About Sei

Sei is the first parallelized EVM.

What is the EVM?

The EVM (Ethereum Virtual Machine) is used to process transactions in blockchains such as Ethereum. Most crypto native developers are extremely familiar with the EVM.

Unfortunately, the EVM is quite inefficient - on Ethereum L1, it's not able to process more than ~20 TPS.

This results in

- high transaction fees for users, often going into hundreds of dollars for simple transactions
- a restricted design space for developers, who are unable to build high performance applications

What is parallelization?

Parallelization lets you process multiple things at the same time (i.e. in parallel). This is commonly used in software engineering to take advantage of modern hardware (which has multiple cores) to process multiple workstreams at the same time.

For Sei, parallelization is used to process multiple independent transactions at the same time.

What optimizations does Sei introduce?

Sei introduces four major innovations:

- Twin Turbo Consensus
- : This feature allows Sei to reach the fastest time to finality of any blockchain at 400ms, unlocking web2 like experiences for applications.
- Optimistic Parallelization
- : This feature allows developers to unlock parallel processing for their Ethereum applications, with no additional work.
- SeiDB
- : This major upgrade allows Sei to handle the much higher rate of data storage, reads and writes which become extremely important for a high performance blockchain.
- Interoperable EVM
- : This allows existing developers in the Ethereum ecosystem to deploy their applications, tooling and infrastructure to Sei with no changes, while benefiting from the 100x performance improvements offered by Sei.

All these features combine to unlock a brand new, scalable design space for the Ethereum Ecosystem.

Sei performance metrics

With these performance optimizations, Sei is able to get

- 400 millisecond time to finality
- 5,030 transactions per second (12,500 theoretical max)

What are the benefits of Sei?

Sei represents a 100x improvement on the EVM. This will unlock an entirely new design space for application developers, and make the EVM much cheaper to access for normal people.

Last updated onMay 23, 2024 [Introduction](#) [Staking](#)