

# Building dApps on Metis

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BUILDH3R - 2024



METIS

# About Me

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## Some things you should know

- I want to help you learn about Web3 development.
- PhD in Physics (2023).
- Entrepreneur (Founder of Bright NFT).
- Dev Rels at Metis L2.
- Experience collaborating with dozens of projects in Web3.
- One Skill: Problem Solving.
- Practice > Theory.

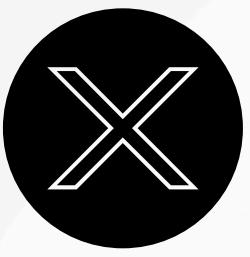
Víctor Muñoz



Dev Rel - Metis L2

# Let's connect!

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**Víctor Muñoz**



**Dev Rel - Metis L2**

# What is Metis?

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## Scaling Ethereum With Unique Infrastructure

**Metis** is an EVM-compatible blockchain using Optimistic Rollups to scale Ethereum and onboard real-world use cases, besides enhancing existing ones.

Metis offers fast transactions, low gas fees, and allows developers to build on an easy-to-code blockchain.

Users, developers, and enterprises can benefit from enhanced security, enhanced capital efficiency, and progressive decentralization through our sequencer technology.



# METIS

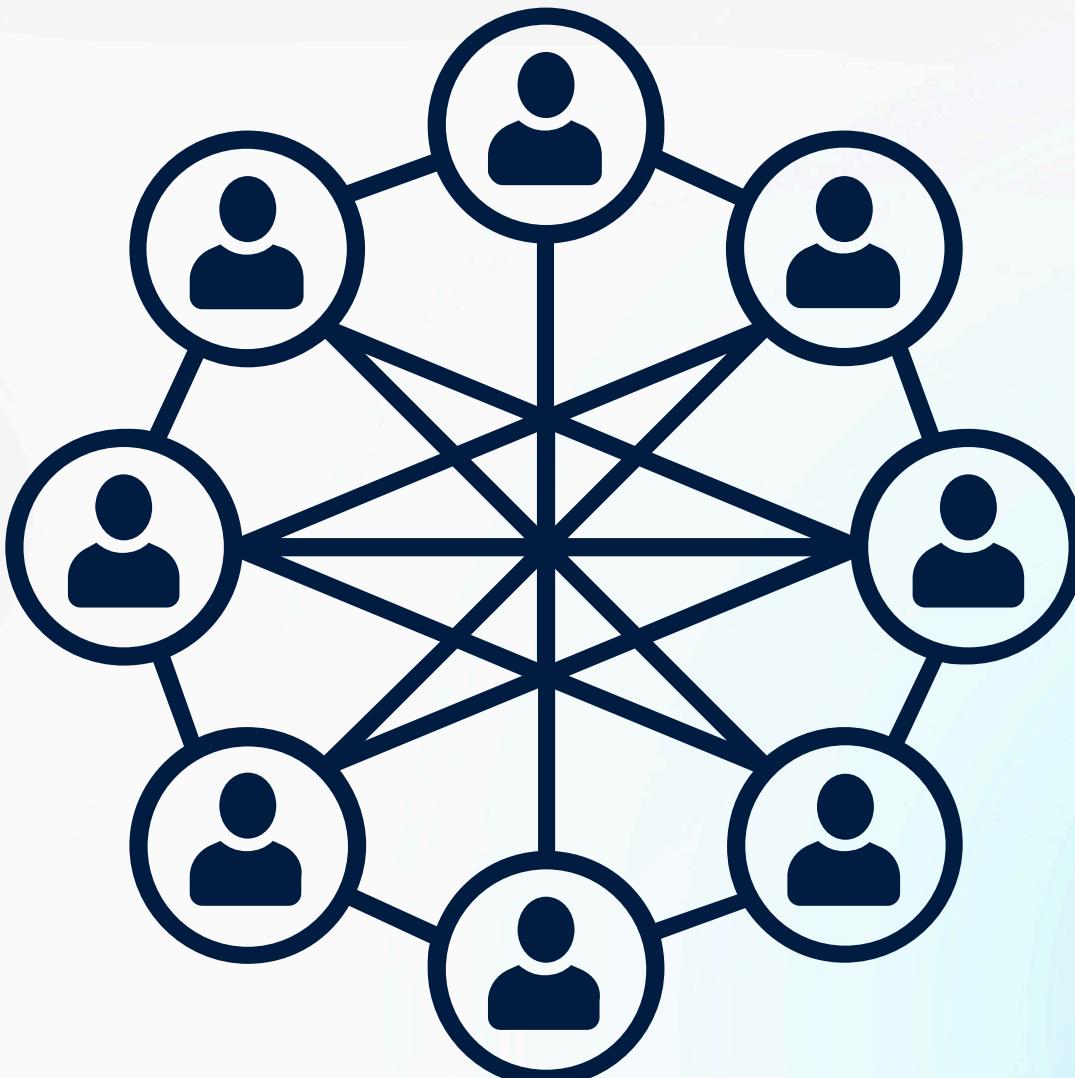
# Introduction to Blockchain

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## Infrastructure for a Trustless Economy?

