BLOCKCHAIN

WEB3.0

METAVERSE

DAO

DAPPS

Collective droplets of the Real Blockchain since 2013

Author

GUNTAKATLA PANDURANGA RAO

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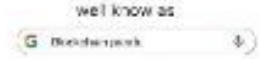


About the Author

Pandu Ranga Rao (Blockchain Pandu) has been a IIIT-H student in the Blockchain. His research focuses on blockchain technology and how it can be used to increase transparency and reproducibility in supply chains and All domains in WEB3 from WEB2. In addition to theoretical knowledge, “Blockchain Pandu” is passionate about transferring these research results into an innovative product, which is why he is co-founder and CTO of Metaweb3.

Holding 16 years of IT experience, currently working as a Chief Metaverse Officers at MetaWeb3 and Volunteer In “Indian Institute of Blockchain Technology”. Where teaching about Blockchain, WEB3 and Metaverse. Conducted many corporate, classroom trainings and guest lecture in many universities through Industry interaction programmers since 2016.

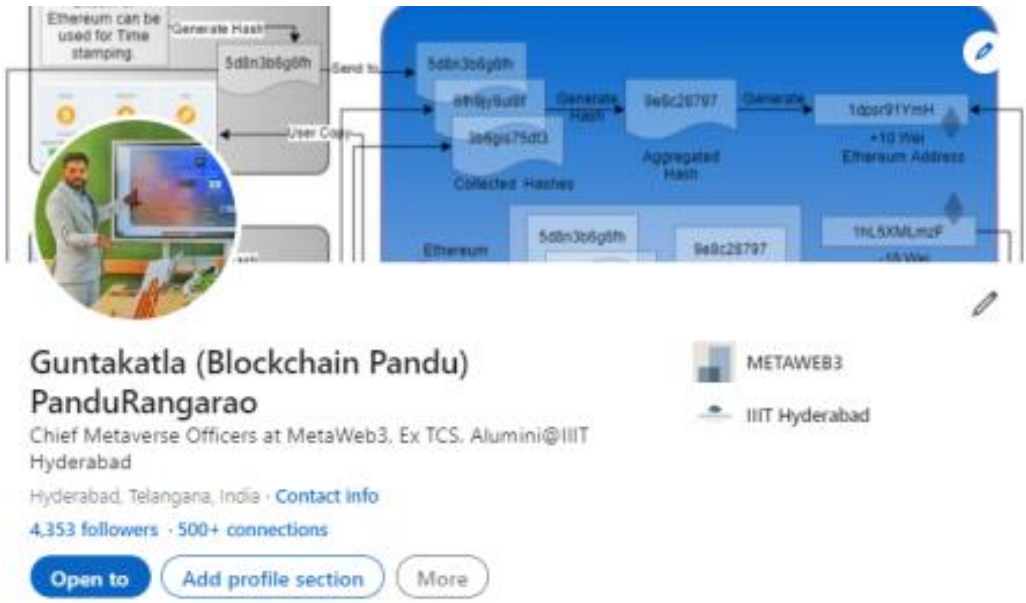
Code contributor for a couple of Blockchain platforms.

International Institute of Executive Careers (IIEC) and IIIT-H Certified Blockchain

Expert, specialized in DIMS with SIG (Decentralized Identity Management System with Secure Identity Governance) involved with several Blockchain Live projects.

The blockchain idea has been shortlisted and got invitation from Fin-tech Valley Finackathon 2017 initiative by Government of Andhra Pradesh.

Succeeded in creating Blockchain public DID with “LinkedIn”, “Facebook(Meta) “and Gmail by using Stratis Blockchain identity framework in 2016



About the Co Authors

Nandini Gunashekar, Co Author, Blockchain Developer.

The idea for this book came with the intention to help Everyone looking to gain knowledge on the questions posed for Interview.

I’m indebted to Guntakatla PanduRangarao who was the sole reason for the creation of this book.

V Vamshi Krishna Goud, Co Author, Blockchain Developer.

The main aim of this Blockchain FAQs, Is to get a brief glance over the blockchain fundamentals with the respective Consensus algorithms by analysing the 72 blockchains public & private platforms. And The Future tech's web3.0, Metaverse, DAO, NFT are how it can integrate the web2.0 tech's. With these faq's you get to know how different blockchain perform with their transition throughput & how blockchain has recycled/updated its performance in the tech market since 2013

I’m grateful to Guntakatla PanduRangarao(Blockchain Pandu) for making me part of this Blockchain FAQ,s book.

BLOCKCHAIN FAQ'S

Before starting developing applications on Blockchain, it is very important to understand how this whole ecosystem works. Without understanding the core of the technology, you will not be able to make infrastructural decisions and will eventually end up with a negligible scalable product. There are 100s of blockchains, 100s of smart contract languages, 100s of libraries. tools and frameworks, but you have to pick only a few that best suit your application. This involves a great understanding of Blockchain fundamentals.

Without prior knowledge of programming, you can develop smart contracts, but making them immune to attacks and vulnerabilities is near to impossible. Smart contracts are smart for the underlying logic that makes them efficient and secure. Building audit-ready smart contracts, requires logic building, choosing the right memory specifications for variables and data handling, and writing a time-efficient and clean code. This involves a good understanding of Data structures and algorithms.

You can easily get a high-paying job but it may not be secure. Employers agree to pay a decent amount to blockchain developers but 80% of products in Web3 do not sustain. You will have to switch jobs frequently and still be efficient while adapting to changing work environments and product needs. Therefore, working with a startup that has a future scope is much better than working with a short-term, high-paying startup.

You definitely need to be familiar as well as comfortable with developing in Web2, as 90% of the Web3 application stack is Web2. Having experience with deploying applications in Web2 gives you a greater edge over most Web3 developers. Critical thinking, problem-solving, proper testing, quick deployment, and infrastructure decision-making, are crucial and must-have skills for any product developer.

First Generation: - Bitcoin Blockchain

What is a blockchain?

A distributed, cryptographically secure database structure called blockchain, enables network users to create a reliable, unchangeable record of transactional data without the use of intermediaries. A blockchain can carry out a number of tasks in addition to transaction resolution, like smart contracts. Smart contracts are digital contracts that can have any number of formats and conditions since they are integrated in code. Blockchains have demonstrated that they are superior options for securely coordinating data, but they can also be used for tokenization, incentive design, assault resistance, and counterparty risk reduction, to name just a few. The Bitcoin blockchain, which itself was the result of more than a century's worth of progress in database and encryption, was the very first blockchain.

What is a block in blockchain?

Data and information are kept in units called "blocks," which are arranged in a sequential manner.

What is a Chain in blockchain?

Chain refers to the fact that each block cryptographically references its parent. In other words, blocks get chained together. The data in a block cannot change without changing all subsequent blocks, which would require the consensus of the entire network.

What is a Node in Blockchain?

Every computer in the network must agree upon each new block and the chain as a whole. These computers are known as nodes. Nodes ensure everyone interacting with the blockchain has the same data. To accomplish this distributed agreement, blockchains need a consensus mechanism.

What is block time?

The length of time it takes for a block to be put to the canonical chain can differ significantly based on how blockchain protocol was created. A blockchain is a linear structure. since each new block cannot be undone and occurs following the one that came before it. The linearity of a blockchain makes it the optimal mechanism for validation. As of July 2019, the Ethereum blockchain is adding new blocks at a rate of roughly 14 seconds, according to ethstats.io.

What is consensus in blockchain?

The process used by a group of peers or nodes on a blockchain network to agree on the validity of transactions submitted to the network is called consensus.

What is Nonce in blockchain?

The Nonce is a random whole number, which is a 32-bit (4 byte) field, which is adjusted by the miners, so that it becomes a valid number to be used for hashing the value of block. Nonce is the number which can be used only once. Once the perfect Nonce is found, it is added to the hashed block. Along with this number, the hash value of that block will get rehashed and creates a difficult algorithm.

What is a blockchain system?

A blockchain system is the collective term for all the components that make up a specific blockchain, including the consensus algorithm, the state machine, and the cryptographic operations. As described in Mastering Ethereum by Andreas Antonopoulos and Gavin Wood, there are "a large range of blockchains with diverse attributes"; these descriptors "help us comprehend the qualities of the blockchain in issue, such as open, public, decentralized, neutral, and censorship-resistant."

How does a blockchain work?

In a blockchain network, when a digital transaction happens, it is compiled with other transactions that happened at the same time into a cryptographically secure "block." The network is then informed about the block. A blockchain network is made up of nodes or participants that verify

and relay transactional data. Participants known as "miners" employ computational power to solve a cryptographic puzzle and validate the block of transactions. The block of transactions is then considered to be valid. The first miner to correctly solve and validate the block is rewarded. A chain of blocks is made up of verified blocks that are each linked to the previous verified block. The hash function is a significant cryptographic component of blockchains. A string entered into the system is given a fixed value by hashing. A deterministic, fast computable, and preimage-resistant system is produced via blockchain hashing power. Discover more about the functioning of a blockchain by exploring our knowledge base.

What is a blockchain database?

In the past, databases had a centralized client-server architecture in which the central server was under the Control of a single authority. This approach results in a single point of failure for data security, modification, and deletion. Blockchain decentralized architecture evolved as a solution for many of the drawbacks of centralized database architecture. A blockchain network is made up of a sizable number of distributed nodes, or willing participants, who collaborate to maintain a single transactional record and come to consensus.

What is a blockchain application?

Unlike traditional software applications, blockchain applications use a decentralized architecture and crypto economic systems to tokenize assets, improve security, and create new network incentives. The Ethereum blockchain ecosystem currently supports over 90 Ethereum applications, ranging from prediction markets to smart contracts.

What are the benefits of blockchain technology?

Blockchain technology has a wide range of opportunities for both local communities and global enterprises. Trusted data coordination, attack resistance, shared IT infrastructure, tokenization, and built-in incentivization are some of a blockchain's most frequently mentioned features.

What is the blockchain revolution?

Blockchain is considered as a disruptive technology due to its potential to protect private data, eliminate middlemen, liberate digital assets, and potentially allow countless people to participate in the global economy. Blockchain technology, often referred as the Trust Machine, is bringing security and transparency to digital networks across a broad range of industries. The blockchain revolution is indeed referred as a Trust revolution.

What is distributed ledger technology?

Blockchain technology falls underneath distributed ledger technology. Simply said, a distributed ledger is what its name suggests. Distributed ledger technology involves multiple users in a network to maintain a digital record rather than accounting for data through a single centralized computer. With the use of cryptographic functions, a consensus algorithm, and a distributed ledger, blockchain technology improves incentive design, security, accountability, cooperation, and trust.

What is a blockchain wallet?

A blockchain wallet contains the private key that enables you to safely access your own digital assets as well as the public key that allows others to send

cryptocurrency to your address. Typically, node hosting comes with a blockchain wallet that holds cryptocurrency on your computer. Read "7 Pro Tips for Keeping Your Crypto Safe" for some best practices on safeguarding your digital assets. Offline storage, often known as "cold storage," is the safest place to keep digital assets.

What is blockchain programming?

Blockchain is a new technology that makes use of international digital networks, thus there is a huge demand for programmers, who have flocked to the blockchain field in recent years. The emphasis on security and encryption in blockchain programming sets it apart from previous Internet endeavours. With the help of the Developer Program at ConsenSys Academy, programmers of any experience level may quickly become blockchain experts. The course, which focuses on Ethereum blockchain development, is instructed by industry professionals from all over the world.

What is a blockchain company?

A firm that invests in, develops, or otherwise works with blockchain technology is known as a blockchain company. Forbes just published a report on the top 50 billion-dollar corporations exploring blockchain, and State of the Dapps evaluates blockchain-based decentralized applications based on user activity.

What is a Public blockchain?

A public blockchain is one that allows anybody to join and take part in the essential operations of the blockchain network. It is possible for anybody to view, publish, and audit the current activity on a public blockchain network, which contributes to the self-governed, decentralised aspect that is frequently highlighted when discussing blockchain technology.

What is a private blockchain?

Blockchain development started out as an open-source project. As businesses and other government entities came to understand the advantages of distributed ledger technology, particularly when used within private enterprise systems and for handling sensitive transaction data, private blockchains were created. Industry experts predict that private and public blockchain networks will merge as a result of increasingly reliable and adaptable privacy and permissioning solutions.

What is a Consortium blockchain?

A consortium blockchain is a combination of multiple private blockchains belonging to different organizations, where each of them forms a node on the chain as a stakeholder in the alliance — and can only leave or join the network with the authorization of the stakeholders. While each organization manages their own node or blockchain, the data within can be accessed, shared and distributed by organizations within the consortium. In doing so, cross-organization and cross-technology solutions can be developed to improve their existing workflows, accountability and transparency, thereby addressing the issues and challenges encountered by individual blockchains.

What is a permissioned ledger?

A blockchain network in which access to ledger or network requires permission from an individual or group of individuals, as opposed to a public blockchain. Permissioned ledgers may have one or many owners. Consensus on a permissioned ledger is conducted by the trusted actors, such as government departments, banks, or other known entities. Permissioned blockchains or ledgers contain highly-verifiable data sets because the consensus process creates a digital signature, which can be seen by all parties. A permissioned ledger is much easier to maintain and considerably faster than a public blockchain. For example, Quorum or Hyperledger Besu are permissioned ledgers that can be more easily set up for large enterprises. In contrast, the public Ethereum blockchain is a permissionless ledger which anyone can access.

