Blockchain Presence

Top Smart Contract Platforms

April 2022

Content

Manuel Steger
Market Analytics

Dominik Sarman
Market Analytics

David Maurenbrecher
Market Analytics

Jason Marolt
Market Analytics

Design

Kim Stauffer
Digital Marketing

Executive Summary 2022 Q1

Smart contract platforms are distributed ledgers, such as a blockchain or directed acyclic graphs (DAG), that enable users to deploy computer programs that run when predetermined conditions are met. This allows for an automated, verifiable execution of programs without any involvement by an intermediary.

The total market valuation of smart contract platforms amounts to $542 billion, as of the end of March 2022, which is equal to roughly 30% of the total market cap of the cryptocurrency market. The market valuation of a blockchain, also known as market cap, corresponds to the total number of tokens multiplied by the token price.

The market wide sell-off from November carried on well into December. We observed a strong correlation between the entire crypto market and the S&P500 from January to March, with a strong downtrend in the first two months of the year and a relief rally starting in mid-March. The year-to-date change of the total crypto market is -13.57%.

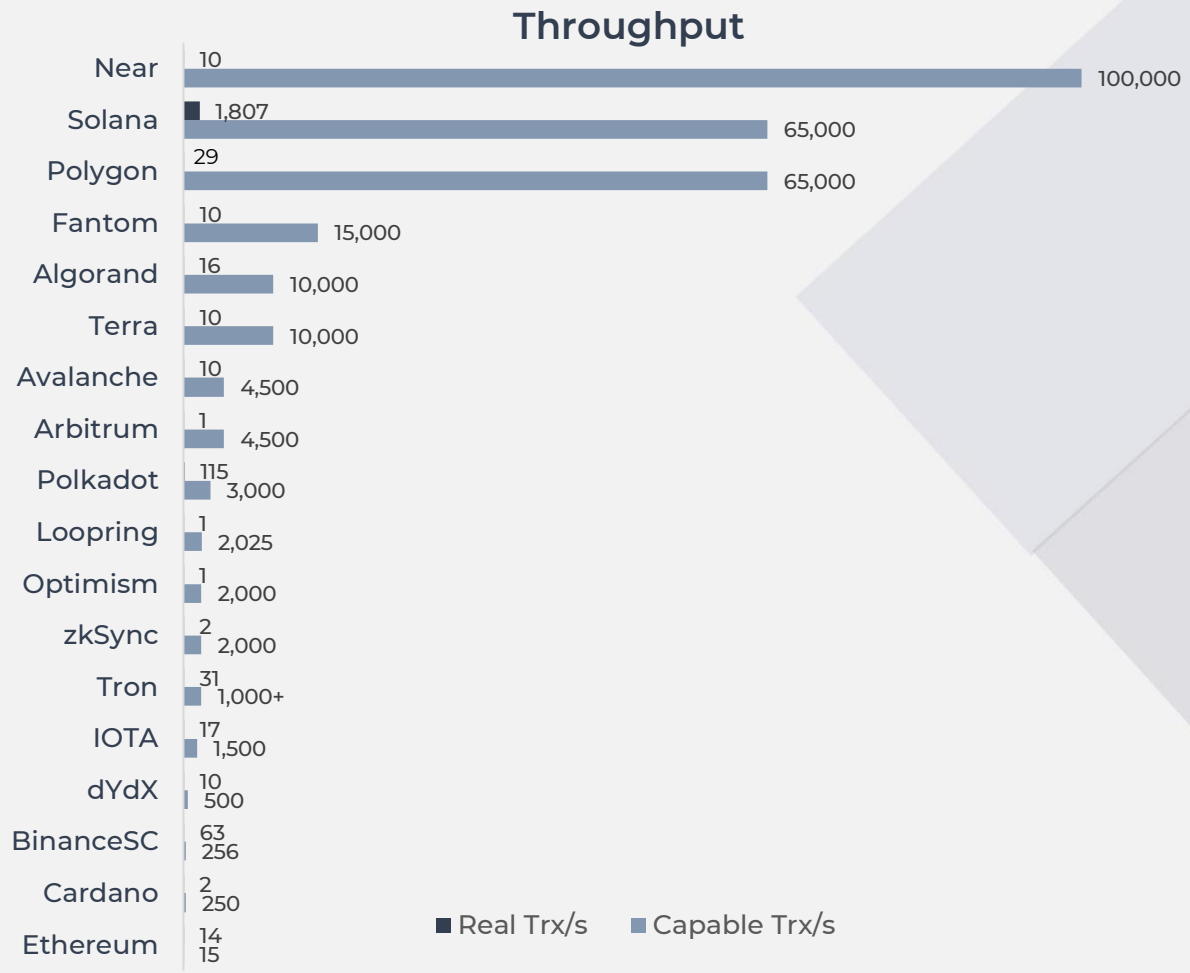
Fantom, a South Korean-based DAG, continued to grow its ecosystem despite the dropping market. Fantom's total value locked of $6.5 billion is a stunning 2x ratio compared to its market cap of $3.2 billion. For comparison: Ethereum's TVL to MC ratio is just 0.3. The total value locked represents the sum of all assets deposited in decentralized finance protocols of the corresponding blockchain. A good TVL/MC ratio often indicates that a smart contract platform has a big, developed ecosystem, yet the token has not captured the value yet, thus the market cap is still low. It is a good multiple or metric if you are a more value driven investor.

A second platform that managed to take the blockchain world by storm in the past three months was Terra, another South Korean-based project. Terra managed to gain 7% YTD, one of the only chains to do so. It managed to get into the top ten largest blockchains by market cap and hit an all-time high of $103.88 on March 9th. The total LUNA staked even surpassed the amount of Ether staked for Eth 2.0 by over $1'500 million and is constantly growing.

We do see an increased demand for Ethereum Layer-2 solutions during the past few months as the platform's transaction fees have, while decreased since its highs in late 2021, remained prohibitively high. These solutions utilize Ethereum's security properties while providing fees as low as a few cents by creating a separate execution environment. The TVL of these rollup solutions has grown to over $7 billion, increasing more than 25% over the past 90 days. This shift of value can also be justified by the breakthrough technologies the companies behind these Layer-2's are implementing.