The Oxford Dictionaries : "A system in which a record of transactions made in cryptocurrency is maintained across several computers that are linked in a peer-to-peer network".

Investopedia: "Blockchains can make data immutable and reduce the need for trusted third parties."



# Blockchain as Computers

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## Key Components of a State Machine

- States: The computer has different states that determine its actions.
- Transition Rules: It follows rules that dictate how to move from one state to another.
- Input and Output: It reads inputs, processes them, and produces outputs.

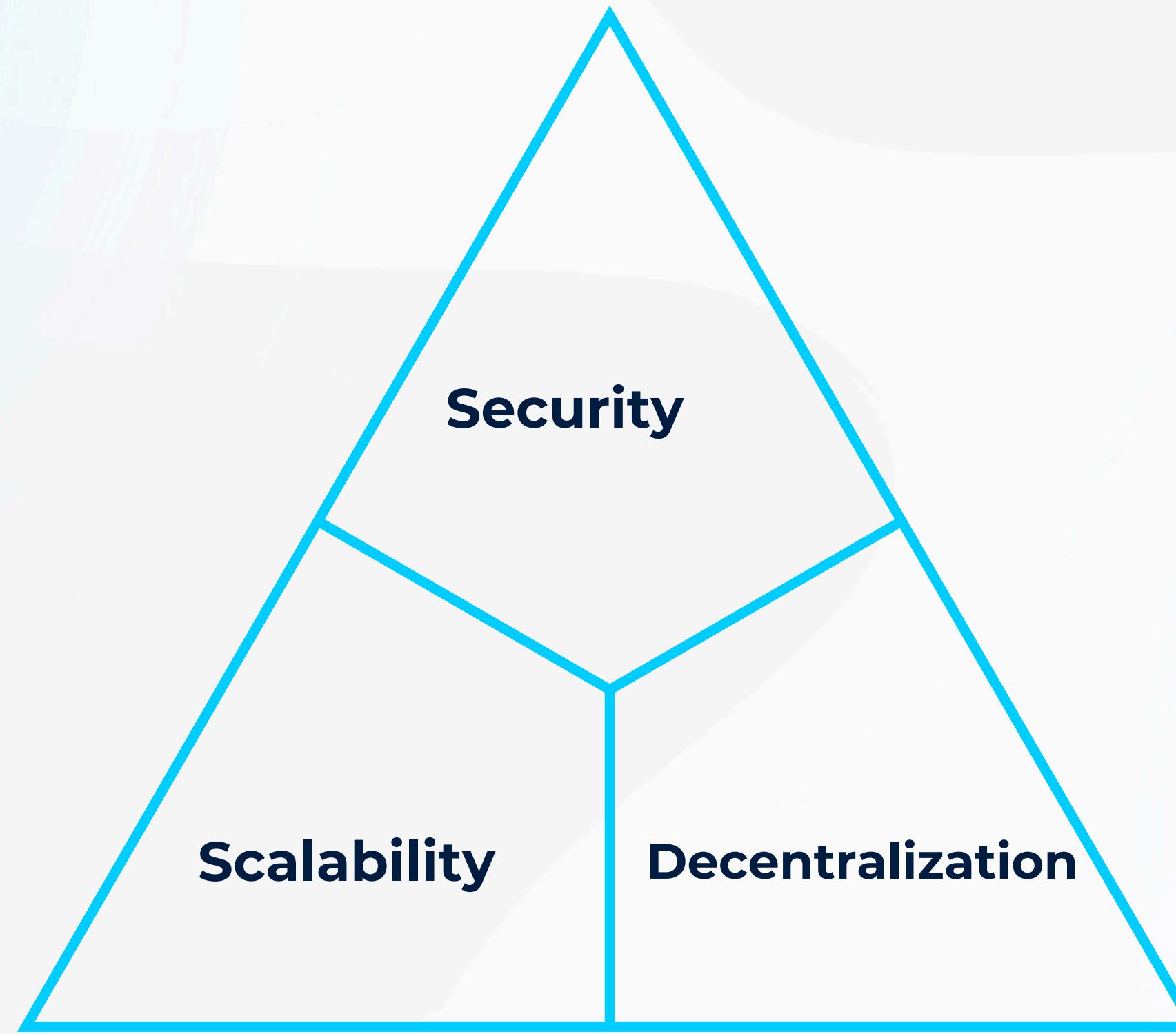
Ethereum



The first programmable blockchain

# The Blockchain Trilemma

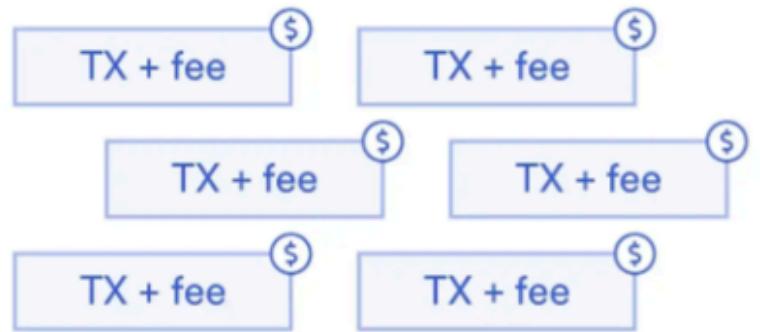
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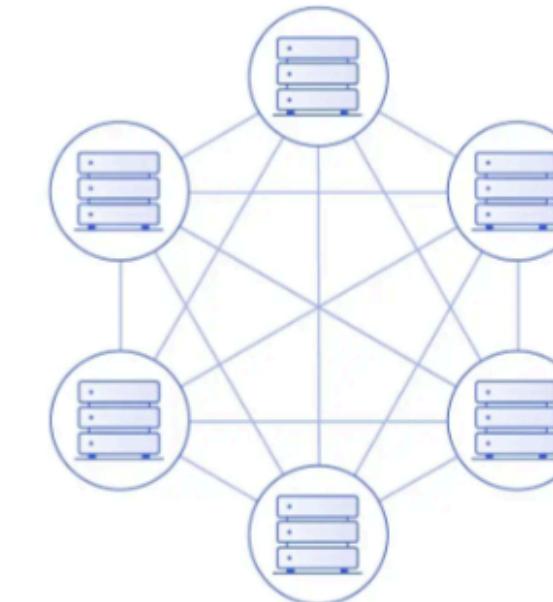
# What is a Layer 2 Scaling Solution?

## Transactions on Base Blockchains

### Individual Transactions



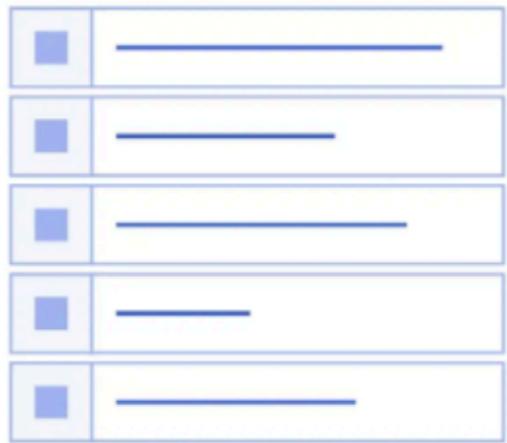
### New Block



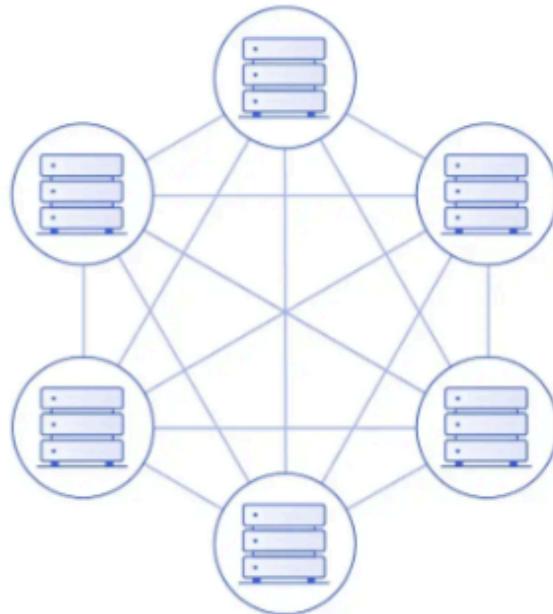
# What is a Layer 2 Scaling Solution?

