ethereum being the home of smart contracts, the recent trend shows that more smart contracts are getting deployed on the Polygon chain. This claim is aptly captured in a graph published on [nansen.ai](#).



Projects on the Polygon Network

Asides from Aavegotchi, the early adopter of Polygon, there are other projects existing on the Polygon network including- QuickSwap, a fork of Uniswap, Poly Market, PolkaMarket, and SuperFirm. [Block123](#) listed nearly 100 projects currently developing on Polygon's network. This number will increase in the future as developers discover the edge they will have running their project on this network.

EndNote

As the days fleet pass and the world gradually wakes to appreciate the technology of cryptocurrency, there will be a demand for a scalable and sustainable solution. In that wake, developers will be on the watch out for the most sustainable and scalable solution.