Optimistic rollups, batching transactions, and relying on a challenge period as security are the most mature solution compromising 61% of the Layer-2 TVL. However, it seems like the future belongs to zero-knowledge rollups, offering instant finality through cryptographic validity proofs. A major recent achievement by zkSync is the zero-knowledge EVM available on the testnet, which allows for any Solidity written smart contract to work out of the box.

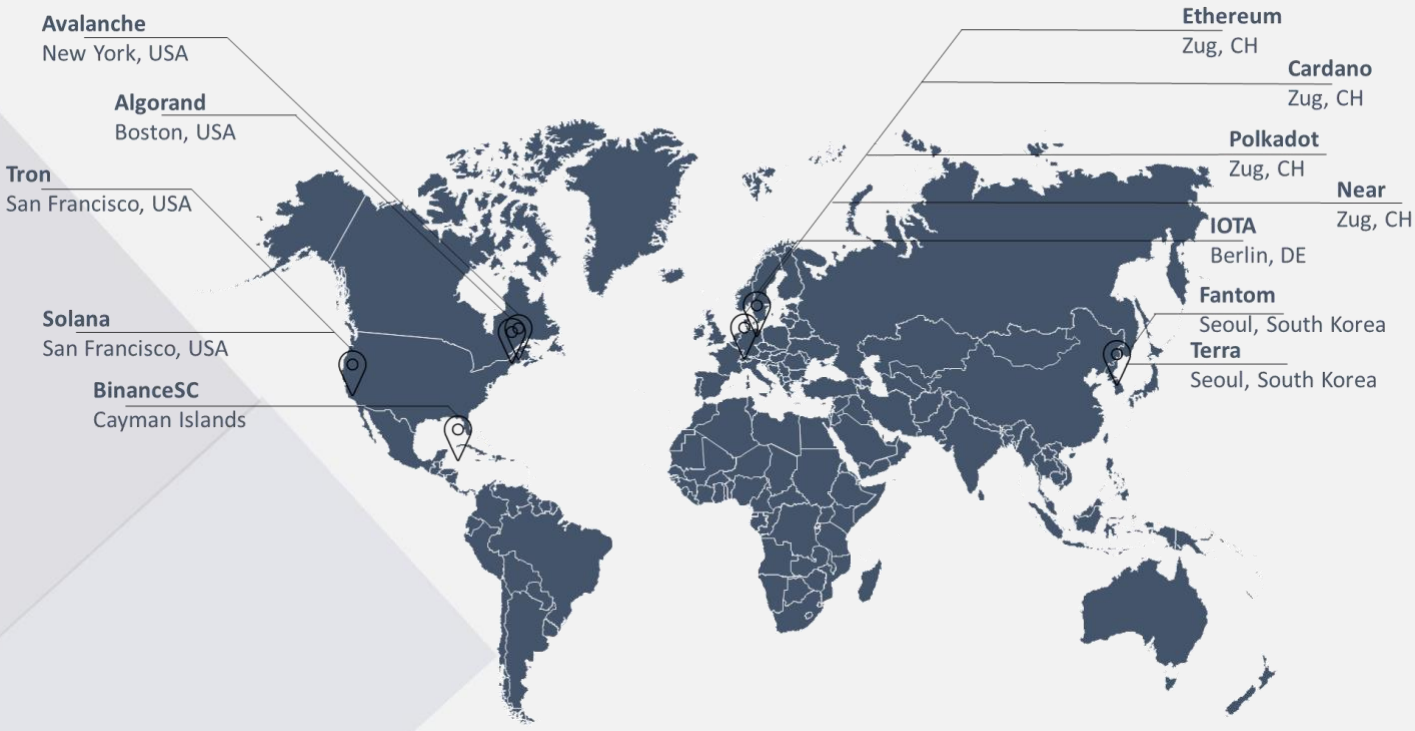
Charts


Throughput
Near
10
100,000
Solana
1,807
65,000
Polygon
29
65,000
Fantom
10
15,000
Algorand
16
10,000
Terra
10
10,000
Avalanche
10
4,500
Arbitrum
1
4,500
Polkadot
115
3,000
Loopring
1
2,025
Optimism
1
2,000
zkSync
2
2,000
Tron
31
1,000+
IOTA
17
1,500
dYdX
10
500
BinanceSC
63
256
Cardano
2
250
Ethereum
14
15
Real Trx/s
Capable Trx/s


Average Fee per Transaction
Ethereum
USD 9.3800
Cardano
USD 0.9600
Avalanche
USD 0.7000
Arbitrum
USD 0.4600
BinanceSC
USD 0.4000
Optimism
USD 0.3700
Polkadot
USD 0.3000
Fantom
USD 0.1000
zkSync
USD 0.0900
Algorand
USD 0.0840
Loopring
USD 0.0700
Terra
USD 0.0150
Solana
USD 0.0100
Tron
USD 0.0100
Polygon
USD 0.0096
Near
USD 0.0005
IOTA
USD -
dYdX
USD -

Platform Information

Layer-1 - Solutions



Ethereum

Description

Ethereum is a decentralized, open source blockchain with smart contract functionality. It has by far the biggest developer base and is the most decentralized smart contract platform of today. While inheriting the ability to be upgraded over time through EIPs, Ethereum also introduced the most used token standards, namely ERC-20, ERC-721 and ERC-1155. The platform will soon merge with the Beacon chain to shift from PoW to PoS. It serves as the settlement layer for the most promising rollup scalability solutions.