## Rollup Transactions

### Batched Raw Transaction Data and Proof



### New Block



- Larger, one-time fee split across all relevant rollup participants

# The Sequencer on a L2

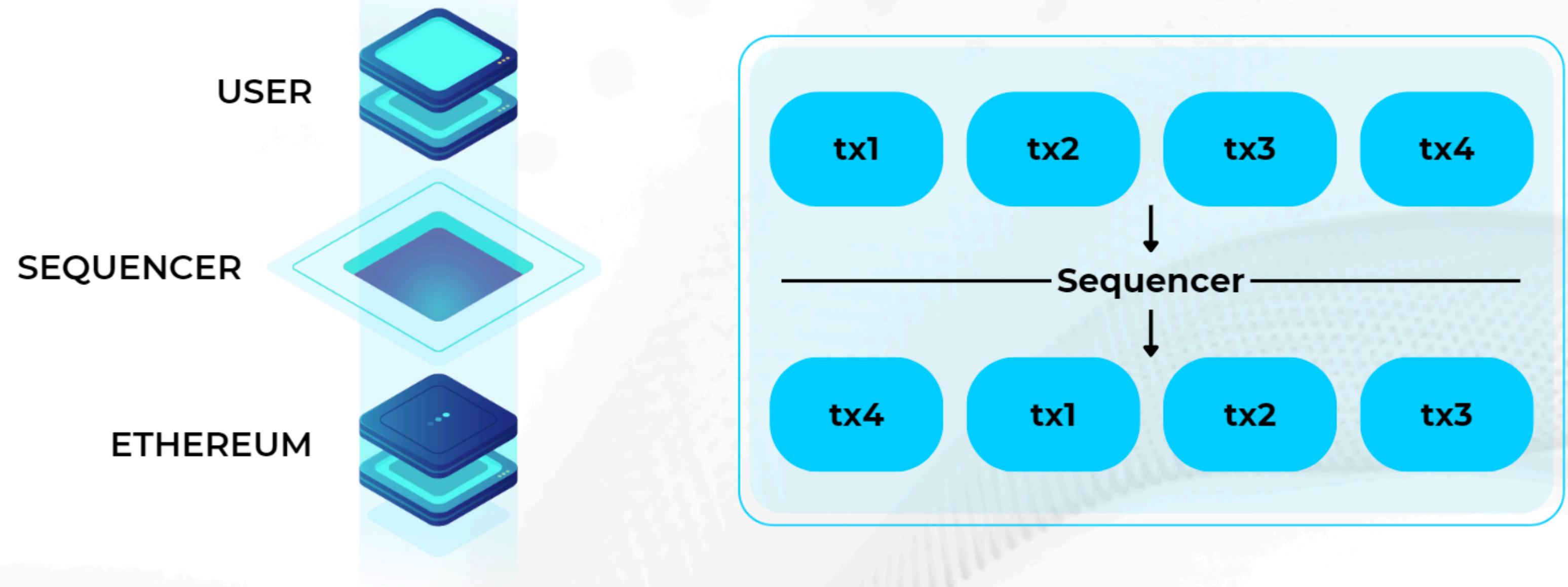
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➤ Transaction Ordering

➤ Batch Processing

TYPE OF SEQUENCER	FEATURE
Centralized Sequencers	Most common, they are considered to be more efficient.
Decentralized Sequencers	Offer better security and are less prone to single points of failure.
Shared Sequencers	Eliminates redundancy and allows for a more interoperable efficient system.