What is a Bitcoin?

Bitcoin is a digital money that runs without any kind of centralised management, bank supervision, or government regulation. Instead, it uses cryptography and peer-to-peer software. All bitcoin transactions are recorded on a public ledger, and copies of it are stored on servers all around the world.

What is mining?

The process by which blocks or transactions are verified and added to a blockchain using a consensus mechanism(Ex:POW). In order to verify a block a miner must use a computer to solve a cryptographic problem. Once the computer has solved the problem, the block is considered “mined” or verified. In the Bitcoin blockchain, the first computer to mine or verify the block receives bitcoins as a reward.

What is the meaning of liquidity in crypto?

Liquidity, in its most basic form, relates to how simple it is to swiftly convert a cryptocurrency into cash and whether this can be done without the asset's value falling. A liquid coin often trades at or near its market value.

What is Proof-of-Work(PoW) consensus algorithm?

A Proof-of-Work(PoW) is a piece of information that is challenging to create but simple for others to verify whenever a user starts a transaction. To validate it, "miners" or "supercomputers" attempt to solve a puzzle. Either a mining pool or a random guessing technique can be used to generate a proof-of-work.It requires more computing power and is expensive in terms of its energy usage. The PoW consensus hashing algorithms that may be mined by ASIC (e.g.SHA256), CPU(e.g. CryptoNight),GPU(e.g., ETHash), and CPU + GPU (e.g. Equihash).Different cryptocurrencies that uses Proof of Work are Bitcoin, Bitcoin cash, Litecoin, Dash, Monero etc

What is Proof-of-Stake(PoS) consensus algorithm?

PoS is intended to improve network security and decrease resource wastage. To become a validator and establish a block, a user is encouraged to spend more money.

What is Delegated Proof of stake (DPoS) consensus algorithm?

Delegated proof of stake is same as PoS, however users who have more coins can vote and choose witnesses. Each coin-carrying wallet can vote for delegates. The weight of a vote is proportional to stake in a wallet.Delegates produce fresh blocks (like miners in PoW) Validate transactions and earn profits from the fees. It Maintain the blockchain, for example, by voting to alter the network's settings like as block intervals and transaction costs,also very quick transaction confirmation (less than one

second).Lisk, EOS, BitShares, Ark, and Steem are examples of popular DPoS cryptocurrencies.

What is Leaked Proof of Stake (LPOS) consensus algorithm?

Users in Leased PoS have two options: they can become full nodes or lease their share. Users will have the option of creating personalised tokens to use on their farms to increase security.The network is maintained by full nodes, they are responsible for processing transaction and block generation. PoS is based on: Own stake + Leased stake. and act as mining swarms (collect fees and distribute the profits). The majority of users rent their share to full nodes. Similar to pool mining they take a share of the profits from complete node's earnings.

What is Proof of Elapsed Time(POET) consensus algorithm?

One of the consensus techniques, called Proof of Elapsed Time (PoET), aims to enhance proof-of-work consensus and offer a novel substitute for permissioned blockchain networks. Similar to POW, but with a stronger emphasis on consumption. Proof of Elapsed Time (PoET), created by Intel Corporation, allows permissioned blockchain networks to decide who will build the following block. Every node in the PoET network has an equal chance of winning ,thanks to the system's lottery-style distribution of winning odds. Each node in the blockchain network receives a random wait time from the PoET algorithm; during that time, they must all go to sleep. The node that woke up first and won the block was the one with the least wait time. The PoET process is comparable to Bitcoin's proof-of-work (PoW) but uses less energy because it permits a node to go to sleep and perform other jobs for the predetermined period of time, improving network energy efficiency.

What is PBFT (Practical Byzantine Fault Tolerance) consensus algorithm?

Byzantine employed a specific procedure to fight against malicious users. The PBFT model assumes that there are separate node failures and manipulated messages propagated by specific, independent nodes in order to provide a practical Byzantine state machine replication that tolerates Byzantine faults (malicious nodes).The approach is high-performance, has an excellent overhead runtime and very slightly increases latency. It is intended to operate in asynchronous systems.In essence, the PBFT model's nodes are arranged in a sequence, with one serving as the major node (leader) and the rest serving as backup nodes. The objective is for all of the honest nodes to reach consensus on the system's state through a majority of the nodes that are in communication with one another.

What is Simplified Byzantine Fault Tolerance consensus algorithm?

A Single validator can bundle proposed transactions and create a new block. SBFT is a state of the art Byzantine fault tolerant permissioned blockchain system that addresses the challenges of scalability, decentralization and world-scale geo-replication. SBFT is optimized for decentralization and can easily handle more than 200 active replicas in a real world-scale deployment.SBFT achieves the consensus much faster the PBFT.Pros: Faster than Proof of Work, better scalability.Cons: Tendency to centralization. One validator proposes the next block.

What is Delegated Byzantine Fault Tolerance consensus algorithm?

Delegated Byzantine Fault Tolerance or DBFT is a consensus mechanism that was made popular by a cryptocurrency called NEO. It is essentially works in a similar style with a country’s governance system,as it has its own citizens,

delegates, and speakers to ensure that the country (network) is functional. The method is closer to PoS rather than PoW, by utilizing a voting system to choose delegates and speaker. According to its creators, the voting system of DBFT allows large-scale participation, in a similar way to the According to its creators, the voting system of DBFT allows large-scale participation, in a similar way to the Delegated Proof-of-Stake consensus. Citizens =NEO tokens holder (ordinary nodes). Delegates = Bookkeeping Nodes (with specific requirements to be elected as one).

What is Directed Acyclic Graph(DAG) consensus algorithm?

Asynchronous transactions can be handled by DAG as it lacks the blockchain data structure results in no blocks in DAG but it consists of verticals and edges. Here, transactions are recorded as vertices, and these are transaction data will be placed on top of one another. DAG receives transactions from nodes. The node that finish a proof of work task will proceed to submit a transaction. Similar to how blocks on a blockchain contain references to earlier blocks, every new transaction in a DAG must refer to earlier transactions in order to be accepted onto the network. When a transaction is referenced by another transaction, it is confirmed. In order for that transaction to be confirmed, it must be referenced by a further transaction, and so on.

What is Proof Of Activity consensus algorithm?

Proof of Activity (PoA) consensus combines the strengths of the Proof of Work (PoW) and Proof of Stake (PoS) algorithms.The mining process starts off like a PoW system, but once a new block has been successfully mined, the system changes to look like a PoS system.The most well-known cryptocurrency that employs the PoA consensus process is Decred (DCR).

What is Proof of Capacity consensus algorithm?

A blockchain-based alternative to proof of work and proof of stake, proof of capacity, addresses these issues. In a decentralised network, block mining makes advantage of the storage capacity. Since discs are affordable and readily available, it has a low barrier to entry and has a low energy consumption rate. This results in quick, affordable blockchain transactions. When compared to POS and POW, its efficiency is more advantageous.This protocol allows us to make advantage of the user's hard drive's capacity (or storage space).Since hashes take time to calculate, they are saved on the HDD for quicker access. Plots are huge data files that contain pre-generated hashes. More plots increase your likelihood of discovering the following block. In PoW, plot size is comparable to hash rate.

What is Proof Of Burn consensus algorithm?

Although the Proof of Burn algorithm resembles PoW and PoS, it has its own unique method for achieving consensus and validating blocks. Participants in the Proof of Burn consensus technique must burn money to create new blocks. Burning coins entails a long-term commitment on the part of validators in exchange for a temporary loss. Validators' chances of getting chosen to mine the next block increase as they burn more money. Coins are sent to a "eater address" during the coin burn process on proof-of-burn (PoB) networks. This address can be found online, however it is inaccessible. Keep be mind that these addresses are randomly generated and lack private keys. The PoB mechanism's sustainability and highly decentralised mining method. Hardware for mining is not required. Coin burns on fictitious mining equipment. Burning coins lowers the quantity in circulation (market scarcity). encourages miners to commit over the long run.

What is Proof Of Importance consensus algorithm?

NEM introduced the Proof-of-Importance (PoI) blockchain consensus technique (New Economy Movement). The PoS technique is improved by proof of importance (PoI). It resolved the problems with PoS. POI is Similar to PoS, where stakes are determined by coins plus activity.The mining power determined by the importance in the network. More money has more significance for a longer period of time (like a stake) and Greater relevance with more transactions or activities.

What is Proof Of Weight consensus algorithm?

A blockchain consensus technique called Proof-of-Weight (PoWeight) assigns users a "weight" based on how much cryptocurrency they currently hold. For those who don't know, Algorand, Filecoin, and Chia, It is a protocol that quickly confirms transactions. This is accomplished via a Byzantine agreement system that may scale to include numerous users. Without the chance of a fork, reaching consensus on a new network block is ensured. The name "Proof-of-Weight" refers to this procedure, which heavily relies on weighted users. It is adaptable, scalable, and incentive design can be difficult.Each member on a Proof-of-weight network has a "weight" associated with them. The amount of money a user has in their account determines how much weight it has. The network will continue to be secure as long as the total weighted proportion of users is honest, which is typically at least two-thirds. Additionally, this technique defends against double-spend assaults. Proof-of-weight is not intended to produce passive income sources.

What is Proof Of Identity consensus algorithm?

A user's private key is compared to an authorised identity in Proof of Identity. In essence, a Proof of Identity is a piece of cryptographic evidence that links a user's private key to a particular transaction. A blockchain network allows any authenticated user to generate a block of data that may be shown to anybody else on the network.Data integrity and authenticity are ensured by proof of identity. Smart cities can also employ Proof of Identity, a blockchain consensus technique, to confirm the citizenship of their residents. Entity

What is Proof Of Authority consensus algorithm?

Proof of authority (PoA) is an algorithm used with blockchains that delivers comparatively fast transactions through a consensus mechanism based on identity as a stake.When it comes to supply chains, for example, PoA is considered an effective and reasonable solution.PoA is a type of consensus mechanism geared towards enterprises or private organizations who want to build their own chains that are essentially closed in nature and don't require participation from general users.The most notable platform using PoA is VeChain.

What is Liquid proof -of- stake (Lpos) consensus algorithm?

A blockchain consensus mechanism called liquid proof of stake (LPoS) enables token owners to lend out their validation rights to other users without giving up ownership of their tokens.In other words, Liquid Proof of Stake (LPoS) enables token owners to give other users their validation rights without giving up ownership of their own tokens.Holders of tokens may provide other holders of tokens validation rights without requiring custody, keeping the tokens in the delegators' wallet. LPoS also grants the right to

vote.Additionally, in the event of a security flaw, only the validator gets penalised.Tezos (https://tezos.com) first introduced the LPoS protocol.

What is Bonded proof-of-stake(BpoS) consensus algorithm?

BPoS is very similar to LPoS as delegation is optional, non-custodial, and token holders benefit from voting rights in protocol amendments.In other words, Bonded Proof-of-Stake is Subform of PoS, in which token-holders can still participate in the security and maintenance of a blockchain without having to actively operate a node.This BPoS mechanism has the advantage of providing a clear solution to the issue of staking ratios.BPoS was first introduced by projects such as Cosmos and IRISnet.Coin which use (Bpos):Cosmos https://cosmos.network.IRISNet https://www.irisnet.org.

What is Hybrid proof-of-stake (Hpos) consensus algorithm?

Hybrid consensus mechanisms (HPoS) often depend on PoW miners to create new blocks containing transactions, which are subsequently forwarded to PoS validators, who vote on whether to validate the blocks and add it to the blockchain ledger.It's common to refer to hybrid PoS/PoW as a combination of proof-of-work and proof-of-stake.Using both of these techniques, it is possible to protect the network.By boosting hashing power with stakeholder voting, HPoS offers a greater defence against majority attacks. Ethereum is also looking at HPoS for its Casper upgrade.Coins which use (Hpos): Decred https://decred.org Hcah https://h.cash

What is Proof of Replication consensus algorithm?

In an interactive proof method known as proof-of-replication (PoRep), provers argue a claim that they are allocating special resources to storing retrievable clones of a data file. It functions as an embedded proof-of-retrievability and proof-of-space technique (a type of proof-of-capacity). PoRep methods were created for usage in decentralised storage networks as Filecoin and cloud storage. It's crucial to confirm that data file replications are truly saved independently in such networks.

What is Proof of Spacetime consensus algorithm?

Proof of Spacetime, along with Proof of Replication, is part of the decentralized storage network's Proof of Storage model. Proof of Spacetime enables storage providers (the miners of the Filecoin network) to prove they have stored other users' data for a specified amount of time. In simplest terms, PoSt means that someone can now guarantee that they are spending a certain amount of space for storage. Proof-of-spacetime differs from proof-of-capacity in that PoST allows network participants to prove that they have spent a "spacetime" resource, meaning that they have allocated storage capacity to the network over a period of time.

What is Proof of Storage consensus algorithm?

Proof-of-storage (PoS) is a cryptographic protocol used primarily to verify the integrity of a remote file. This is done by sending an encoded copy of the data to a server and then executing a challenge-response protocol to check the data's integrity. This protocol is normally used when considering the efficiency of a cloud storage server.Participants in a proof-of-storage scheme are Prover’s or Verifiers: Prover’s—participants who are storing some data.Verifiers—participants who validate that the provers are storing the data.

What is Proof of Existence consensus algorithm?