Headquarters

Zug, CH

Team

Vitalik Buterin (CEO, Founder)

Ticker

ETH

Smart Contract Language

Solidity

Consensus Algorithm

Proof-of-Work, soon Proof-of-Stake after the merge

Throughput

16.5 transactions per second

Applications

DeFi, DApps, Gaming, NFT, Lending Protocols

Interoperability

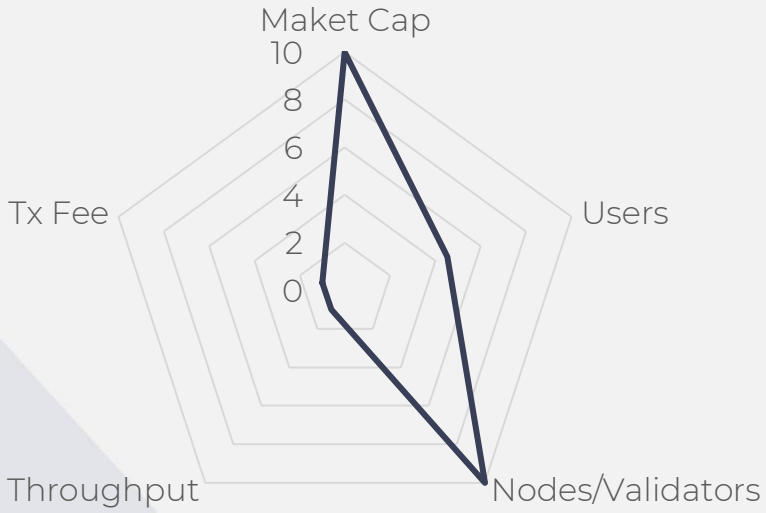
Limited but growing, Ethereum Enterprise Alliance

Ecosystem

MakerDAO, UNISWAP, ChainLink, Axie Infinity

Ethereum

Price	$3,007.75
Market Cap	$361,062,859,118
90d Low / 90d High	$2,204.83 / $4,119.12
All Time High	$4'878.05 (Nov 10, 2021)
Transaction Fee	$9.38
Users	563,008
Active Nodes	5,885



Binance SC

Description

The Binance Smart Chain is, apart from their internally used Binance Chain, one of the most used blockchains for smart contracts today. Since it is a hard fork of Go Ethereum (GETH), it supports any Solidity written smart contract and token. However, the Binance chain was created to run their well-known Crypto exchange and built to allow for cheap transfers of tokens. Both blockchains are not very decentralized and with a validator set of 21 and Binance's huge stake of BNB, the BSC is governed by a central authority.

Headquarters

George Town, KY

Team

Changpeng Zhao (CEO), Yi He (Co-Founder)

Ticker

BNB

Smart Contract Language

Solidity, Vyper, EVM compatible

Consensus Algorithm

Proof-of-Stake Authority

Throughput

256 transactions per second

Applications

DeFi, DApps, DAOs

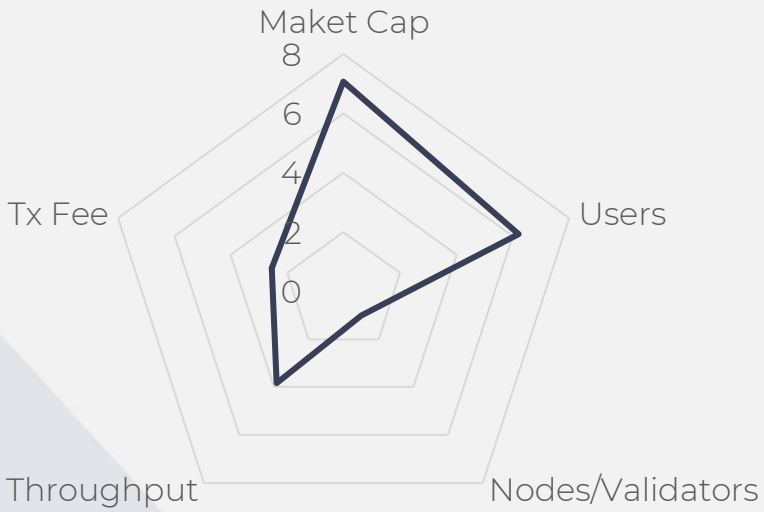
Interoperability

Yes, through EVM

Ecosystem

Binance Smart Chain

Price	$406
Market Cap	$68,350,117,207
90d Low / 90d High	$338 / $568
All Time High	$686 (May 10, 2021)
Transaction Fee	$0.4
Users	1,105,350
Active Validators	21



Terra

Description

The Terra blockchain builds the foundation for algorithmic based, fiat-pegged stable coins. To stabilize the stablecoins, it uses the native “LUNA” token. Terra was built using the Cosmos SDK Framework, a tool to create interoperable Blockchains

Headquarters

Seoul, South Korea

Team

Do Kwon (CEO), Jeff Kuan, Daniel Shin, Nicholas Platias

Ticker

LUNA

Smart Contract Language

Rust, CosmWasm

Consensus Algorithm

Delegated Proof-of-Stake

Throughput

10,000 transactions per second

Applications

Algorithmic Stablecoins, Financial Services

Interoperability

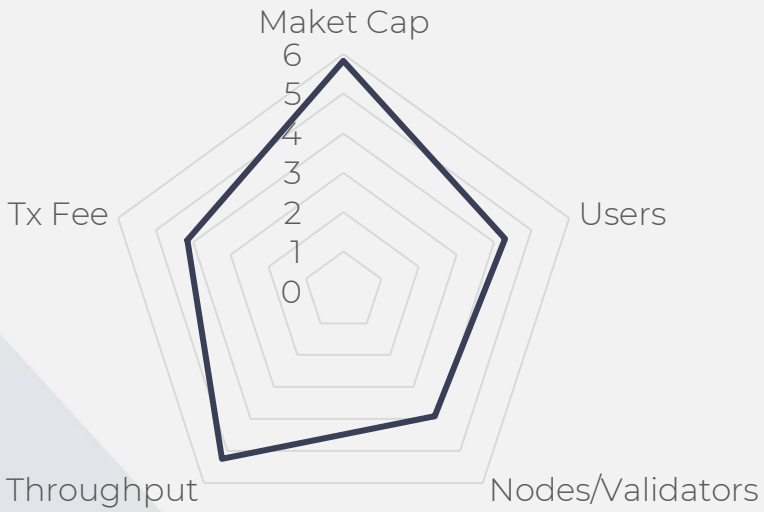
Yes (EVM-Compatible and Cosmos Tendermint)

Ecosystem

Mirror Protocol, Anchor Protocol, aaaaaaaaaaaaaaaaaaaaaa Chai

Terra

Price	$92.92
Market Cap	$33,763,395,597
90d Low / 90d High	$44.63 / $103.40
All Time High	$103.88 (Mar 09, 2022)
Transaction Fee	$0.015
Users	Unknown
Active Validators	130



Solana

Description

Solana is a Layer-1 blockchain that prioritizes transaction speed and scalability. With their new timestamp system called Proof-of-History, they achieved automatically ordered transactions.