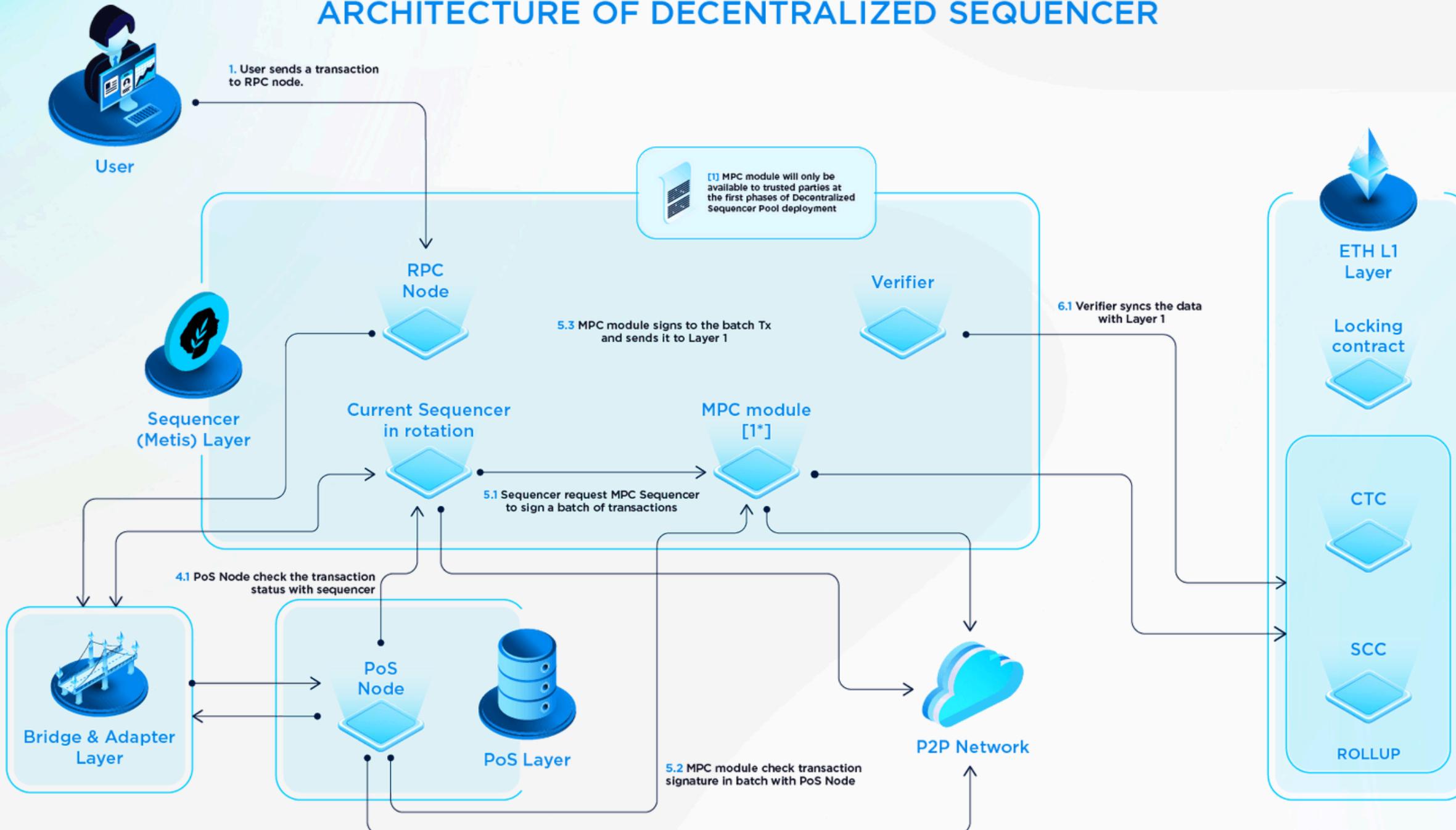
# Sequencers and MEV



# Metis Sequencer



## ARCHITECTURE OF DECENTRALIZED SEQUENCER



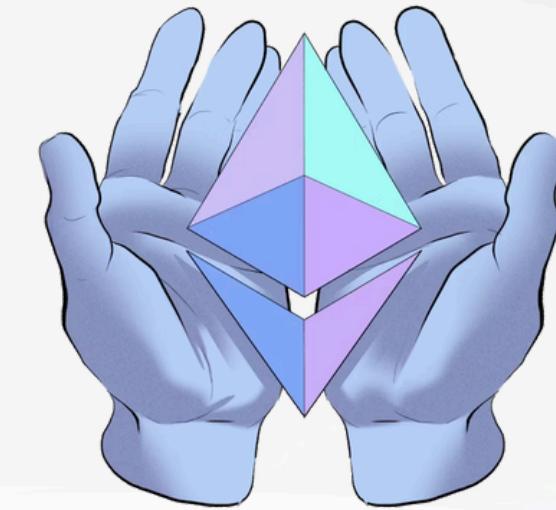
# Ethereum and Smart Contracts

Smart contracts written in high-level languages like Solidity are compiled into Ethereum Virtual Machine (EVM) bytecode before deployment. This bytecode is what gets executed on the Ethereum network

An open source, globally decentralized computing infrastructure that executes programs called smart contracts, written in a Turing-complete programming language, translated into bytecode and run on a virtual machine.

Programming language can perform any computation, given enough time and resources

The EVM executes the bytecode in a controlled and consistent manner across all nodes in the Ethereum network



# Smart Contracts

**Self-executing contract with the terms of the agreement directly written into code. These contracts automatically enforce and execute the terms when predefined conditions are met, without the need for intermediaries**