Proof of Existence provides a web app and an API for storing a SHA-256 digest of a document on the blockchain. The digest can be compared to that of an unchanged copy of the document at a later date to verify that the document existed at the prior date. Proof of Existence is useful for copyright and patent claims, and other instances where document timestamping or document integrity is important. note that apart from protecting Intellectual Properties, Proof of Existence can be used in many other scenarios as well.

What is Proof of Time consensus algorithm?

It is a certain proof of work that requires a predetermined number of iterations (verifiable delay algorithm). Clock speed is used by proof of time to provide security and the passage of time between proofs. The fundamental notion behind a VDF is that sequential computation is required, and since having numerous parallel machines has no advantage, electricity waste is reduced. It is applied to chronology (considers time as value).

What is Proof Of Concept consensus algorithm?

PoC is the procedure for determining whether the concept has the potential to work in a practical setting. Its goal is to determine whether the project can be completed and will work as intended. Either a prototype or a Minimum Viable Product can be used to do this.

What is Proof Of View consensus algorithm?

It is a cryptographic consensus mechanism that guarantees view validity for online material. With Proof of View, the influence of fake views is reduced,

which benefits the entire video ecosystem. A trustworthy and open media environment is crucial now more than ever.Verasity is a cryptocurrency firm that is expanding quickly across the esports, video entertainment, and advertising industries. For its exclusive technology that aids in eradicating ad fraud, it just earned a US patent, and several of its products are already profitable.

What is Proof Of Retrievability consensus algorithm?

A blockchain consensus process called Proof of Retrievability (SPoR) can be used to detect the retrievability of data. The chance of information leaking is high if the user data is stored in the cloud .So,a protocol known as the proof of retrievability scheme will be periodically executed by the user and cloud provider in order to safeguard the security and privacy of user information.A blockchain-based proof of retrievability approach guarantees the integrity of the data by utilising the benefit that the stored data in blockchain cannot be altered. A proof of retrievability scheme ensures the security of the data by generating proof to convince the user that the cloud provider does correctly store the user information.

What is Proof Of Provence consensus algorithm?

A mechanism called proof-of-provenance was created by Digix to follow the transfer of physical assets (in this case, gold in the case of DGX) from the supplier of bullion to the custodial vault in a transparent and cryptographically secure way.PoP deals with the problem of demonstrating the physical asset's existence, the legitimacy of its ownership, and the safety of its storage in the custodial vault. It accomplishes this by confirming blockchain transactions and uploading real-world documentation to both IPFS and the blockchain.

What is Proof Of History consensus algorithm?

A method called Proof of History (PoH) aims to address the issue of time on blockchains. In order to provide the network with a median timestamp, which is utilised to authenticate transactions in the order they are received, the majority of blockchain networks make reference to a centralised source of time. Through the use of a verifiable delay function, PoH allows "timestamps" to be incorporated into the blockchain itself. To achieve high transaction rates per second, this is effectively a cryptographic clock that node operators can use to determine when a transaction is sent. A hybrid consensus mechanism for blockchain networks has been created by combining Proof of Work and Proof of History.

What is Redundant Byzantine Fault Tolerance consensus algorithm?

The same BFT protocol is used in several instances, each of which has a primary replica running on a different machine. Requests are ordered by all instances, but only those ordered by the master instance—one of the instances—are really carried out. To ensure that the master instance offers a sufficient level of performance, the performance of the many instances is closely monitored. If not, the master instance's primary replica is regarded as malicious and is changed. We put RBFT into practise and evaluated its performance against that of other robust methods already in use.Our analysis demonstrates that while there is no failure, RBFT performs similarly to the most reliable protocols, and that when there are faults, its greatest performance loss is only approximately 3%, whereas it is at least equal to 78% for existing protocols.

What is Istanbul Byzantine Fault Tolerance consensus algorithm? In an Ethereum network, IBFT (Istanbul Byzantine Fault Tolerant) is a consensus technique that serves as an alternative to Proof of Work. IBFT offers additional advantages for businesses, such as settlement finality, in addition to ensuring a single, accepted ordering for transactions in the blockchain. Amis Technologies first introduced IBFT in Geth, and shortly after, it was introduced in Quorum.The quick answer is that it's unlikely that you would in a public blockchain. But IBFT starts to look rather appealing when it comes to consortium or private blockchains. A state machine replication algorithm is called Istanbul BFT. To achieve block consensus, each validator bftmaintains a replica of the state machine.

What is QBFT consensus algorithm?

The QBFT proof of authority consensus mechanism is implemented by GoQuorum. The enterprise-grade consensus protocol for private networks that is advised is QBFT. QBFT can be used to build a private network. Validators, or authorised accounts, verify transactions and blocks in QBFT networks. Each validator builds the next block in turn. A super-majority (more than 66%) of validators must sign a block before it can be added to the chain.Voting to add or remove validators is proposed by the current validators. A majority of validators (more than 50%) must vote to add or remove a validator.The features that QBFT offers are as follows:Immediate Finality, Dynamic Validator Set, Optimal Byzantine Resilience (the protocol can operate on a partially synchronous network with up to (n 1) / 3 Byzantine validators), and Message Complexity of O (n 2), where n is the number of validators.The BFT agreement mechanism described in IBFT is the foundation of QBFT.

What is RAFT consensus algorithm?

Raft consensus mechanism for log replication and leader election on the Hyperledger Fabric platform, includes peer nodes in the distribution of log information.The improvement of log replication based on apportionment idea seeks to simplify leader node communication. The enhancement of leader election based on vote change mechanism alters the peer node's vote affiliation during the leader election phase based on a comparison of votes from candidate nodes, attempts to achieve consensus in one round of voting, and shortens the election period. The enhanced AdRaft algorithm outperforms the original Raft method in terms of throughput by 5.8% and latency by 1.3%, according to the blockchain's performance test.

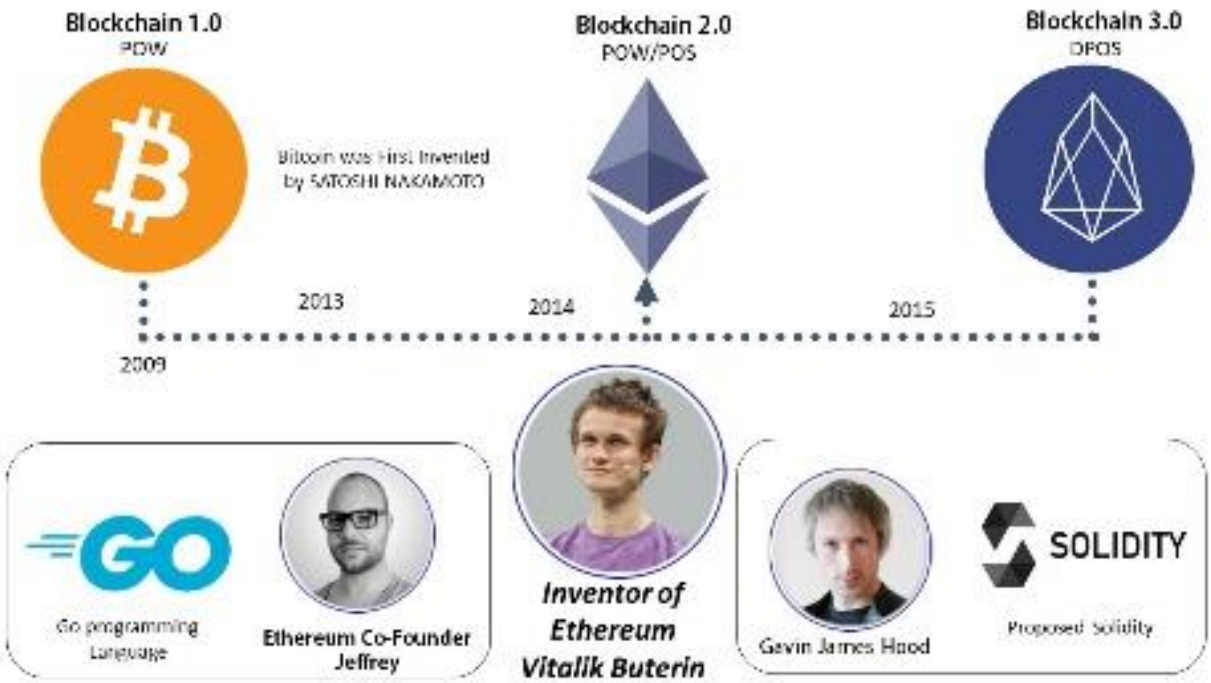
What is Tower BFT consensus algorithm?

Tower Byzantine Fault Tolerance is a Proof-of-History-optimized version of Practical Byzantine Fault Tolerance.Tower BFT, Solana’s custom implementation of PBFT that prefers liveness to consistency. Tower BFT leverages Solana’s PoH as a clock before consensus to reduce messaging overhead and latency


Web 1.0
Netscape
YAHOO!
msn
Google
Web 2.0
airbnb
amazon
coinbase
DOORDASH
Dropbox
ebay
Etsy
Expedia
facebook
Google
GROUPON
HANDY
IAC
intuit
LinkedIn
lyft
matchgroup
Microsoft
MONSTER
NETFLIX
PANDORA
PayPal
Pinterest
rackspace
reddit
Spotify
SurveyMonkey
TEN-X
TransferWise
tripadvisor
TURO
UBER
upwork
YAHOO!
yelp
ZENEFITS
zynga
Web 3.0
brave
Filecoin
bitcoin
STORJ.IO
Meta
Read only, Static
Dynamic, Participatory Centralized
Decentralized

Second Generation :-

What is Ethereum blockchain?



Ethereum is a blockchain with a computer embedded in it. It is the foundation for building apps and organizations in a decentralized, permissionless, censorship-resistant way.In the Ethereum, there is a single, canonical computer called the Ethereum Virtual Machine(EVM) whose state everyone on the Ethereum network agrees on. Everyone who participates in the Ethereum network (every Ethereum node) keeps a copy of the state of this

computer. Additionally, any participant can broadcast a request for this computer to perform arbitrary computation. Whenever such a request is broadcast, other participants on the network verify, validate, and carry out ("execute") the computation. This execution causes a state change in the EVM, which is committed and propagated throughout the entire network.

Who is a blockchain validator?

A participant in the blockchains using Proof of Stake (PoS) consensus . On the Beacon Chain, validators need to stake 32 ETH, that is to submit a sort of security deposit, in order to get included in the validator set.

How does Ethereum work?

Ethereum uses nodes that are operated freely to verify transactions on the network, similar to the Bitcoin blockchain. Nodes can store a portion or the complete history of Ethereum transactions, as well as the most recent data on the status of smart contracts, account balances, and other information. The Ethereum Virtual Machine (EVM), which is at the core of Ethereum, provides an executable and trustless environment for smart contracts, which are computer protocols that ease, verify, and enforce the negotiation and execution of some kind of digital agreement. When a developer originally programmed a contract, the EVM would carry out the rules, such as sending money from Alice to Bob. These programmes are run by the EVM using bytecode. Solidity and other Ethereum programming languages can be used by Ethereum developers to create smart contracts and other types of decentralized apps.

What is an Ethereum block?

A block of transactions that has been broadcast to the network is referred to as a "block" in the Ethereum blockchain. Currently, blocks of transactions on the Ethereum mainnet are verified using the Proof of Work consensus process.

What is an Ethereum smart contract?

Practical smart contracts for the blockchain ecosystem were invented by Ethereum. In short, a smart contract is a computer programme created with a specific goal in mind. There are many uses for smart contracts built on Ethereum. Smart contracts can be used in banking and finance to automate claims processing and make it possible to enforce regulatory control limitations in real-time. Smart contracts in supply chain management are used to automate compliance and reporting requirements, enforce asset tracking procedures, and track assets. In order to cover a variety of sectors, smart contracts have endless formats.

What is an Ethereum client?

Any node that is capable of parsing and verifying the blockchain, its smart contracts, or anything related is referred to as an Ethereum client. An Ethereum client is a software application that implements the technical specification defined in the Ethereum Yellow Paper or the EEA specification (for enterprise applications). Since they all "speak" the same protocol and adhere to the same regulations, open standards and interoperability allow Ethereum clients to communicate with one another through the peer-to-peer network. Popular Ethereum clients include Quorum by J.P. Morgan, Parity, Geth, and Hyperledger Besu, which was created by the protocol engineering team at PegaSys. Designed for enterprise use cases, Hyperledger Besu has a rich set of permissioning tools and works with both public and private chains.

Additional plugin features and support are available in PegaSys Plus, a commercial distribution of Besu, including event streaming, enhanced monitoring, and encryption at rest.

What is Ethereum backed by?

Since Ethereum is an open source project, anyone who wishes to participate is welcome to contribute to the codebase and use the network. As a result, nobody and everyone owns Ethereum. The Ethereum ecosystem is making a lot of efforts to make open source work financially viable for developers. Moloch DAO is a crowdsourcing effort to fund infrastructure developments for Ethereum. Gitcoin is also one of the most significant and multifaceted projects supporting open source maintainers in the blockchain world, with its bounty explorer and Grants Program that resembles Patreon.

What is ether (ETH)?