Headquarters

San Francisco, USA

Team

Anatoly Yakovenko (Founder, Greg Fitzgerald (CTO)

Ticker

SOL

Smart Contract Language

Rust

Consensus Algorithm

Proof-of-History

Throughput

65,000 transactions per second

Applications

DeFi, DApps, Gaming, NFT, Lending Protocols

Interoperability

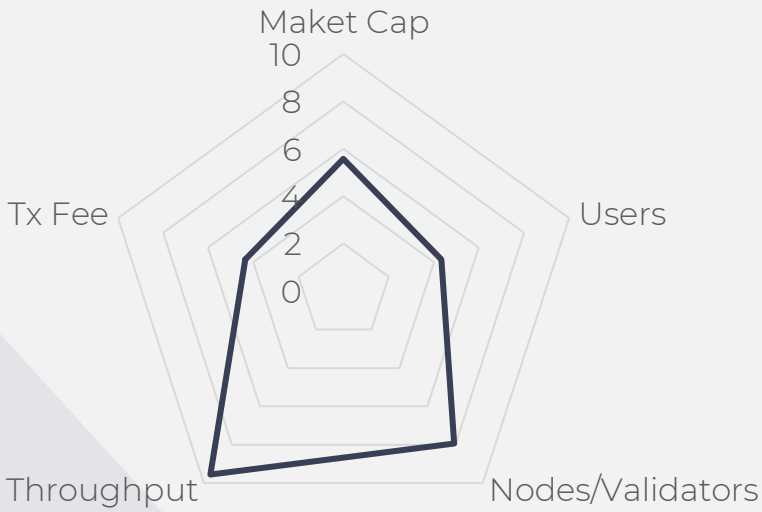
Full interoperability between Solana and Ethereum via Wormhole 2.0

Ecosystem

Wormhole, Audius, Solanart

Solana

Price	$91.60
Market Cap	$29,298,839,784
90d Low / 90d High	$82.68 / $203.09
All Time High	$259.96 (Nov 06, 2021)
Transaction Fee	$0.01
Users	524,080
Active Validators	1,612



Cardano

Description

Cardano is a decentralized public blockchain and cryptocurrency project that is fully open source. It is composed of a settlement layer for transaction execution and a computational layer for smart contract execution.

Headquarters

Zug, CH

Team

Charles Hoskinson (Co-Founder)

Ticker

ADA

Smart Contract Language

Haskell

Consensus Algorithm

Proof-of-Stake (Ouroboros)

Throughput

250 transactions per second

Applications

DeFi, DApps, Gaming, NFT, Lending Protocols

Interoperability

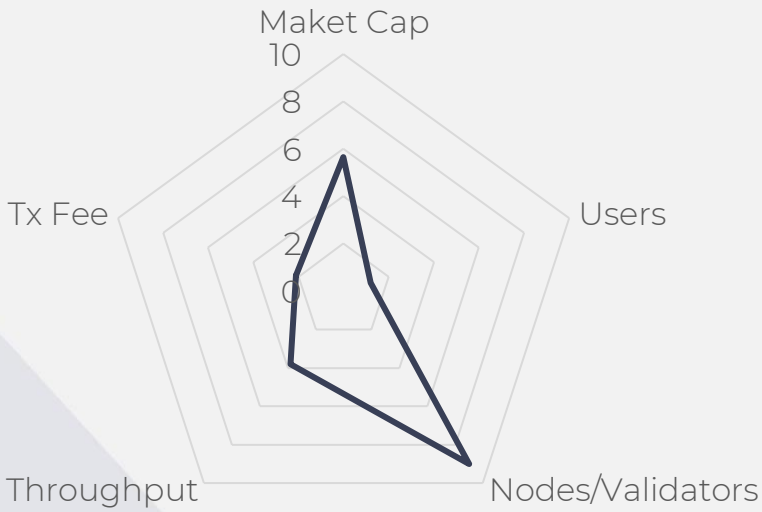
Cross-platform

Ecosystem

SundaeSwap, Meld

Cardano

Price	$0.95
Market Cap	$30,578,045,000
90d Low / 90d High	$0.78 / $1.59
All Time High	$2.96
Transaction Fee	$0.96
Users	150,000
Active Validators	3,160



Avalanche

Description

Avalanche is an established Layer-1 blockchain that functions as a platform for decentralized applications and custom blockchain networks. It offers a fully EVM-equivalent smart contract chain with a developed DeFi ecosystem.

Headquarters

New York, USA

Team

Emin Gun Sierer (Founder&CEO)
Chris Lavery (CFO)
Kevin Sekniqi (COO)

Ticker

AVAX

Smart Contract Language

Solidity

Consensus Algorithm

Proof-of-Stake

Throughput

4,500 transactions per second

Applications

DeFi, DApps, Gaming, NFT, Lending Protocols

Interoperability

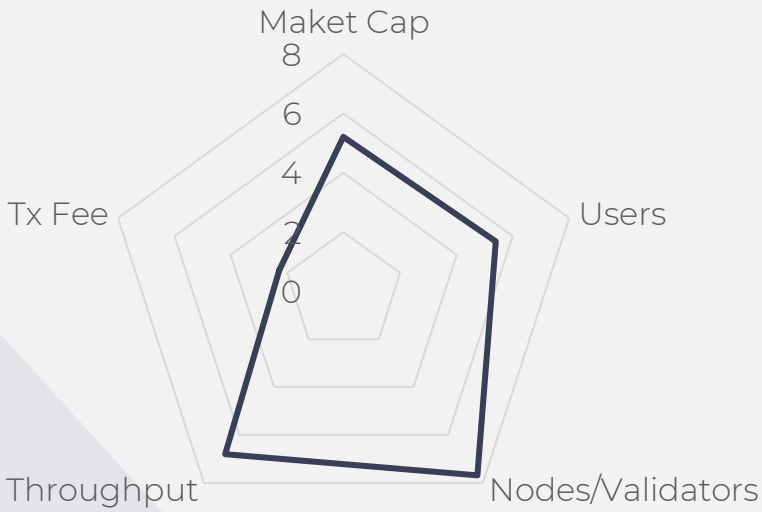
Yes, through X-Chain, C-Chain and P-Chain