## A digital vending machine

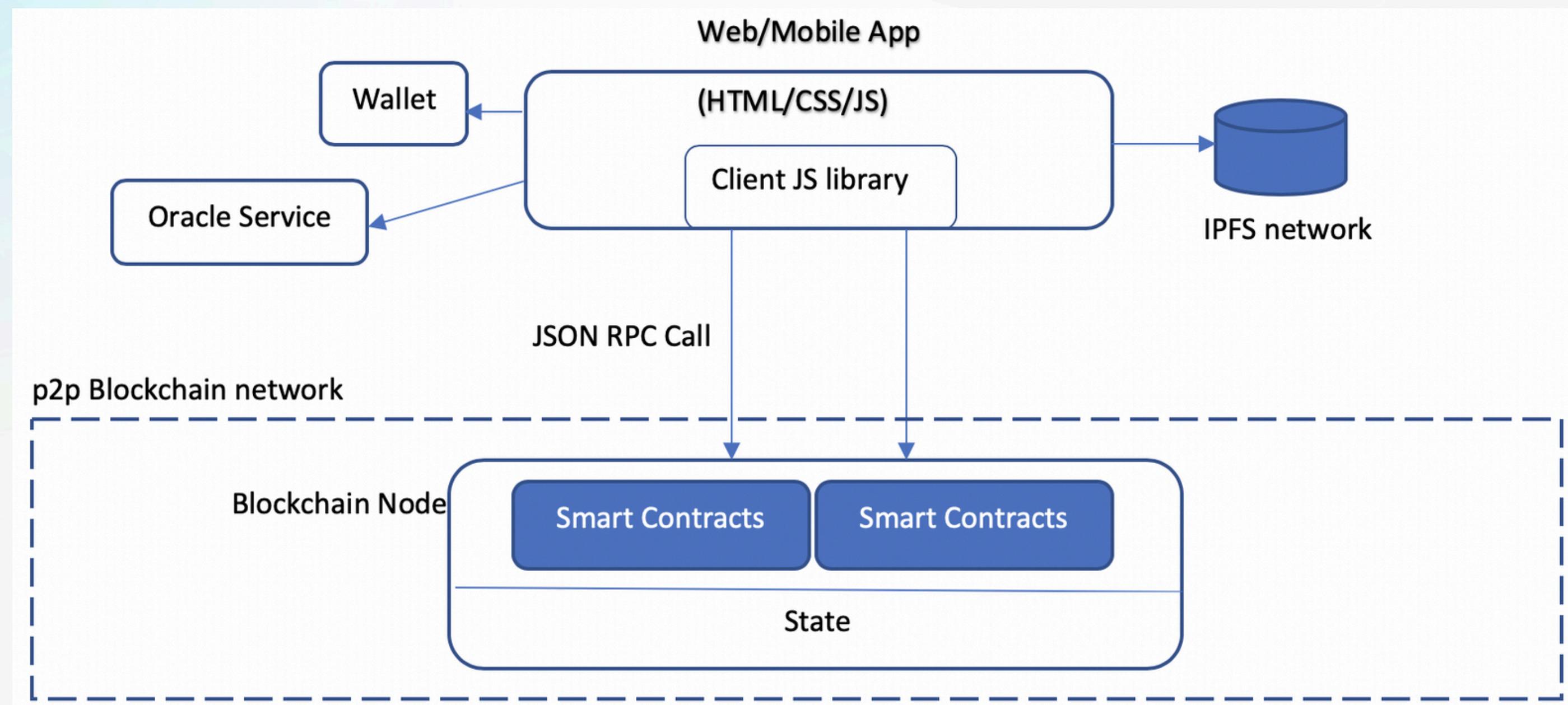
A simple metaphor for a smart contract is a vending machine, which works somewhat similarly to a smart contract - specific inputs guarantee predetermined outputs.

- You select a product
- The vending machine displays the price
- You pay the price
- The vending machine verifies that you paid the right amount
- The vending machine gives you your item

The vending machine will only dispense your desired product after all requirements are met. If you don't select a product or insert enough money, the vending machine won't give out your product.



# Decentralized Applications (dApps)



\*From Talentica

# Lingo

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vmmunoza/  
**Blockchain-Lingo**