The native coin of Ethereum and the substance that runs the Ethereum blockchain is ether. Each operation on Ethereum uses a specific amount of CPU power to complete (several of which can be combined to produce a single distinct smart contract or transaction). In order to track and pay miners for the time they spend performing transactions and smart contracts, a unit of measurement was developed because miners must expend energy to complete these processes. Gas is the name of this measuring unit. The computing power necessary to conduct transactions or smart contracts within the EVM is measured in a unit of measurement called "gas" that is exclusive to the Ethereum blockchain. A more sophisticated piece of code, for example, will demand more energy to run, which will result in a greater need for gas. Ether is used to express the value of each unit of gas. Ether thus offers a motivation for developers to produce clear, high-quality code and for miners to verify

blocks of transactions. Ethereum is denoted by the letter ETH. Note: “eth” is also a command line used for importing the Ethereum wallet.

What is an ETH address?

For the purpose of sending and receiving money, all cryptocurrencies require addresses, or public identifiers. An ETH address is unique to the ether currency used by Ethereum. Additionally, miners must establish up a "etherbase," or fixed address, to receive mining profits. The "How to Store Digital Assets on Ethereum" tutorial is useful for learning about cryptocurrency wallets, seed words, and security best practices for handling digital assets.

How can I earn ether (ETH)?

Earning ETH is possible both on and off the Ethereum blockchain, and there are many different ways to do it. One of the most widely used cryptocurrencies for trading is ETH, which is accessible on most exchanges. Using ETH as payment for freelancing work is also growing in popularity. Global freelance markets like Bounties Network enable people from different fields to earn ETH for completing projects, including developers, designers, translators, and users. Undoubtedly, one approach to earn ETH is by mining Ethereum and assisting the network.

How long does it take to transfer ether?

Depending on how much gas a user is prepared to use, combined with other market conditions, Ethereum confirmation times can vary significantly. The median wait times are displayed at eth gas station.info.

What is the gas limit in Ethereum?

One of the three fundamental ideas of ether is the Ethereum gas limit. The other two are price and expense. The highest amount of money that a person is willing to spend on a transaction is the limit. The possibility of the transaction failing exists if the gas limit is set too low. This is due to the fact that the miner making the transaction attempt will continue to carry out activities until the gas limit is achieved. If further operations are required, the miner keeps the gas as payment for the labour performed, and the transaction is marked as "failed" by the system. Gas restrictions are crucial because they defend users and miners from poor code and network assaults.

What is Ethereum coded in?

The languages Solidity, Serpent, LLL, and Mutan can all be used to create Ethereum smart contracts. These languages are high-level and contract-oriented. They intend to use the Ethereum Virtual Machine (EVM) as a mechanism of implementing smart contracts. A range of languages, including C++, Python, Ruby, Go, Java, Rust, and others, were used to construct the Ethereum protocol.

What is a smart contract in Ethereum?

A smart contract is simply a program that runs on the Ethereum blockchain. It's a collection of code (its functions) and data (its state) that resides at a specific address on the Ethereum blockchain.

What is Ethereum difficulty?

The term "Ethereum difficulty" describes the difficulty of finding new blocks and the hashing function used by miners. It is more difficult for miners to locate legitimate blocks with increasing difficulty. The Ethereum network's average difficulty as of July 2019 is 2.2075 PH, according to ethstats.io.

What is Ethereum used for?

There are many different Ethereum use cases and applications, including supply chain tracking, payment settlement, and digital identity management. Thousands of developers have joined the ecosystem thanks to Ethereum's flexibility, modularity, agility, and scalability, as well as numerous multinational corporations interested in using blockchain solutions to address pressing business demands.

What is the Enterprise Ethereum Alliance?

In order to hasten the use of Ethereum in business efforts and to establish universal standards for Enterprise Ethereum development, the Enterprise Ethereum Alliance (EEA) was established in 2017. The Alliance fosters a community that supports open source blockchain solutions by utilizing an open architecture for testing and certification and concentrating on offering resources for trust, privacy, and performance. The Enterprise Ethereum Client Specification V3 was been made available by the EEA.

What's in an upgradable smart contract?

In Ethereum, smart contracts are by default immutable. There is no way to change them once you've created them, therefore they serve as an immutable contract between participants. To be able to edit them, nevertheless, is preferable in some cases.

What is Byzantium Ethereum?

For its Byzantium version, Ethereum started a hard fork in October 2017. The third stage of Ethereum's rollout, known as Metropolis live, included Byzantium. Nine Ethereum Improvement Protocols (EIPs) introduced by

Byzantium enhanced the network's security, scalability, and privacy. The Constantinople hard fork, which incorporated five EIPs and decreased the block reward from 3 to 2 ETH, came after the Byzantium upgrade in February 2019.

What's the difference between Bitcoin and Ethereum?

Ethereum and Bitcoin share similar fundamental concepts. They share a lot of the cryptographic operations used by blockchain technology. Ethereum, on the other hand, was created to take advantage of opportunities that lie outside the purview of the Bitcoin blockchain. The primary feature that sets Ethereum apart from Bitcoin is its use of smart contracts, Smart contracts are incorporated in code and execute automatically. Their programming languages are among the major key distinctions between Bitcoin and Ethereum. Ethereum uses a Turing-complete language, whereas Bitcoin uses a stack-based language. Their hashing algorithms and block times are also varied.Blockchain uses proof of work(PoW) consensus while Ethereum is using Proof of Stake(PoS).

What's better, Bitcoin or Ethereum?

Both Bitcoin and Ethereum have their own perks. The first blockchain, Bitcoin, has been widely used as a method for equitable payment settlement. After altering the way that digital networks are designed and managed, Bitcoin created a desire for certain features, which led to the creation of Ethereum. Because of smart contracts, Ethereum is much more than just a payment system. It can be used in many different industries, including supply chain management, energy and sustainability, real estate, government, and many more. Given the status of blockchain systems today, Ethereum's architecture most nearly reflects what is needed of a global root chain that can

offer secure and decentralized base layer settlement for cooperating blockchain networks.

What's next for Ethereum?

The ultimate and last version of Ethereum is called Serenity, also referred to as Ethereum 2.0. There will be several phases to it. The Beacon Chain, the first stage of Serenity, is anticipated to launch in 2019 after Istanbul, the final Ethereum hard fork planned. In order to maintain the chain continuity, a Proof of Stake blockchain called the Beacon Chain will be set up alongside Ethereum's original PoW chain. Read "The Roadmap to Serenity" for more insight into the upcoming stages of Ethereum's development.

What is payload in blockchain?

Instead of using transaction hashes, a transaction payload is used instead, which contains all the transaction-related metadata needed by the recipient, be it a merchant or another user.

What is OpenZeppelin?

Solidity allows you to create secure smart contracts. By utilising tried-and-true libraries of smart contracts for Ethereum and other blockchains, OpenZeppelin Contracts assists you in reducing risk. It includes the most popular ERC standard implementations.

What is Hardhat?

Hardhat is a development environment for building, deploying, testing, and debugging Ethereum programmes. It enables developers to simply add more functionality to this workflow as well as manage and automate the repetitive

operations that are necessary for creating smart contracts and dApps. This entails fundamentally constructing, running, and testing smart contracts. A small Ethereum network created for development is already included with Hardhat, called the Hardhat Network. Its functionality is centred on Solidity debugging and includes console.log(), stack traces, and explicit error messages for failed transactions.

What is Mythril?

A security evaluation tool for EVM bytecode is called Mythril. It finds security flaws in Ethereum, Hedera, Quorum, Vechain, Roostock, Tron, and other EVM-compatible blockchains' smart contracts. It employs symbolic execution, SMT resolution, and taint analysis to identify various security flaws.

What is Slither?

Slitheris is open-source static analysis framework. This tool has important characteristics and offers detailed information about Ethereum smart contracts. Slither was created as a security-focused static analysis framework, but it is also used to help code reviews, find missing optimizations, and improve user comprehension of smart contracts.

What are Ethers.js?

The ethers.js library aspires to provide a comprehensive and lightweight toolkit for interfacing with the Ethereum Blockchain and its ecosystem. It was initially intended to be used with ethers.io, but it has subsequently developed into a more versatile library.

What is Scaffold-ETH?

Scaffold-eth offers a ready-to-use stack for rapid prototyping on Ethereum, enabling developers to access cutting-edge technologies to quickly learn and launch an Ethereum-based dApp.

What is Ethereum plasma?

The term "Plasma" describes an architecture that enables the development of "child" blockchains that rely on the main Ethereum chain for trust and arbitration. Child chains in Plasma can be tailored to meet the needs of certain use cases, especially ones that are currently impractical on Ethereum.

What is Optimism Ethereum?

With optimistic Ethereum, users can submit transactions to the Ethereum network and have them processed more quickly for a lot less gas.

What is moralis?

Moralis is a fully controlled, indefinitely scalable Web3 backend architecture .We consider Moralis to be the best alternative to Infura. This means that dApp and Web3 app developers won't have to deal with the trouble that Web3 development has historically brought. They can begin to work right away without wasting time, money, or resources on building their own blockchain backend infrastructure. Developers can now concentrate on making excellent dApps, which is what they do best.

What is moralis server?

To improve the off-chain package's implementation, Moralis Server is used. All the functionalities that the majority of dApps require to be up and running as quickly as possible are included in Moralis Server as a complete solution.

Why Moralis is used?

Moralis is the fastest way to build and deploy dApps on Ethereum, BSC, Polygon, Solana, and Elrond (more coming). All Moralis dApps are cross-chain by default. Building on Moralis ensures that your dApp is future-proof. Even if new blockchains are invented, your dApp will instantly work on any chain.

What is Infura?

With simple, dependable access to Ethereum and IPFS, Infura offers the infrastructure and tools that developers need to quickly move their blockchain application from scaled deployment to testing. Infura can help blockchain developers with a variety of pain problems.Infura, a subsidiary of ConsenSys, provides backend access to the Ethereum network using well-known HTTP and WebSockets protocols. This makes it possible for Dapp and website developers to interface with the Ethereum network at scale.

Why is Infura used?

Infura provides the tools and infrastructure that allow developers to easily take their blockchain application from testing to scaled deployment - with simple, reliable access to Ethereum and IPFS.

What is Alchemy?

Alchemy has grown to be the top blockchain and Web3 development platform in the world since its inception in August 2020, generating transactions worth more than $45 billion. Alchemy wants to transform blockchain in the same way that Microsoft transformed the PC and earlier, Amazon Web Services transformed the internet.

Why is Alchemy used ?

With the help of the developer platform Alchemy, businesses can create dependable and scalable decentralised applications without having to deal with the difficulty of maintaining their own internal blockchain infrastructure. It is really simple to integrate and is now faster, more dependable, and more scalable than any other option.

What is QuickNode?

QuickNode, commonly spelled QuikNode, is another option to Infura. QuickNode aims to support the scalable growth of diverse blockchain ecosystems. Node providers play a significant role in achieving this. As a result, QuickNode offers Web3 development tools to developers and is a fascinating substitute for Infura.

Why to use QuickNode?

When QuickNode first launched, it only supported Ethereum (ETH), was powered by the OpenEthereum client (aka Parity), ran in a single dedicated node instance, and was hosted by a single cloud provider. Today, QuickNode

API supports 13 chains across 26 networks (and counting!). It works with numerous clients across 10+ regions across the world, 5+ cloud & bare-metal providers, and multiple intermediary layers to improve performance, reliability, and the user experience as a whole. The end result is a highly available, multi-cloud, geo-balanced, redundant node network, which is the most potent Web3 infrastructure in the entire world.According to Quicknode, the internet will be private, trustworthy, and censorship-resistant in the future.

What is GetBlock?

GetBlock is the third Infura substitute we have. In particular, GetBlock is a platform that offers blockchain nodes as a blockchain-as-a-service. Without having to manually configure the node, GetBlock enables you to send on-chain information requests to certain nodes (such as Ethereum, BSC, and others) using REST, WebSockets, and JSON-RPC.

Why is GetBlock used?

The mission of the GetBlock project is to ensure cost-effective tools and infrastructure that will help enterprises and individual developers to build high-quality blockchain applications faster.

ERC(Ethereum Request for Comments) TOKEN Standards List

ERC-20

ERC20 is a technical standard for tokens issued on the Ethereum blockchain. An ERC20 token is a standard used for creating and issuing smart contracts on the Ethereum blockchain. Smart contracts can then be used to create smart property or tokenized assets that people can invest in. It provides a list of rules that all Ethereum-based tokens must follow. It's a standard fungible token.

The ERC-20 standard was implemented in 2015.

ERC-721

ERC-721 is a token standard on Ethereum for non-fungible tokens (NFTs). Fungible means interchangeable and replaceable; Bitcoin is fungible because any Bitcoin can replace any other Bitcoin. Each NFT, on the other hand, is completely unique. One NFT cannot replace another. ERC721 is a more complex standard than ERC20, with multiple optional extensions, and is split across a number of contracts.

It’s an open standard that describes how to build Non-Fungible tokens on EVM (Ethereum Virtual Machine) compatible blockchains NFTs are not only of ERC-721 type; they can also be ERC-1155 tokens.

ERC-1155

It is a multi-token standard and allows massive native token transfers of the tokens included in smart contract. In this approach, if we have a collection of NFT tokens or fungible tokens (or both), for instance, we can transfer a number of these tokens in a single operation to make the transfer effective.

In order to construct a fungibility-agnostic and gas-efficient token contract, ERC1155 is an innovative token standard that combines concepts from ERC20, ERC721, and ERC777.