Ecosystem

Rapidly expanding with private securities, ILOs, DEXs, Stablecoins

Avalanche

Price	$88.70
Market Cap	$23,712,483,819
90d Low / 90d High	$55.12 / $124.30
All Time High	$144.96 (Nov 21, 2021)
Transaction Fee	$0.7
Users	800,614
Active Validators	1,375



Polkadot

Description

Polkadot is a network of sub-chains called parachains that are all based on the Substrate modular framework. It uses a relay chain, which connects the individual parachains to make them interoperable. Polkadot aims to be the Internet of Web3 with separate parachains for every use case.

Headquarters

Zug, CH

Team

Gavin Wood (Founder), Joelson Fabian (CEO), Web3-Foundation

Ticker

DOT

Smart Contract Language

Rust with Substrate framework

Consensus Algorithm

Proof-of-Stake

Throughput

1,000-3,000 transactions per second

Applications

DeFi, DApps, Gaming, NFT, Lending Protocols

Interoperability

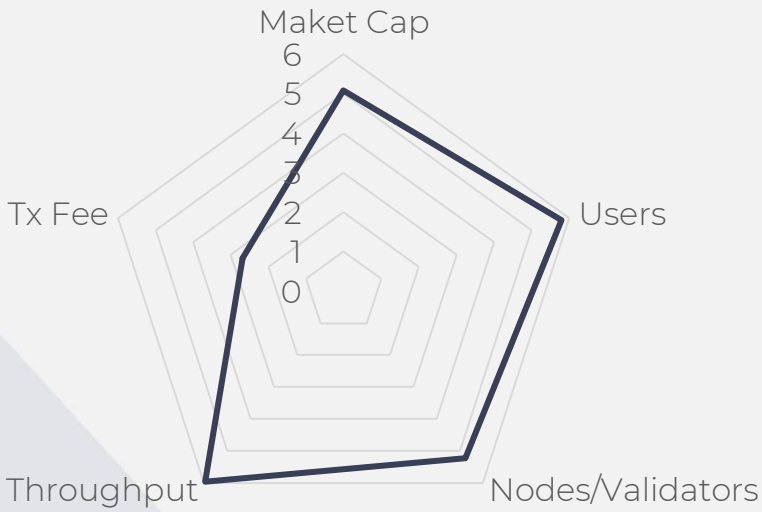
High degree of internal interoperability through relay chain

Ecosystem

Kusama, Moonbeam, Ocean Protocol

Polkadot

Price	$20.13
Market Cap	$22,052,970,217
90d Low / 90d High	$14.27 / $32.56
All Time High	$54.98 (Nov 04, 2021)
Transaction Fee	$0.3
Users	937,805
Active Validators	297



Near

Description

Near Protocol is a Swiss-based smart contract blockchain that focuses on creating a developer and user-friendly platform. NEAR is a Proof-of-Stake blockchain that uses sharding technology to achieve scalability. Near tries to achieve broad decentralization with its unique approach of node requirements which allows users to run a node on every smartphone.

Headquarters

San Francisco, USA (NEAR Inc.)
Zug, CH (NEAR Foundation)

Team

Alexander Skidanov & Ilya Polosukhin

Ticker

NEAR

Smart Contract Language

WebAssembly, officially supported are AssemblyScript & Rust (Layer 1)

Consensus Algorithm

Proof-of-Stake

Throughput

100,000 transactions per second

Applications

DeFi, DAOs, NFTs, Gaming

Interoperability

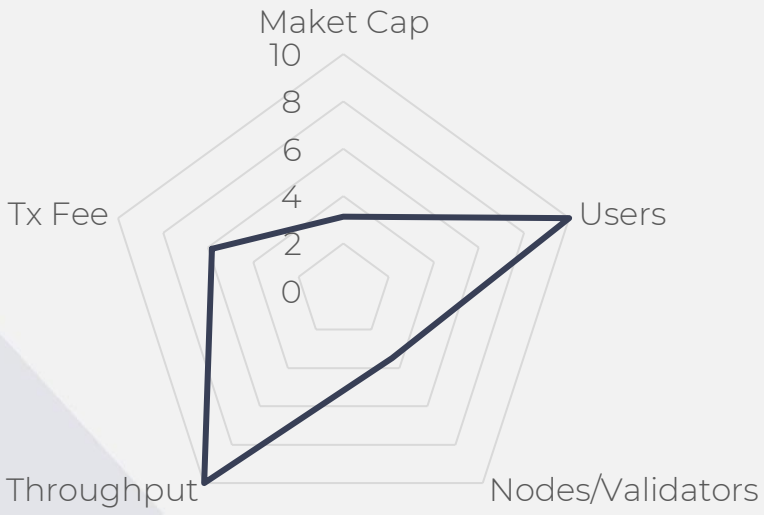
Aurora Network (compatible with EVM)

Ecosystem

Fast-growing ecosystem, currently 100+ applications

Near

Price	$11.15
Market Cap	$7,340,387,692
90d Low / 90d High	$7.58 / $20.27
All Time High	$20.44 (Jan 16, 2022)
Transaction Fee	$0.000495
Users	5,047,096 accounts
Active Validators	100



Tron

Description

Tron is an open-source, decentralized multi-purpose blockchain with smart contract functionality using a largely EVM compatible virtual machine. It has acquired the popular P2P file-sharing protocol BitTorrent and offers a token linked to the protocol's use.