Basic Lingo in Blockchain

1 Contributor 0 Issues 2 Stars 0 Forks

**vmmunoza/Blockchain-Lingo: Basic Lingo in Blockchain**

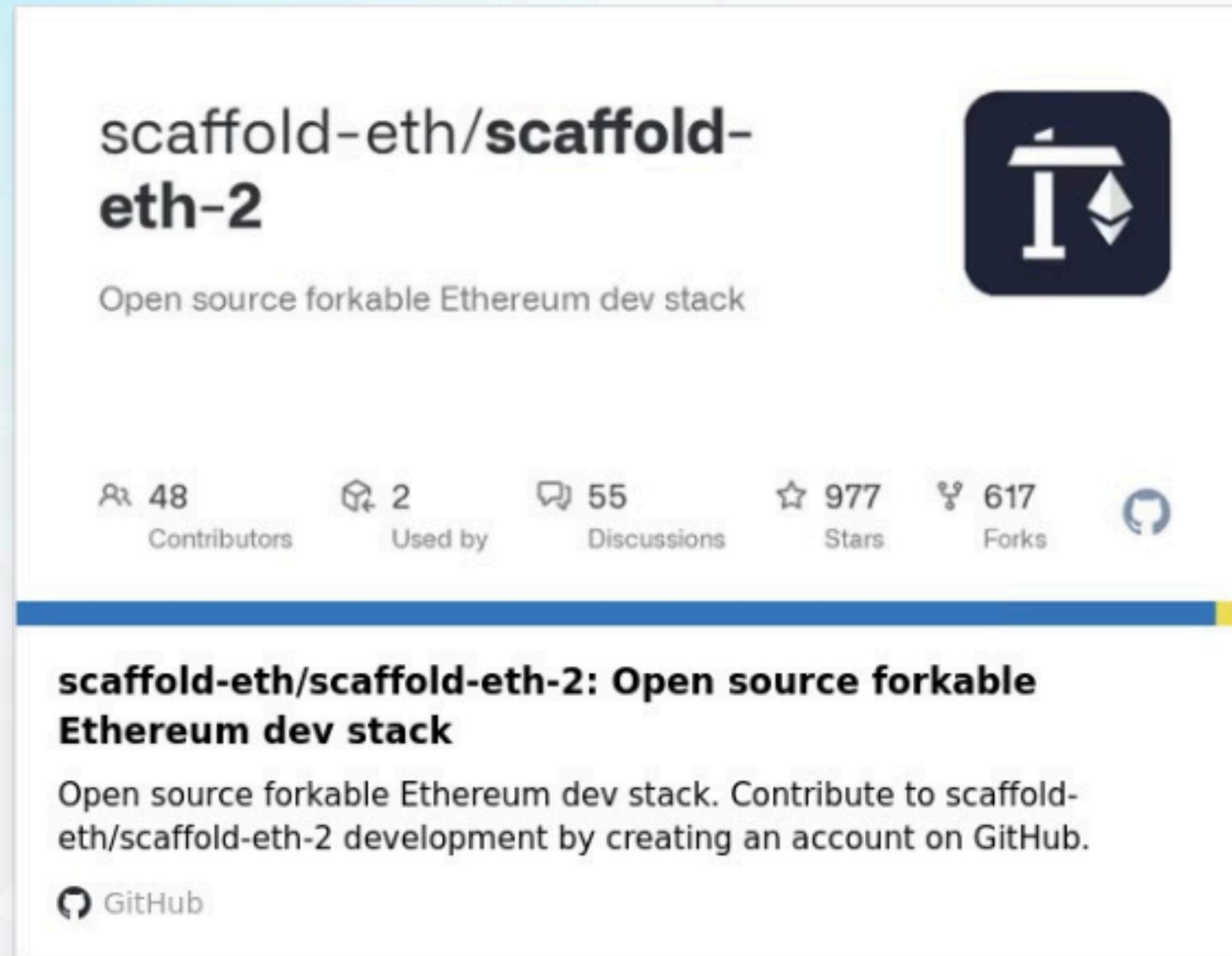
Basic Lingo in Blockchain. Contribute to vmmunoza/Blockchain-Lingo development by creating an account on GitHub.

[GitHub](#)



# What We Will Explore Today

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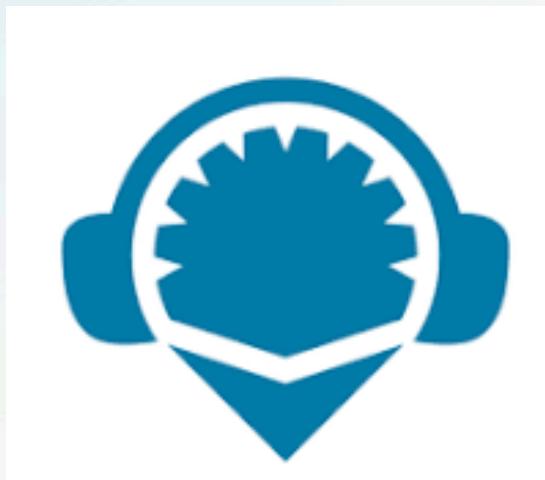


**Back-end and Front-end  
Integration for Smart  
Contracts on Metis L2!**

# REMIX IDE

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An open-source integrated development environment designed for Solidity smart contract development.



<https://remix.ethereum.org>

## Key Features

- **Solidity Support:**

Write, compile, and debug Solidity smart contracts.

- **User-Friendly Interface:**

Intuitive and accessible for all skill levels.

- **Browser-Based:**

No installation needed, runs directly in a web browser.