ERC-725

ERC 725 is a blockchain-based identity standard that was developed by Fabian Vogelsteller, who also developed ERC 20 and Web3. js. ERC 725 outlines proxy smart contracts that can be managed by additional smart contracts and numerous keys. The ERC 725 standard governs how to publish and manage an identity through a smart contract. Humans, machines, and any other thing or group can all be described using these identities smart contracts. To add and remove claims from an ERC 725 identity smart contract, use the corresponding ERC 735 standard. Verification and exchange are encouraged to prevent the unnecessary and automated processing of identities and to lessen the duplication and oversharing of private information.

ERC-223

The Ethereum ERC-223 token standard enables users to safely transfer tokens to a digital wallet through the use of smart contracts. An Ethereum developer created the ERC-223 protocol as an improvement to the ERC-20 protocol. The ERC-223 token development platform enables investors to generate passive income with high rates of return and rapid liquidity. It makes it possible to deposit tokens into a contract all at once. This prevents the blockchain from growing even larger. To guard against hacking, the ERC 223 token creation platform contains multiple layers of security, including HTTP authentication, end-to-end encryption, and escrow protection. Transactions involving tokens operate similarly to those involving ether.

ERC-777

The ERC-777 standard for fungible tokens is an Ethereum-based currency/token that is fully compatible with all current decentralised exchanges. By permitting complicated token exchange operations, it helps to eliminate confusion over decimals, minting, and burning. It employs a hook, which is a particularly helpful quality.

Backwards compatibility enables it to work with ERC20's more crucial features. Send to contract is safer and simpler, Defaults the decimal to 18 and adds the permitted operators

ERC-165

A Pillar Support for ERC-721 is ERC-165.To connect with coins that adhere to different standards, smart contracts must implement particular interfaces. Now, it's important to publish this information since the Ethereum development community needs to know which interfaces a smart contract supports. They must understand how they can engage with that contract because of this. There was no established way to identify and disclose the interfaces that a smart contract used. Along with standardising the identification of interfaces, ERC 165 specifies a technique for doing this.

ERC-1400 And ERC-1404

There are two security token standards: ERC-1400 and ERC-1404. It includes a wide range of features that let the deployment of Security Tokens with legal assurance. To meet compliance needs, the ERC-1404 standard, an expansion of the ERC-20 standard, permits the issuance of Security Tokens with transfer limitations.

ERC-621

An addition to the ERC20 standard is ERC621. To increase and decrease the overall number of tokens in circulation, it adds two functions. In essence, it suggests that totalSupply may be modified. The functions increaseSupply and decreaseSupply in ERC621 can be used to define a new totalSupply. It is advised that only the contract owners or other trustworthy users use these

functions. This proposal, despite its broad consequences, is currently in draught form, and its acceptance by the Ethereum community is unknown.

ERC-865

The purpose of ERC865 is to address the problems with ERC20 tokens and offer a suitable remedy for ERC20 token transactions. ERC 865 aims to simplify things for novice cryptocurrency users. If you are a new user, you must first comprehend how Ethereum functions in order to comprehend the cost and price of gas.

ERC-827

When it comes to the execution of calls in transfers and approvals in particular, ERC-20 has some current constraints that ERC-827 solves. Tokens can be transferred for use by third parties thanks to ERC 827. The current ERC20 paradigm allows for the exchange of only values. On the other side, ERC827 enables users of Ethereum to send money and data. Additionally, it enables other on-chain third-party businesses to authorise the use of tokens for transactions.

ERC-4626

ERC-4626 It's a tokenized vault that looks after shares that are backed by assets and are represented by ERC20 tokens (another ERC20). It provides the bare minimum of capability for adding funds, taking money out, and checking balances.

ERC677

A data payload can be included in token transfers with the ERC677 LINK token, which inherits functionality from the ERC20 token standard. It is employed to compensate node operators for providing data retrieval services for smart contracts as well as for deposits made in accordance with contract designers' specifications. Unlike the ERC223, which replaces the current transfer() function, this standard adds a new function called transferAndCall() to the existing ERC20 standard.

What is Truffle Flattener?

Truffle Flattener combines solidity files from the Builder and Truffle projects along with all of their dependencies. By combining your files and their dependencies in the proper order, this tool enables you to check contracts created with Truffle and Builder on Etherscan or debug them on Remix. If you are still using Truffle, we suggest switching to our significantly quicker and more adaptable Ethereum programming environment, Builder.

What is Celer Network?

A layer-2 scaling platform called Celer Network enables widespread adoption of quick, safe, and affordable blockchain applications on the Ethereum, Polkadot, and other blockchains. The first Generalized State Channel Network was introduced by Celer, and the company is still pushing the limits of layer 2 scaling with cutting-edge Rollup technology.

What is LOOM Blockchain?

Loom is an Ethereum side-chain designed to enable a variety of decentralised apps. A blockchain scaling initiative with a focus on social and educational applications is called Loom Network. Plasma, an Ethereum scaling solution that enables quicker network-wide transactions, powers the network itself.

What is Covalent crypto?

Covalent is a piece of software that gathers information from several of the top blockchain platforms, including Ethereum, Avalanche, and Polygon, and makes it available to users for a range of use cases.

What is Paralink?

Oracle for the most widely used blockchains that is open source. For popular blockchains such as Binance Smart Chain, Ethereum, and Polkadot, Paralink offers an open source and decentralised oracle platform.

What is SKALE?

A high-throughput, low-latency, and inexpensive environment for decentralised app (dApp) development is provided by the Layer-2 Ethereum sidechain network known as SKALE.

What is Web3-react?

An easy-to-use, straightforward, extendable web3 framework called web3-react is used to create dApps for the Ethereum blockchain network.In a nutshell, web3-react is a state machine that maintains some vital pieces of information relevant to your dApp.It supports injected providers like

WalletConnect, Meta Mask, Gnosis Safe, and Frame by default.It is simple to set up to use different wallets like Portis, Squarelink, and Arkane.

What is Binance Smart Chain?

A blockchain network called Binance Smart Chain (BSC) is designed for using smart contract-based applications. Users can benefit from the best of both worlds thanks to BSC's concurrent operation with Binance's native Binance Chain (BC), which offers great transaction capacity. Additionally, the Ethereum Virtual Machine (EVM) is implemented by Binance Smart Chain, enabling it to execute Ethereum-based programmes like MetaMask. The platform's goal is to make it possible for developers to create decentralised applications (DApps) and to assist users in managing their digital assets cross-chain in a high-capacity, low-latency manner. It is an independent blockchain that is compatible with Ethereum and supports staking and community-based governance.

What is Algorand?

A Speed and Efficiency Breakthrough for Blockchain. The decentralised network Algorand was created to address the Blockchain Trilemma of simultaneously achieving speed, security, and decentralisation. Algorand is a permissionless, open-source blockchain network that anybody may build on. It was introduced in June 2019 by computer scientist and MIT professor Silvio Micali. Algorand is intended to be a payments-focused network with quick transactions and a heavy focus on attaining near-instant finality, which entails handling over 1,000 transactions per second (TPS) and achieving transaction finality in under five seconds. Pure proof of stake is the consensus method used by the Algorand blockchain.

What is Harmony?

A blockchain platform called Harmony was developed to speed up the creation and rollout of numerous decentralised applications. The network focuses on random state sharding, which enables the creation of blocks in just a few seconds, with the goal of innovating the way decentralised apps operate. Transaction fees, governance, and staking are all handled by the native token ONE of the platform.

What is Arbitrum?

Optimistic rollup technology is a subset of arbitrum. By transferring messages between smart contracts and those in the Arbitrum second chain layer, this technology enables smart contracts from Ethereum to scale. The majority of transaction processing will take place at layer 2, and Arbitrum will record the outcomes in the main chain. At the bytecode level, the project can be EVM compatible, and any language, including Solidity and Vyper, can be built to EVM. Arbitrum is not only intended to boost Ethereum transaction throughput as a layer-2 scaling solution. However, it also keeps transaction expenses to a minimum at the same time. This project forms alliances with other Ethereum infrastructure projects and decentralised applications (DApps), including Uniswap, DODO, Sushiswap, and many others.

What is HECO(Huobi Eco Chain)?

Huobi Global, the sixth-largest cryptocurrency exchange in the world according to Coinmarketcap, has introduced the Huobi Eco Chain, also known as HECO Chain, a decentralised, highly efficient, and energy-saving public chain. It supports safe smart contracts and enables high-performance transactions. By adding Layer2, which will strengthen and support the Ethereum ecosystem, it proposes to increase the effectiveness of Ethereum.

Heco implements the Hybrid-Proof-of-Stake consensus algorithm in contrast to Ethereum. When compared to other blockchain networks, Heco delivers excellent performance. It can process more than 2000 transactions per second on average and has a 3 second block time. The HECO has been set up with DeFi-related applications.

What is Edgeware?

Edgeware is a platform that serves as a gathering place for designers, developers, and cryptocurrency enthusiasts interested in creating cutting-edge decentralised applications on its Substrate-based blockchain. Edgeware is a blockchain platform that allows programmers to quickly create and launch the next-generation of decentralised applications (DApps), which benefit from lightning-fast speeds, low latency, and a highly effective consensus process. Edgeware is a blockchain-based smart contract platform with a WASM (WebAssembly) runtime that is on-chain governed, nominated, and powered by a parity substrate. and the capacity to execute both Rust (Ink!) and EVM (Solidity) contracts.

What is Cardano?

A public blockchain platform is called Cardano. It is open-source and decentralised, and proof of stake is used to create consensus. With the help of its proprietary cryptocurrency, ADA, it is able to facilitate peer-to-peer transactions. Charles Hoskinson, a co-founder of Ethereum, established Cardano in 2015. It is a platform for creating decentralised applications (DApps) with a multi-asset ledger and verified smart contracts. Cardano is being developed in five phases: governance, scale, decentralisation, smart contracts, and the foundation.

What is an Avalanche?

A rival to Ethereum's blockchain technology is called Avalanche (AVAX). The Avalanche blockchain uses smart contracts, like Ethereum does, to support a number of blockchain applications, and AVAX is its native coin. The Avalanche blockchain can offer almost immediate transaction completion. AVAX serves as a fundamental unit of account among blockchains in the Avalanche network and is used to pay transaction processing fees and secure the network.

What is Cosmos?

Cosmos is a decentralised ecosystem of connected apps and services that is constantly growing. This emphasis on adaptability and interoperability distinguishes Cosmos from competing efforts. The Cosmos Hub, which keeps track of the status of each new independent blockchain formed within Cosmos (referred to as a "zone"), is then connected to each new zone. The native ATOM coin of The Cosmos Hub, a proof-of-stake blockchain, powers the network.The three tiers of the Cosmos network are as follows:Applications: They handle transactions and keep the network's state up to current.Networking : Enables exchange of information between blockchains and transactions.Consensus: Helps nodes reach consensus over the system's present state.

What is Terra?

Terra is a Cosmos-based protocol that powers a suite of algorithmic stablecoins, which aim to maintain their pegs using a coin called LUNA.The project was created in 2018 by Terraform Labs, a startup co-founded by Do Kwon and Daniel Shin.It keeps its one-to-one peg through an algorithm that automatically adjusts stablecoin supply based on its demand.Terra is a

programmable money for the internet that is easier to spend, and more attractive to hold.

What is Plasm?

Plasm is a leading scalable smart contract platform on Polkadot supporting cutting edge Layer2 such as Plasma and Rollups. and It was rebranded to Astar Network in January 2019 by Sota Watanabe. Astar Network is a smart contract hub leveraged by decentralized apps (dApps) in the Web 3.0 ecosystem, with support for both EVM and WASM virtual machinesAstar is maintained by Stake Technologies and has now become a leading Polkadot parachain by various measures. The project's native token, ASTR, is a utility token used for various purposes including network fees, staking, and dApp staking.

What is Gnosis?

Gnosis or as it is often referred to as GNO is a decentralized, open-source market that is based on the Ethereum blockchain .Third-party developers will also be able to introduce their own services. Gnosis enables companies and individuals to forecast future events with insights gained from capital markets and data science. The Gnosis platform allows users to build their own decentralized prediction applications A prediction market utilizes user predictions to aggregate information about future events, Individuals will be able to create prediction markets for events, allowing users to buy shares of predicted events. The platform employs a dual token structure: Gnosis (GNO) and OWL. GNO are ERC-20 tokens that the team sold during their ICO. OWL tokens are earned by staking GNO.

What is Celo?

Celo is a blockchain protocol that aims to address some of the barriers to crypto asset adoption (user experience and volatility) by using phone numbers as public keys and issuing a native stable-value token. Its first application, Celo Wallet, intends to be a social-payments system centered around mobile phones.Celo features two primary crypto assets: Celo and Celo Dollars. Celo (CELO) is the protocol's native asset. It serves as a utility that enables users to participate in network consensus (through its Proof-of-Stake system) , pay for on-chain transactions, and vote on governance decisions. Celo Dollars (cUSD) are a stable asset that follows the US Dollar. The platform aims to host various stablecoins, with three, the Celo Dollar (CUSD), the Celo Euro (CEUR) and the Celo Brazilian Real (CREAL) already in use.

What is Tron?

Tron is a blockchain-based decentralized digital platform with its own cryptocurrency, called Tronix or TRX. Founded in 2017 by a Singapore non-profit organization, tron aims to host a global entertainment system for the cost-effective sharing of digital content. The data hosted on the TRON network is free with no central authority. Content creators receive TRX tokens - a reward for their intellectual labour.Tron uses an account-based model, meaning the cryptographic keys its protocol issues can control access to both TRX and TRX token balances.