Headquarters

San Francisco, USA

Team

Justin Sun, Tron Foundation

Ticker

TRX

Smart Contract Language

Solidity

Consensus Algorithm

Delegated Proof-of-Stake

Throughput

2,000 transactions per second

Applications

DeFi, DApps, P2P file sharing, Entertainment

Interoperability

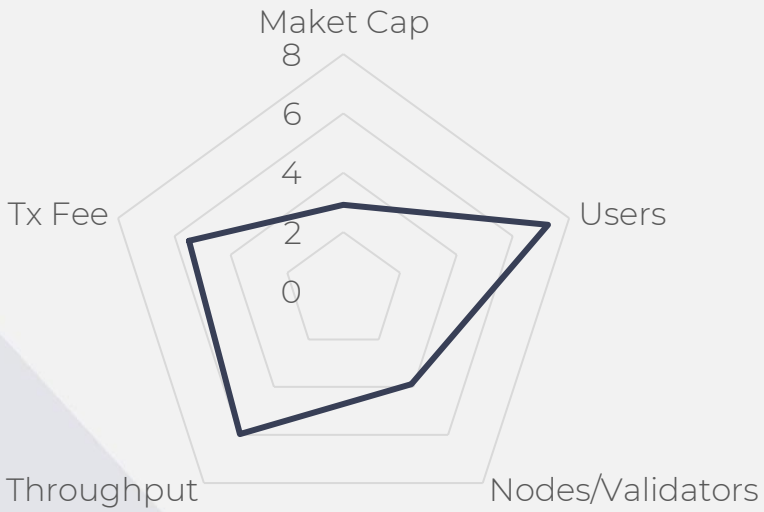
Multiple bridges available

Ecosystem

Growing, 100+ applications, BitTorrent

Tron

Price	$0.0633
Market Cap	$6,444,111,751
90d Low / 90d High	$0.0523 / $0.0832
All Time High	$0.2316 (Jan 05, 2018)
Transaction Fee	$0.001
Users	1,672,874
Active Validators	27 SR + 100



Algorand

Description

Algorand is a fully decentralized, secure, and scalable public smart contract blockchain that provides a common platform for building products and services for a borderless economy with fast transaction times and low fees. Algorand's strong focus on achieving near-instant completion makes it the ideal platform for CBDCs, and its built-in two-layer architecture will allow for efficient off-chain execution of complex smart contracts while still ensuring the security by randomly choosing validators from Layer-1.

Headquarters

Boston, USA

Team

Silvio Micali (Founder)
Steve Kokinos (CEO)
W. Sean Forder (COO)

Ticker

ALGO

Smart Contract Language

TEAL, Reach, Python, and Clarity

Consensus Algorithm

Pure Proof-of-Stake (PPoS)

Throughput

>10,000 transactions per second

Applications

DeFi, Infrasructure, Gaming, Supply Chain, Entertainment, Government, Insurance

Interoperability

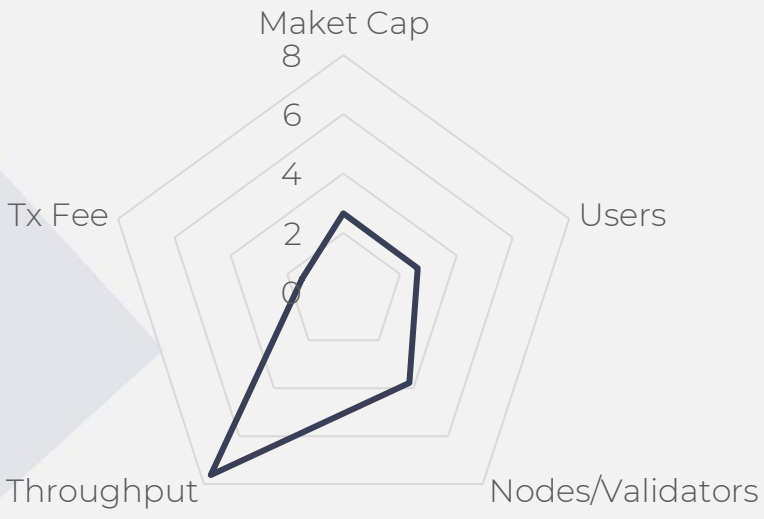
Yes

Ecosystem

500+ Companies leverage Algorand's platform, 100+ Applications. 60+ Global exchanges

Algorand

Price	$0.8417
Market Cap	5,586,129,663
90d Low / 90d High	$0.6772 / $1.820
All Time High	$3.56 (Jun 20, 2019)
Transaction Fee	$0.084
Users	265,823
Active Validators	120



Fantom

Description

Fantom is a decentralized, permission-free, open source Directed Acyclic Graph (DAG). Like other Ethereum alternatives, Fantom aims to offer more scalability and lower costs than legacy first-party smart contract platforms. They achieved this through the asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism called Lachesis.

Headquarters

Seoul, South Korea

Team

Michael Kong (CEO & CIO)
Simone Pomposi (CMO)
Quan Nguyen (CTO)

Ticker

FTM

Smart Contract Language

Solidity, Vyper, EVM compatible

Consensus Algorithm

Asynchronous Byzantine Fault Tolerant

Throughput

15,000 transactions per second

Applications

DeFi, DApps, Gaming, NFT, Lending Protocols

Interoperability

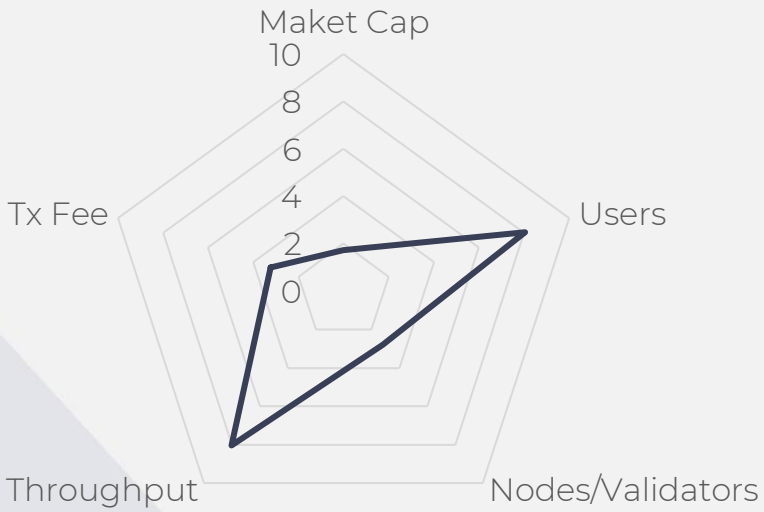
Yes, thorugh EVM and the soon to be released FVM