- **Integrated Tools:**

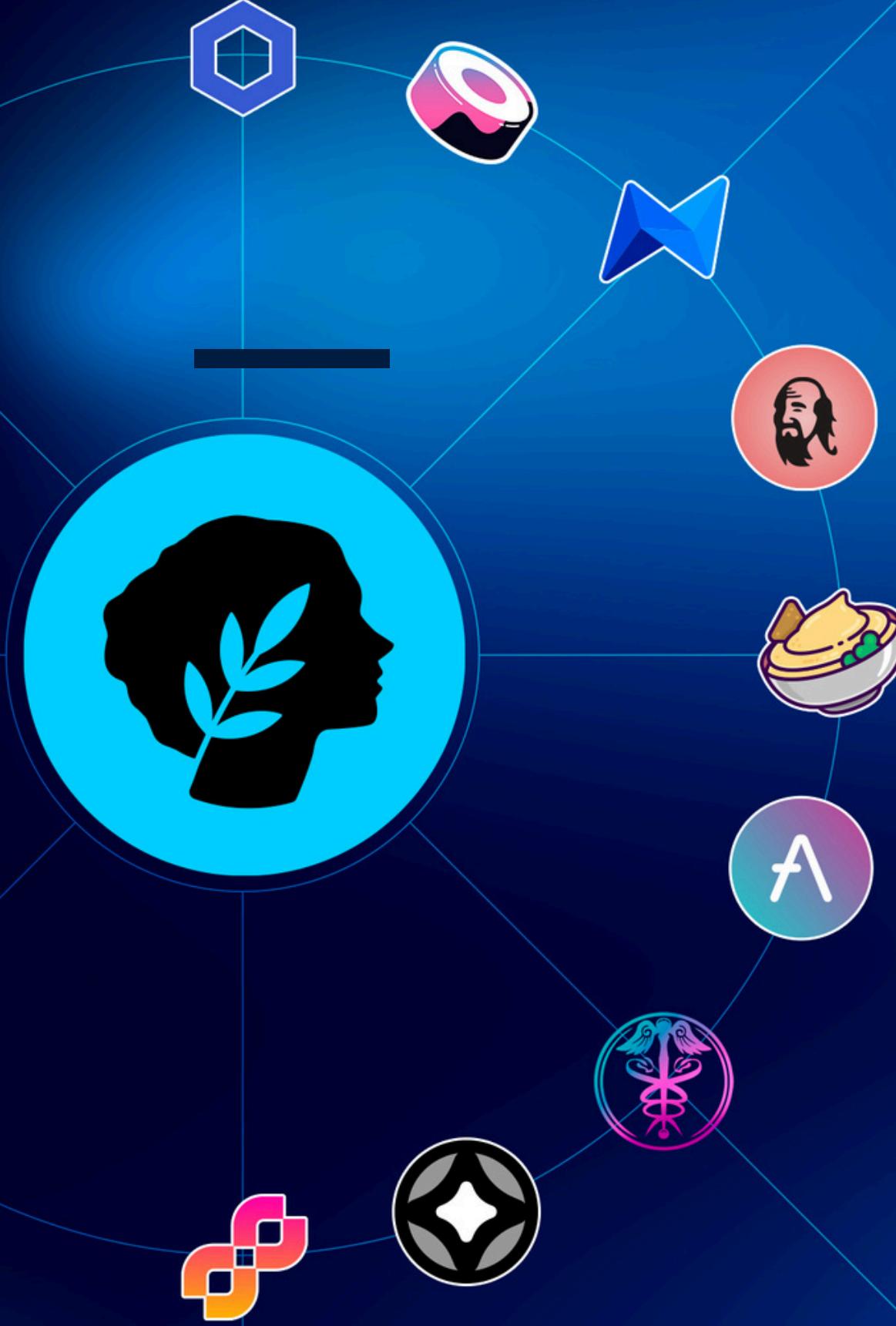
Includes code editor, Solidity compiler, and debugger.

- **Testing and Deployment:**

Easily test and deploy contracts on local, testnet, and mainnet networks.

- **Plugins and Extensibility:**

Modular architecture with plugins for added functionality.



# Opportunities in Metis

# Get Your First Grant on Metis!

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**Applications Open: Metis Foundation Partners with Gitcoin to Launch \$4M Annualized Grants Program**

NEW PARTNERSHIP



GITCHIN

# A Challenge for You

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Female-identifying builders can present the next workshop as a Metis DevRel Ambassador/Educator!



# Connect with the Devs Here

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Join Us on Telegram



@metis\_dev



# METIS

JOIN THE WEB3 ECONOMY

[metis.io](https://metis.io)