What is Ontology?

Ontology is a public platform that aims to remove barriers between the blockchain and the business sector. Ontology brings trust, privacy, and security to Web3 through decentralized identity and data solutions.Increasing privacy, transparency, and trust, the high speed, low cost, layer 2 blockchain is designed to give users and enterprises the flexibility to build blockchain-

based solutions that suit their needs, while also ensuring regulatory compliance.Together this builds the infrastructure for a peer-to-peer trust network which is cross-chain, cross-system, cross-industry, cross-application, and cross-device."ensures frictionless compatibility with Ethereum, the first step in the creation of the Ontology Multi-Virtual Machine and further interoperability for the chain.

What is ThunderCore?

ThunderCore is an EVM-compatible, scalable public blockchain. The network uses a Proof-of-Stake (PoS) consensus protocol.Node operators can freely join the ThunderCore network and earn ThunderToken (TT) in exchange for running the network.The project utilizes incentives and slashings to guarantee good behavior and the security of the blockchain.It has Powerful functionality with a high performance, eco-friendly, fully interoperable blockchain.Thundercore attempts to Solve Scalability, allowing For Under One Second Confirmations.It aims to be a high-performance blockchain that enables mass adoption of dApps. It promises comparatively lesser transaction fees (low gas cost), compatibility, security and speed. Its native token is TT.

What is Waves?

WAVES is a decentralized blockchain technology that was designed for custom blockchain token operations. It allows for the creation and trade of crypto tokens without the need for extensive smart contract programming. Rather, tokens can be created and managed via scripts that run in user accounts on the Waves blockchain. Waves allows users to securely stake from cold storage without any risk of leaving funds vulnerable. Waves includes its own Ride programming language for writing smart contracts with speed and

security in mind.It features Leased Proof-of-Stake where users can securely lend their tokens to a node of their choice for the sole purpose of validating blocks.In 2020, Waves announced that its platform would be interoperable with the Ethereum network by releasing the WAVES token as an ERC-20 standard asset.

What is Steem?

Steem is a social blockchain that grows communities and makes immediate revenue streams possible for users by rewarding them for sharing content.Its currently only the blockchain that can power real application via social apps like Steemit.Steem was the second Delegated Proof-of-Stake (DPoS) network .It Featuring free transactions, the Steem blockchain allows for micro-transactions, upvoting, and other content curation actions to occur with little friction.Steem is guided by one key principle: that those who contribute to a venture should be paid by the owners, just like startups do by allocating shares during funding rounds.Its native token is Steem.

What is Hive?

Hive is a decentralized content network, powered by Delegated-Proof-of-Stake (DPoS) consensus algorithm.HIVE is a growth oriented, publicly listed company building a bridge from the blockchain sector to traditional capital markets.Blockchain technology is revolutionizing finance and there are very few ways for investors to gain exposure to businesses in this space .The Company holds it digital currencies in cold storage solutions not connected to the internet. Hive was forked from the Stemm blockchain, after the Tron Foundation acquired Steem and gained control of the company's funds in STEEM, which made up approximately 80% of the total STEEM supply. The fork is aimed to cope with the risks of centralization brought by this

acquisition, as pro-Tron STEEM addresses were blacklisted and would not receive the HIVE token airdrop.

What is the Near Protocol?

NEAR Protocol is a decentralized application (dApp) platform and Ethereum competitor that focuses on developer and user-friendliness. Its native NEAR tokens are used to pay for transaction fees and storage on the Near crypto platform. NEAR is a Proof-of-Stake blockchain that uses sharding technology to achieve scalability.NEAR is the native utility token of the network for Fees for processing transactions and storing data.To run a validator node on the network via staking NEAR tokens.Used for governance votes to determine how network resources are allocated and where the protocol's future technical direction will go.

What is Telos?

Telos is a third-generation blockchain platform for building fast, scalable distributed applications with feeless transactions.It promises fast, scalable distributed applications (dapps).Telos EVM is the most powerful and scalable Ethereum Smart Contract platform available today. A Layer-1 Ethereum Virtual Machine, built to power Web 3. Unlike other scalable EVMs, Telos EVM is not just a fork of the original Go Ethereum code. It's an entirely new EVM that takes full advantage of the power that Telos technology has to offer.Equitable pay structure to incentivize node operators.Developer-friendly tools and low-cost deployment.On-chain governance.Its native token is TLOS.

What is Iotex?

IOTX is an Ethereum token that powers IoTeX, a platform that aims to connect IoT devices (such as cameras and sensors) and decentralized applications. IOTX can be used to pay for transactions, for staking and governance, and to register new devices on the IoTeX network.The IoTeX Layer 1 blockchain network is EMV-compatible and powered by Roll Dpos Consensus. The platform allows builders to launch Solidity-based Dapps, tokens, and NFTs with low gas fees and 5-second block time with instant finality. IoTeX is the fast and scalable blockchain platform that connects real-world data to on-chain dApps.IOTX is the native token of the project. The current use cases for IOTX include Transaction Fees, Staking, Governance, Native dApp Development.A breakthrough blockchain powered device that captures physical world data to give you trusted information about real-world events in real time. ioPay is the secure mobile wallet for IoTeX Network. It is a great option for users who frequently send tokens, vote for Delegates, and interact with XRC20 tokens or smart contracts.

What is VulcanForged?

Vulcan Forged is an established non-fungible token (NFT) game studio, marketplace, and dApp incubator with 10+ games, a 20000+ community, and top 5 NFT marketplace volume. Thus, the PYR economy is designed to fill numerous use-cases in need of their own token. Some of our games, specifically the upcoming VulcanVerse, have specific terminologies and can be understood in more depth by visiting any of our social media channels.Thus, the PYR economy is designed to fill numerous use-cases in need of their own token. Some of our games, specifically the upcoming VulcanVerse, have specific terminologies and can be understood in more

depth by visiting any of our social media channels.The game is based on Greek and Roman mythology and its story is written by fantasy authors - promoting a true immersion into its fantasy world.

What is Ronin?

Ronin Network is an Ethereum-linked sidechain made specifically for blockchain gaming built by Sky Mavis - A company behind Axie Infinity.Ronin mainnet uses Proof-of-Authority. PoA is a modified version of PoS and validators on PoA are usually less than 25. In the early stage of the Ronin Network, Sky Mavis will have sole discretion around validators.And the team has recruited an all-star cast of partners from the traditional gaming, crypto, and NFT space to serve as validators of the network such as Binance, Unisoft, Animoca, Nonfungible.com, Dapp.com.It offers cheap and fast transactions with a confirmation time of 2-3 seconds.users can withdraw Axie assets back to the Ethereum mainnet with its Ronin Bridge.

What is DEP?

The Digital Entertainment Asset Pte. Ltd, headquartered in Singapore has initiated the DEA Project, blockchain-based NFT DeFi platform featuring NFTs, games, and various other forms of entertainment. The main usage of the utility token DEAPcoin (ERC-20) is used in NFT Marketplace by DEP to purchase NFTs (ERC-721) to enhance gameplay within the platform.DEAPcoin is a proprietary utility token issued by DEA that is used for ,Purchase NFTs on NFT Marketplace by DP,Fees for processing transactions,Used for DEA's DeFi services.Each time a game is added to the platform, the number of digital assets available for use in the game increases, allowing for the purchase of more valuable digital assets with DEAPcoin.

What is Immutable X?

Immutable X is a L2 scaling solution for non-fungible tokens (NFTs) on Ethereum, with instant trading, massive scalability, and zero gas fees for minting and trading with shared security with Ethereum mainnet. Immutable X is developed with StarkWare's STARK prover and rollup technology.IMX is the native token of the project. The current use cases for IMX includeProtocol fees payment,Staking,Governance . The protocol also provides an intermediate layer called the "Link," which enables an NFT-specific wallet experience and allows Immutable X to support a third-party marketplace ecosystem without security risks.Its native token is IMX.

What is Fuse?

A fast, decentralized payment network that offers Ethereum smart contract capabilities and enables anyone to have ownership in the infrastructure.The Fuse network is a permissionless and border-less public ledger designed for easy integration of everyday payments.The native token of the network is called FUSE. New FUSE tokens are issued with every added block and are also use to pay for gas, just like ETH on Ethereum.Validators are also responsible for the most important type of governance on Fuse, namely, adopting the network protocol changes via Fuse Improvement Proposals (FIPs). The Fuse Network blockchain is designed to ensure fast block confirmation times and a low cost of transactions. The average block interval on Fuse is around 5 seconds, and it currently costs much less than $0.01 to get a transaction confirmed.

What is Telos EVM?

Telos EVM ,the most powerful and scalable Ethereum Smart Contract platform available today and Its is a compatible layer-one blockchain that

offers a scalable solution to run existing solidity applications and vyper contracts without modifications.Telos EVM was built to revolutionize the DeFi landscape and to fix problems faced by other EVMs. Each part of Telos appears to solve different problems commonly witnessed in other networks. Telos EVM just functions like Ethereum but is different from the original EVM. The platform was developed to host a number of large programs from other networks without modifying anything.

What is Cronos?

It's the first blockchain that interoperates with both Ethereum and Cosmos ecosystems. For DeFi, NFTs, Games and Metaverse. Cronos is an EVM compatible sidechain running in parallel with the Crypto.org chain. Before launching Cronos, the Crypto.com ecosystem encompasses the Crypto.com chain and Crypto.com centralized exchange. Crypto.com has Crypto.org chain and Cronos chain (EVM-compatible).Cronos is running on a Proof of Authority (PoA) consensus algorithm and is powered by Ethermint - a PoS chain interoperable with Ethereum. It aims to massively scale the Chain DeFi ecosystem, by allowing developers to rapidly port apps & smart contracts from Ethereum and other EVM-compatible chains.

What is Flow?

Flow is basically a decentralized, fast, and developer-centric blockchain tailored for encouraging the growth of a completely new assortment of apps, games, and digital assets and it has great consumer blockchain experiences: CryptoKitties, Dapper Wallet, NBA Top Shot, and Its a leading blockchains for the next generation of apps, NFTs, and games. It's designed to scale in a

way that doesn't use sharding techniques, so transactions are fast and low-cost.Its native token is FLOW.

What is Tokenomics?

Tokenomics is the study of the economics of cryptocurrencies or digital tokens. Fundamentally, it entails researching the variables that influence the supply and demand for tokens. The elements include the manufacturing, distribution, and quality of cryptocurrency tokens.

What are the similarities between Cadence and Move?

Move and Cadence are both resource-focused. They are created with security and reliability as some of the most crucial factors in how the languages are structured, and they impose stringent constraints about how resource assets are maintained.

What is payload in blockchain?

Instead of using transaction hashes, a transaction payload is used instead, which contains all the transaction-related metadata needed by the recipient, be it a merchant or another user.

What is Wax blockchain?

In the area of NFTs, video games, and collectibles, The Worldwide Asset Exchange (WAX) blockchain is the most well-established and

environmentally friendly. The goal of Wax is to make NFTs widely available in the most secure, safe, green, and user-friendly market possible. The most prominent NFT network for entertainment is WAX. Digital commodities built on blockchain technology are difficult to counterfeit or steal, creating endless economic opportunities. Wax is the first EOS-compatible blockchain with a strong service layer that allows for simple setup, simple integration, and quick deployments. Delegated proof-of-stake, or DPoS, is the consensus algorithm used by the Wax blockchain. It is completely compatible with EOS. In order to do this, WAX developed a set of blockchain-based tools on top of which non-fungible tokens and decentralised application (DApp) markets can be established.

What are Atomic Assets?

On the Erosio blockchain, Atomic Assets is a standard for Non Fungible Tokens (NFTs). Anyone can develop digital assets using the Atomic Asset standard, tokenize them, then purchase, sell, and auction them using the Atomic Assets marketplace.

What do you mean by on-chain transactions?

The transactions that update the broader blockchain network are known as on-chain transactions since they have been verified or authenticated. The network's users, known as miners, must verify each transaction that takes place on a blockchain.

Does Yarn replace npm?

First off, Facebook developed Yarn as a package management to compete with npm. It appears that npm cannot install the package you are trying to install.

What is Minting in NFT?

Your digital artwork can be added to the unchangeable, impenetrable Ethereum blockchain by minting an NFT. NFTs are tokens that get "minted" once they are created, much as how metal coins are produced and put into circulation.

What is a chain link?

Through the use of decentralised oracles, Chain Link enables secure communication between smart contracts and real-world datasets. It offers trustworthy, tamper-proof sources of inputs and outputs for any blockchain. It enables information movement on and off the blockchain by utilising both off-chain and on-chain infrastructure.

What is the RNG method?

Random number generation is a procedure where a series of numbers or symbols that cannot be reliably anticipated better than by random chance are generated, frequently using a random number generator (RNG). There are numerous computational techniques for creating pseudorandom numbers. For your blockchain-based gaming apps, Chainlink VRF provides cryptographically safe randomness.

What is Max fee?

Users have the option to designate a maximum price they are ready to pay for the network to carry out their transaction. Max Fee Per Gas is the name of this optional parameter. A transaction must have a max fee greater than the total of the base fee and the tip in order to be completed. The difference between the maximum fee and the total of the base fee and the tip is reimbursed to the transaction sender.

What is OpenZeppelin?