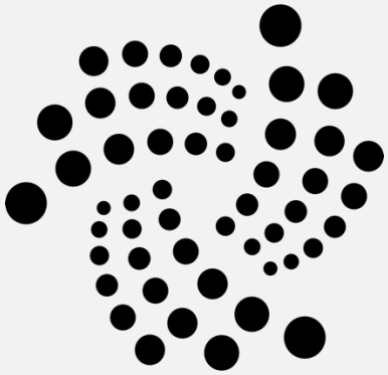
Ecosystem

SpiritSwap, SpookySwap, DeFI

Fantom

Price	$1.29
Market Cap	$3,279,047,814
90d Low / 90d High	$1.04 / $3.32
All Time High	$3.46 (Oct 28, 2021)
Transaction Fee	$0.1
Users	2,297,137 accounts
Active Validators	64





IOTA

Description

IOTA is an open-source distributed ledger designed for the Inter of Things (IoT). It uses a Directed Acyclic Graph (DAG) to store transactions on its ledger, leading to potentially higher scalability over blockchain based distributed ledger technologies. The low fees of DAG that resulted from not having to pay miners it optimal for facilitating microtransactions. IOTA will soon be fully EVM compatible with Solidity, Rust, Go and TypeScript support through its scalable Smart Contract layer called Assembly.

Headquarters

Berlin, Germany

Team

Dominik Schiener (Founder)

Ticker

MIOTA

Smart Contract Language

ABRA

Consensus Algorithm

The IOTA 2.0 consensus mechanism is designed to be permissionless and leaderless. It combines a binary voting protocol (FPC) as a pre-consensus.

Throughput

1,000-1,500 transactions per second

Applications

IOT, DAOs, DeFI

Interoperability

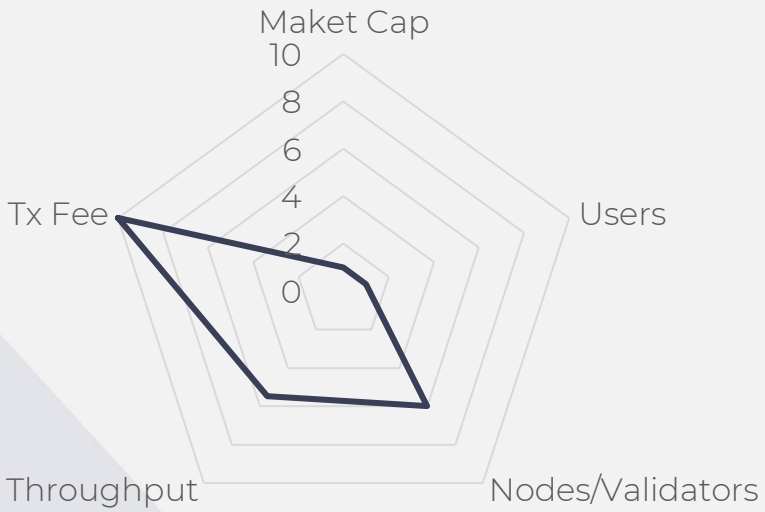
Ethereum (EVM)

Ecosystem

Hundreds of partnerships, POC apps, Libraries, and research tools

IOTA

Price	$0.7823
Market Cap	$2,171,842,329
90d Low / 90d High	$0.628 / $1.54
All Time High	$5.35 (Dec 19, 2017)
Transaction Fee	None
Users	139,029
Active Validators	477 (public nodes)



Platform Information

Layer 2 - Solutions

Polygon

Polygon PoS Chain, previously known as MATIC network, is an interchain scalability solution that gives an infrastructure for creating blockchain networks that can interface with each other. It intends to bring the adaptability and scalability of alt chains alongside Ethereum's security, liquidity, and interoperability. In addition to their PoS Chain, they provide multiple alternative scaling solutions including various zk-based rollups, Optimistic rollups and a separate data availability layer.

Headquarter

Bengaluru, India

Team

Jaynti Kanani (Co-Founder & CEO)
Sandeep Nailwal (Co-Founder & COO)
Anurag Arjun (Co-Founder & CPO)
Mihalio Bjelic (Co-Founder)

Technology

PoS (Matic), zk-SNARK (Hermez), Miden (zk-STARK), Zero (Plonky2)

Application

Scaling Solutions for Ethereum, Enterprise Chains, Interoperable with any EVM-Chain, Execution Layers & Data availability Layer

Ecosystem

7,000+ DApps, 440+ DeFi Applications, 50+ DAOs

Total Value Locked

$5,250,000

Market Share

2%
(PoS Chain, relative to other SCP)

Throughput

PoS: 65,000 / Hermez: 2,000
Nightfall: 100+ / Miden: 1,000+
Zero:depends on active nodes (almost unlimited)

Transaction Fee

$0.0096

Risks

Operator triggering a false alarm during withdrawal can result in stolen funds (Hermez)

Arbitrum

Arbitrum is an optimistic rollup, collecting off-chain transactions, posting them Ethereum and allowing for a seven-day challenge window before transaction finality. It is currently the largest Ethereum Layer 2 rollup (by TVL) and offers EVM compatibility through its streamlined Arbitrum Virtual Machine. It differs from competing optimistic rollups by providing fragmentation challenge, which challenges blocks of transaction piecemeal lowering the Layer 1 gas use and therefore costs.

Headquarter

New York, USA

Total Value Locked

$2,870,000,000

Team

Ed Felten (Co-Founder)
Steven Goldfeder (Co-Founder)
Harry Kalodner (Co-Founder)

Market Share

53%

Technology

Optimistic Rollup

Throughput

4500 tps

Application

Universal (EVM Equivalence)

Transaction Fee

$0.46

Ecosystem

150+ DApps with all major Ethereum Exchanges
Bridges to 10+ Chains

Risks

Lack of escape in case of validator failure

Optimism

The first optimistic rollup to launch for Ethereum, Optimism submits off-chain transactions through a smart contract on Ethereum. Its Optimism Virtual Machine is EVM equivalent allowing for Solidity contract execution off-chain. Security is assured through a 7-day challenge period for submitted blocks, only after transaction finality is reached.

Headquarter

San Francisco, USA

Total Value Locked

$416,000,000

Team

Jinglang Wang (Co-Founder)
Kevin Ho (Co-Founder)

Market Share

8%

Technology

Optimistic Rollup

Throughput

200-2,000 tps

Application

Universal (EVM Equivalence)

Transaction Fee

$0.37

Ecosystem

100+ DApps with all major Ethereum Exchanges, Wallets and DeFi DApps
Bridge to 10+ Chains

Risks

Lack of escape in case of validator failure

dYdX

dYdX is an Ethereum Layer-2 decentralized derivatives trading platform. Its off-chain order books combined with on-chain settlement allow for leveraged margin, spot, and perpetual trading with instant execution. The off-chain orders are secured through Starkwares zk-Rollup.

Headquarter

San Francisco, USA

Team

Antonio Juliano (Founder)

Technology

Zk-STARK

Application

Digital assets trading

Ecosystem

Only dYdX trading application

Total Value Locked

$965,000,000

Market Share

15.65%

Throughput

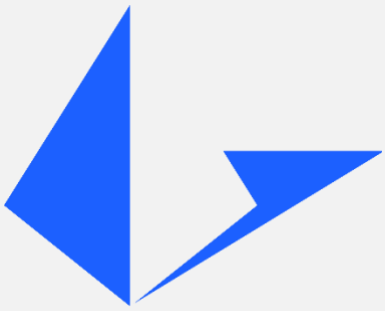
500 tps

Transaction Fee

0.05%-0% (30D trading volume dependent)

Risks

Counterparty for force trade (exit) must be found otherwise loss of funds



Loopring

Loopring is a zk-rollup built on top of Ethereum, making this Layer-2 solution very secure, efficient, and cheap. Its main feature is the non-custodial exchange that supports both automated market maker (AMM) and the order-book exchange model. Combined with the Loopring wallet and its built-in payment protocol, users can exchange various digital assets, including ERC-20, ERC-721, and ERC-1155 tokens. The main purpose of Loopring is to provide a platform on which centralized and decentralized exchanges can build on. A partnership with GameStop for their digital marketplace is already ongoing.

Headquarter

Shanghai, China

Total Value Locked

$320,000,000

Team

Daniel Wang (Founder)
Adam Browman (Head of growth)
Byron Wiebe (Head of community)

Market Share

5.14%

Technology

Zk-SNARK

Throughput

2025 tps

Application

Scaling solution for Exchanges & Marketplaces, Layer 2 Wallet

Transaction Fee

$0.07

Ecosystem

Loopring Exchange
Supports Metamask, Argent and various On-Ramp solutions

Risks & Security Measures (+)

- No delay on code upgrades
+ Escape Hatch in case of validator failure by submitting Merkle proof

zkSync

ZkSync is a zk-Rollup built on top of Ethereum. Their goal is to provide a trustless scaling and privacy solution for Ethereum based on zero-knowledge technology, emphasizing superb user and developer experiences. At the moment of writing, zkSync 2.0 is live on the testnet supporting all EVM-compatible smart contracts while zkSync 1.1 already allows for transfer of various digital assets, burning, minting, and swapping tokens (also NFTs) on Layer-2.

Headquarter

George Town, Cayman Islands

Total Value Locked

$140,000,000

Team

Alexandr Vlasov (Founder)
Alex Gluchowski (Co-Founder)
Serge Beresnev (Frontend Developer)

Market Share

2.25%

Technology

Zk-SNARK

Throughput

2,000 tps

Application

2.0: Universal (zkEVM)
1.1: Transfer, Burning, Minting and Trading

Transaction Fee

$0.09

Ecosystem

60+ DApps with Walletconnect support, on-ramp, DeFi, Dao's and Bridges

Risks & Security Measures (+)

-MEV can be extracted by operator
+Escape Hatch in case of validator failure by submitting zk-proof of funds

Disclaimer

The information in this report is provided by and is the sole opinion of Blockchain Presence AG's research team. The information is provided as a general market commentary and should not be the base for investment decisions or be taken as investment advice concerning any digital asset or the issuers thereof. Trading digital assets, in particular smart contracts, involves significant risk. Any person considering trading digital assets should seek independent advice on the suitability of any digital asset. Blockchain Presence AG does not guarantee the accuracy or completeness of the information provided in this report and accepts no liability of any kind arising from the use of any information contained in the report, including without limitation, any loss of profit. Blockchain Presence AG expressly disclaims all warranties of accuracy, completeness, or fitness for a particular purpose concerning the information in this report. Blockchain Presence AG shall not be responsible for any risks associated with accessing third-party websites, including the use of hyperlinks. All market prices, data, and other information are based upon selected public market data, reflect prevailing conditions, and research's views as of this date, all of which are subject to change without notice. This report has not been prepared by any legal requirements designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of the dissemination of investment research. Blockchain Presence AG and its affiliates hold positions in digital assets and may now or in the future hold a position in the subject of this research. This report is not directed or intended for distribution to, or use by, any person or entity who is a citizen or resident of or located in a jurisdiction where such distribution or use would be contrary to applicable law or that would subject Blockchain Presence AG and/or its affiliates to any registration or licensing requirement. The digital assets described herein may or may not be eligible for sale in all jurisdictions.

Blockchain Presence AG
Zurich, Switzerland

Contact
info@blockchainpresence.net

Startup
University of Zurich[UZH]