Solidity allows you to create secure smart contracts. By utilising tried-and-true libraries of smart contracts for Ethereum and other blockchains, OpenZeppelin Contracts assists you in reducing risk. It includes the most popular ERC standard implementations.

What is chain link Random number generation (RNG) for smart contracts?

With Chainlink VRF, you may use random results to create better games in your blockchain gaming application.

What is the Satoshiverse?

The Satoshiverse is a fictional world created by Jose Delbo and Apollo NFT Studios that will include a 3D play-to-win game, a next-generation 3D avatar series, an NFT comic book series, NFT art, and NFT collectibles. It will

chronicle the tale of Satoshi The Creator and his followers as well as other upcoming blockchain superheroes.

What is a Graffle?

You can read, write, and query the Flow blockchain using any language thanks to our transparent overlay on top of it.

What's Solana?

An open blockchain platform is Solana. Proof of stake and proof of history are used to reach consensus. SOL is the cryptocurrency used internally. According to Bloomberg, Solana "may prove to be Ethereum's long-term adversary." Solana can interact with smart contracts, much like Ethereum can.

What is buildspace?

This is the place for developers who are interested in web 3 but are unsure of where to begin. Learn new skills, make cool things right away, earn NFTs, and gain access to cryptographic jobs that aren't public. Create a Web3 application on Solana using React and Rust.

What is Polygon? Matic?

Polygon (with ticker MATIC) is a full-featured multi-chained system that serves as both a framework and a protocol. It was created to address scalability difficulties on the existing Ethereum network and connect Ethereum-compatible blockchain networks. It is a layer 2 solution, which means it functions on top of Ethereum's main blockchain.

What is Polkadot?

A new generation of blockchain technology called Polkadot links various specialised blockchains into a single, cohesive network. Polkadot improves on the revolutionary promise of earlier blockchain networks while providing a number of key benefits. It was created as part of a comprehensive vision for a web that gives people back control over internet monopolies.

What is NestJS used for?

Scalable, testable, and loosely linked applications are created with NestJS. It raises the bar for scalable Node.js servers significantly. It is compatible with PostgreSQL, MongoDB, and MySQL databases.

What is OriginStamp?

On the basis of decentralised blockchain technology, OriginStamp is an online platform that offers reliable timestamping. For all types of digital files, users can anonymously produce tamper-proof timestamps. You can generate, retrieve, and verify any timestamp that was recorded on the blockchain network using this service.

What is an Edge wallet?

Edge is an effective and user-friendly cryptocurrency wallet that enables users to simply manage their own private keys with the comfort and simplicity of mobile banking. Your money or transaction information with Edge is exclusively accessible by YOU. Additionally, Edge offers a cryptocurrency exchange.

What is Hercules?

With the help of the decentralised Hercules blockchain protocol platform, anyone may run an entirely operational supply chain that uses Proof of Human Work to authenticate transactions. Hercules was created and is advised by the founders of Ethereum, Factom, Storj, Abra Wallet, Edge Security, Waves, Transform, and Blockchain Exchange, the world's leading blockchain organisations. Hercules is intended to assist billions of aspiring business owners as well as the 120+ million companies managing their supply chains annually. Tokens called HERC, which are needed to store and authenticate supply chain data, power the decentralised Hercules network.

What is Backblaze?

Backblaze promises that it can back up any type of data, regardless of file size or location in storage. It uses military-grade security to encrypt files, which are transported through SSL and stored at the vendor's data centre, that staffs full-time guards.

What is Trello?

Trello is a visual project management platform that enables teams to plan, manage, and celebrate their work in a cooperative, efficient, and well-organized manner.

What is Factoria?

The NFT contract factory Factoria is divided into two sections: 1. Decentralized Backend (Smart Contract) 2. A flexible Ethereum smart contract that implements ERC721 NFTs, enabling a number of potent features including an invite system, configuration, and more that were previously only available with coding knowledge.

What is a pinata Gateway?

Public IPFS gateways are used to provide HTTP access to distributed web files. For instance, Cloudflare offers an IPFS gateway at cloudflare-ipfs.com that enables access to IPFS files and even allows you to host a high-availability website for free.

What is Bitswap?

The IPFS fundamental module for transferring data blocks is called Bitswap. It controls how blocks are requested from and sent to other network peers. Bitswap is a message-based protocol where all messages contain blocks or want-lists. Both a JavaScript and a Go implementation of Bitswap are available.Bitswap performs two primary tasks.Obtain blocks from the

network that the client has requested.Send any blocks it has to other peers that are interested.

What is ERC721 URI Storage?

The essential functionality to facilitate off-chain storage of NFT artefacts is defined by ERC721URIStorage.sol. To clean up the URI resources when the token is destroyed, an additional internal function called _setTokenURI and a specific function called _burn are added.

What is Aion blockchain?

Aion is a multi-tier blockchain network created to allow for communication between different blockchains. AION tokens are employed in the development of new blockchains, the monetization of inter-chain bridges, and network security. The business Nuco, which was established in the spring of 2016, developed AION.

How does Dibbs app work?

To facilitate fast trades, either for a complete Item Token or a fraction of one, Dibbs uses tokenized representations of physical assets (Item Tokens). On the WAX network, these tokens exist and can be traded. A third-party custodian is in charge of the physical assets.

What is Ownable Sol?

The most fundamental form of single account ownership is provided by the Ownable sol contract. The contract will only be owned by one account, and only that account will have access to administrative functions. The contract's existing owner has two options for changing ownership: transfer or renounce.

What is Ebsi Blockchain?

The European Blockchain Services Infrastructure (EBSI) is a network of dispersed nodes across Europe that will use blockchain technology to provide cross-border public services.

How are smart contracts audited?

In a smart contract audit, the contract's code will be put to the test in a number of different ways. This will draw attention to any operational, technological, or cyber risks that the contract may be subject to. This procedure includes checking the contract for intentional breaks, such as through simulated attacks.

What is Automated Audit?

Solhint is an open-source project for linting solidity code that offers both security and style guide validations. It smoothly interacts with the majority of popular IDEs. For this research, we added the Solhint plugin to our Remix IDE. It is advised to utilize Solhint's npm package to lint the contract because the tool found several violations.

What is an Authenticated key agreement?

A security protocol used in 3G networks is called authentication and key agreement (AKA). Additionally, for digest access authentication, AKA is employed as a one-time password creation system. AKA is a symmetric cryptography-based challenge-response technique.

What is Web3 Modal?

With a straightforward configurable configuration, Web3 Modal is a user-friendly library that aids developers in adding support for different providers in their apps. Web3 Modal Library by default accepts injections from providers such (Metamask, Dapper, Gnosis Safe, Frame, Web3 Browsers, etc) You may quickly set up the library to support Portis, Fortmatic, Squarelink, Torus, Authereum, D'CENT Wallet, and Arkane in addition to WalletConnect.

What is nft.storage?

It is a recent service created especially for off-chain NFT data storage. Data is decentralizedly stored on IPFS and Filecoin and may be referenced in smart contracts using content-addressed IPFS URIs without worrying about the data changing.

What is NFT School?

It is an open-source project that accepts contributions from people of all specialties worldwide! Are you an excellent communicator who wants to improve the world's NFT developer community? Contribute a lesson, how-

to, or concept guide to this open-source website to share your knowledge with your colleagues.

What is Arweave?

A programme called Arweave aims to permanently store files on a dispersed network of computers. Its aim is to create an everlasting digital archive, comparable to the legendary Library of Alexandria.

What is zeppelin OS?

A secure, open-source, decentralised platform built on top of the EVM for the development and management of smart contract applications.

What is a Layer 2 blockchain?

A blockchain network that confirms transactions more quickly than an established blockchain network. Layer 2 chains are frequently made to handle tiny transactions (micropayments) with minimal or no fees while also minimising bandwidth on the primary network. Numerous Layer 2 solutions have successfully attracted attention in the cryptosphere since their inception.

The layer 2 solutions that stood out and solved a number of pressing issues are listed below.

Polygon: It is a new platform designed to build and link blockchain networks based on Ethereum. It includes all the resources and elements used by programmers to build Ethereum instances that are efficient. Additionally, the platform enhances Ethereum's security and developer freedom. As the leading supplier of Ethereum Layer 2 solutions, Polygon is seeing phenomenal global expansion.

Arbitrum: For a number of reasons, it is another standout provider of Layer 2 solution. The development of Arbitrum includes elements designed to work closely with Ethereum. For Solidity developers, cross-compiling their smart contracts is made simple by these functionalities. A compiler, the EthBridge, and validators are the three elements that make up Arbitum. Arbitum does not offer a native token and has said it has no intention in doing so. Arbitum's capability for sidechain transaction aggregation, often known as rollup technology, is another strong point.

Optimism: Another well-known scaling approach for Ethereum that increases transaction affordability. Additionally, it can assure that Ethereum users' transaction speeds significantly increase. A few restrictions apply to the ability of developers to design Solidity smart contracts. The direct partnership with Synthetix is among the notable features of Optimism. The platform declared that it would give users who have SNX tokens staking possibilities.

Immutable-X: Immutable-X is the initial Layer 2 scaling option for NFTs on Ethereum. Without sacrificing user privacy, it offers flawless scalability, quick transaction confirmation, and no gas expenses. The protocol's

deployment on top of StarkWare's technology validates the technology and enables users to continue using the Ethereum network and services.

X-Dai: A sidechain built on Ethereum, X-Dai enables users to conduct transactions more quickly and at lower cost. The platform enables users to stake native X-DAI coins on the networks by using a PoS consensus mechanism. The fact that X-DAI is a stable coin is what appeals to people the most.

What is Casper blockchain?

Casper is nothing more than a Proof-of-Stake (PoS)-based blockchain network that is designed to be adopted by developers and businesses. The Correct-by-Construction (CBC) requirements were originally used to create the Casper network, which is considered to be the first live blockchain.

What is Cmake?

CMake is a cross-platform, free and open-source tool used in the software development industry for build automation, testing, packaging, and installation of software utilising a compiler-independent approach. Although it produces build files for other systems, CMake is not a build system itself.

What does protoc command do?

A protocol buffer definitions file compiler is called protoc. The source code for the classes defined in PROTO FILE can be generated in C++, Java, or Python.

What does Factom do?

Factom offers a distributed way to lock in data, making it verifiable and independently auditable. When used in commercial transactions and processes, this straightforward function is incredibly potent. Factom makes it possible for individuals and organisations to employ a "notarization" service that can be mathematically proven.

What is a WordProof timestamp?

Create a blockchain timestamp for your WordPress content. You may timestamp your WordPress content on any EOSIO blockchain from the comfort of your WordPress website with WordProof Timestamp. No prior knowledge of blockchain is required. After setup, everything runs smoothly on its own!

What is the Difference between Cadence and the solidity?

The syntax of Solidity and Cadence is one of the contrasts between them. Solidity was influenced by C++, JavaScript, and Python whereas Cadence was influenced by Swift and Rust. While Solidity offers imperative programming, Cadence often supports declarative writing.

What is partisia Blockchain?

A WEB 3.0 public blockchain designed with MPC for speed of light finalisation, trust, transparency, and privacy. The Partisia Blockchain is built on decades of study and more than 10 years of actual commercial Secure Multiparty Computation usage experience (MPC). The foundational elements of Partisia Blockchain are based on studies carried out by partners and world-renowned researchers.

Public Blockchain: On the public blockchain, anyone can run a node and take part in the validation process. Operating a node does not require clearance beyond regular KYC/AML. It is always possible to read permission. We define the Partisia Blockchain as a public blockchain that anyone can access and where any authorised entity is allowed to run a baker and ZK computation node. A security token is a token that, according to legal standards, is a security. Therefore, whether a token is a security token or not is a matter of federal law. SLA: A service provider and a client make a commitment to one another through a service level agreement (SLA). Cryptocurrency that is backed by anything is referred to as a stable coin. Examples include coins that are 1) backed by fiat money, gold, or whatever else from the outside of the blockchain world; 2) backed by other liquid crypto currencies; and 3) managed by a system that functions like a central bank. A system token is a token that is only present on the blockchain internally. There are many different kinds of tokens, and definitions are still being worked on. The two classes of tokens that are now recognised by law are utility tokens and security tokens. All tokens that are not classified as security tokens are utility tokens.

DIBBS

What is AtomicHub?

It is a one-stop shop that is already utilised by hundreds of thousands of devoted users for developing, trading, and buying and selling NFTs.

EOSIO BLOCKCHAIN NETWORKS

The blockchain software from EOSIO is adaptable and highly programmable. The entire blockchain network can be launched using it to accommodate specific business use cases and procedures. The Block.one Developer Relations team has compiled a list of blockchain networks that use EOSIO software.

EOSIO Blockchain Networks

EOS**:** After the EOSIO blockchain software was released in 2018, a community of block producers and thousands of resourceful people launched the first ever worldwide public EOSIO blockchain network. One of the most advanced EOSIO networks, as well as one of the most well-

liked, fast, and decentralised public blockchain networks using the Delegated Proof Of Stake (DPoS) consensus process, is the EOS network.

BOSCore**:** The BOS Network is dedicated to provide user-friendly blockchain services that are simple to access and use. It also works to support richer application scenarios, actively encourages prosperity in trustless commerce, and provides a more user-friendly infrastructure for DApp operations.

COFFE network**:** COFFE is a modified DPoS-based consensus method that is part of the EOSIO platform fork (an independent software development branch).

eosfinex: eosfinex is a platform for trading digital assets that is transparent, scalable, and offers industry-leading security and instantaneous execution.

EOSForce: A High-Performance Decentralized Smart Contract Platform.

Europechain**:** Europechain is an enterprise blockchain platform that complies with GDPR and is run by qualified validators based in the EU.

LACChain EOSIO**:** The EOSIO Blockchain Network for the Caribbean and Latin America. LACChain EOSIO enables businesses and developers to

create blockchain apps on the LACChain network powered by EOSIO technology.

Meet.one: The MEET.ONE team will create a blockchain infrastructure built on EOSIO based on the ideas of openness and sharing, collaborate with block producers and developers to encourage the growth of a trusted Internet, and work together to empower the internet with blockchain.

Proton: A brand-new platform for smart contracts and public blockchains called Proton is intended for both consumer applications and peer-to-peer payments.

RemChain: The first public blockchain constructed using Remme's Public Key Infrastructure Protocol.

Telos: Telos is a blockchain with smart contracts that was created to help future economies.

Ultra: Ultra is introducing the blockchain revolution to the gaming sector and building a just ecosystem for the future of game distribution.

Wax: With the use of a comprehensive set of blockchain-based technologies developed by WAX, anybody may immediately and securely exchange physical or digital goods with anyone, anywhere.

WORBLI**:** A blockchain network focused on financial services is called WORBLI.

What is Golem Token?

A marketplace for computing power is the Golem (Golem Network) platform. On the peer-to-peer network, users can rent out unused computational capabilities to others who need them for memory-intensive tasks in exchange for payment in the Golem cryptocurrency.

What is Graphic India?

The revolution in character entertainment in India is being driven by Graphic India! A new wave of enduring characters and mythical heroes are being introduced by Graphic India to capture the imagination of young people in India and around the world, much to how America developed superheroes and Japan created anime. The company employs digital comics and animation to create new stories that are aimed at the 900 million-person mobile market and the 550 million Indian youngsters under the age of 25 as they transition to smartphones.

What is Orange Comet?

It is an NFT/Bitcoin studio that is driven by creative curators, digital technologists, and enlightened storytellers that thinks that technology is the doorway to the next cultural revolution. one that is driven by creativity, focused on design, and committed to creating meaningful things.

what is Neftyblocks?

On the Wax blockchain, NeftyBlocks is a market place for buying, selling, and managing NFT collections. According to the site, users may manufacture and sell digital collectibles utilising the company's own branding, distribution, and collection capabilities thanks to its user-friendly user interface (UX). These were initially command-line tools.

What are atomic assets NFT?

On the eosio blockchain, AtomicAssets is a standard for Non Fungible Tokens (NFTs). The AtomicAsset standard allows anyone to tokenize and generate digital assets. The blockchain stores and makes immutable the ownership and NFT data.

What is EOS kylin?

A group of EOS Mainnet Block Producers maintains the developer-friendly testnet known as CryptoKylin.

What is a Jungle?

Jungle is an EOS testnet with the complete application of the EOS Mainnet token snapshot.

What is proton chain crypto?

A new public blockchain and smart contract platform called Proton (XPR) is intended for both consumer apps and peer-to-peer transfers.

Is Proton its own blockchain?

Lynx and Metal are the two projects that came together to construct Proton. By the name of Lynxchain, the company already had its own blockchain and cryptocurrency wallet app. Proton, which is based on Lynx Chain but has been expanded with the identity layer, was created by combining the projects when they decided to unite.

What is Rally?

Rally is a project management application used to keep track of each iteration and release of the development process. Defects and user stories are also mapped using this technique.

What is the third web?

Web3 apps and games are simply created using Thirdweb.

What is A cross-chain?

Interoperability between two comparatively independent blockchains is referred to as a cross-chain.

What is DappStarter?

A complete stack development environment for blockchains is called DappStarter. It supports the blockchain and language of your choice, as well

as an integrated front end user interface on the client side framework of your choice.

What is Move?

Move, a secure and adaptable programming language for the Diem Blockchain. Custom transactions and smart contracts can be implemented using Move, an executable bytecode language. Move's main feature is the ability to create unique resource types with semantics drawn from linear logic: A resource can only be moved between programme storage places; it cannot be copied or implicitly deleted.

What are meme coins and tokens?

Meme coins can be defined as cryptocurrency tokens that are motivated by popular culture, such as movies, jokes, or social media trends. There are over 250 meme currencies, including Dodgelon Mars, Safemoon Inu, SHIBA INU, SHIBAVAX, Loser Coin, Rotten, and DogeZilla, according to CoinMarketCap.

What is a Mempool?

Every node maintains a smaller database of unconfirmed or pending transactions called the mempool (memory pool). A transaction is deleted from the mempool once it has been confirmed by being included in a block.

What is Flux?

The latest iteration of scalable decentralised cloud infrastructure is called Flux. Simply create, maintain, and spawn your applications simultaneously across numerous servers. getting ready for Web 3.0, dApps, and more

What is DAI?

DAI is a cryptocurrency with collateral backing that runs entirely on the blockchain and doesn't rely on a middleman to maintain its stability and peg in relation to the US Dollar. DAI is backed by collateral that is secured in audited smart contracts that are made available to the public.

What is Scaffold-ETH?

Scaffold-eth offers a ready-to-use stack for rapid prototyping on Ethereum, enabling developers to access cutting-edge technologies to quickly learn and launch an Ethereum-based dApp.

What is Blankos?

Blankos is a free game where players may create game worlds without the need for coding knowledge and also acquire, personalise, and sell NFTs of characters and items made by developers and well-known brands. It functions on the principles of accessibility, ownership, and scarcity.

What is Conflux?

Conflux is a high throughput first layer consensus blockchain for decentralised applications (dApps) that demand speed at scale.

What is Audius NFT?

Users may now embed their NFTs on Discord and Twitter thanks to a new feature from Audius. To access a gallery of embeddable videos of their NFTs, users must link their Web3 wallet to the app. Along with Audius, a number of Web2 businesses have begun to investigate NFTs as the technology has become more well-known lately.

What is Ethereum plasma?

The term "Plasma" describes an architecture that enables the development of "child" blockchains that rely on the main Ethereum chain for trust and arbitration. Child chains in Plasma can be tailored to meet the needs of certain use cases, especially ones that are currently impractical on Ethereum.

What is Matic ZK rollup?

Mir Protocol was purchased by Polygon (previously Matic Network) for $400 million, marking yet another acquisition in the ZK-rollups market. A cryptographic device that can be used to produce ZK-rollups is called a ZK-proof. ZK-rollups allow transactions to be performed but do not necessitate the posting of entire transaction details on Ethereum.

What is an optimistic rollup?

One sort of layer 2 structure that runs on top of Ethereum's base layer rather than on it is called an optimistic rollup (OR). This enables large-scale smart contract execution while maintaining Ethereum security.

What are Polygon layers?

Architecturally, Polygon PoS consists of the three following layers:

Ethereum layer — a set of contracts on an Ethereum network.

Heimdall layer — a set of proof-of-stake Heimdall nodes running in parallel to an Ethereum network and monitoring the set of contracts on the Ethereum network. Heimdall is a fork of Tendermint.

Bor layer — a set of block-producing Bor nodes shuffled by Heimdall nodes. Bor is a fork of Go Ethereum.

What are Layer 2 roll ups?

A developing layer-2 scaling technology is rollup. In a rollup system, transaction calls and arguments are logged as calldata along with the contract state hashes that are saved on-chain. The on-chain contract's capacity to validate the accuracy of state transitions provides rollup security.

What is Optimism Ethereum?

With optimistic Ethereum, users can submit transactions to the Ethereum network and have them processed more quickly for a lot less gas.

What are conventional commits?

The maintenance of any long-term project depends on effective commit messages.

What is Client?

The gateway to the Ethereum network is the client. To broadcast transactions and read blockchain data, the client is necessary.

What is Accumulate?

Accumulate integrates blockchains, protocols, oracles, and apps to provide a high performance blockchain for DeFi. Accumulate changes the way blockchains manage users, currency, and data.

Is gRPC faster than rest?

In terms of receiving data and delivering data for this particular payload, Google RPC is approximately 7 times faster than REST. The use of HTTP/2 by gRPC and the tightly packed Protocol Buffers are the main causes of this.

What are Zokyo labs?

They check every significant protocol (ETH, DOT, BSC, SOL, etc.), as well as every major programming language, for smart contracts, protocols, crowd

sale token contracts, and bespoke smart contracts. Competitive businesses must conduct code security analysis.

What is an EOA in cryptocurrency contracts?

Pertaining to agreements and accounting. As an EOA, the state only keeps track of the account's ether balance and guards against transaction replay assaults with a sequence number. On the other side, a key-value database is used to store the contract's code and storage.

What is an EOA?

This is not a wallet contract; rather, it is an externally owned account, which is your standard Ethereum address. In general, there are two kinds of accounts: contract accounts, which are managed by their contract code, and externally owned accounts, which are controlled by private keys.

What is Truffle Flattener?

Truffle Flattener combines solidity files from the Builder and Truffle projects along with all of their dependencies. By combining your files and their dependencies in the proper order, this tool enables you to check contracts created with Truffle and Builder on Etherscan or debug them on Remix. If you are still using Truffle, we suggest switching to our significantly quicker and more adaptable Ethereum programming environment, Builder.

What is Celer Network?

A layer-2 scaling platform called Celer Network enables widespread adoption of quick, safe, and affordable blockchain applications on the Ethereum, Polkadot, and other blockchains. The first Generalized State Channel Network was introduced by Celer, and the company is still pushing the limits of layer 2 scaling with cutting-edge Rollup technology.

What is LOOM Blockchain?

Loom is an Ethereum side-chain designed to enable a variety of decentralised apps. A blockchain scaling initiative with a focus on social and educational applications is called Loom Network. Plasma, an Ethereum scaling solution that enables quicker network-wide transactions, powers the network itself.

What are pegged sidechains?

Bitcoins and other ledger assets can be moved between different blockchains using sidechains or pegged sidechains. By doing so, consumers can access cutting-edge cryptocurrency systems while still using their existing assets.

What is a hard cap and a soft cap?

The word "soft cap" refers to the minimum possible investment for a specific project to start its development, whereas the term "hard cap" designates the maximum number of tokens that can be sold during an ICO campaign.

What is SuperFarm?

SuperFarm is a platform that provides a cross-chain NFT farming platform in an effort to make non-fungible tokens (NFTs) more approachable and understandable. It offers a platform where anyone can start their own NFTs and NFT farms without needing any programming experience.

What is a 1inch network?

A network called 1Inch links various decentralised exchanges (DEX) into a single platform. Users may compare and optimise their crypto trades and swaps with 1Inch exchange without going through each exchange individually.

What is a Gitcoin grant?

Gitcoin Grants is an experiment where people can fund their open source projects for public benefit with QF (Quadratic Funding) matching contributions from Gitcoin's QF Fund sponsored by donors in the Ethereum ecosystem.

What is Alpha Chain?

In the Chainlink ecosystem, Alpha Chain is one of the top node operator. It is used to support smart contracts and decentralised apps as we work hard to offer dependable blockchain oracle services.

What is Total value locked (TVL)?

The overall value of crypto assets placed in a decentralised finance (DeFi) protocol, or in DeFi protocols in general, is known as total value locked (TVL). It has become a crucial statistic for assessing interest in that specific area of the cryptocurrency market.

Why are ETH gas fees so high sometimes?

When the Ethereum network is dealing with a high volume of transactions, gas can become expensive. The number of transactions that can be contained in a block of an Ethereum blockchain is constrained. Miners are motivated to accept transactions at greater gas prices as a result of supply and demand.

What is Tinlake?

Asset Originators and Investors that want to take use of the full potential of decentralised finance can connect with each other through the open, smart-contract based asset marketplace called Tinlake (DeFi). Tinlake will ultimately develop into a completely decentralised fundraising protocol that communicates with many blockchains and connects to a range of funding channels.

What is the Graph?

An indexing technique called The Graph is used to search networks like IPFS and Ethereum. Anyone can create and distribute open APIs, sometimes known as subgraphs, that make data creation simple.

What is Chorus One?

Chorus One manages node infrastructure across more than 30 decentralised Proof-of-Stake networks. Through staking, Chorus One's operational architecture enables users to safely accumulate more digital assets. To check and verify information in various geographical areas of the world, Chorus One uses two distinct sets of nodes.

What is Ethereum Name Service?

A system for quickly identifying addresses on the Ethereum network is called the Ethereum Name Service (ENS). It links a lengthy string of address characters to names that are simple to remember.

What is Bancor Network?

The first decentralised liquidity network in the world is called Bancor Network. It is a project that enables the automatic conversion of one token into another, in other words. The Bancor Network Token's creation has made this possible (BNT). It is a digital currency with a built-in converter that enables it to be instantly swapped from the user's wallet for any token on the network.

What is Aave?

Aave is an open-source lending protocol. This protocol generates percentage tokens.

What is the Puma browser?

Puma Browser is a new platform for paying for goods and services on mobile devices that focuses on privacy. Everyone uses a browser, but they don't give them much thought, according to Dybskiy.

What is Osiris browser?

The first net-neutral browser is called Osiris. Osiris was created with the express purpose of releasing users from the shackles of bias, commercialism, and censorship that have crept into the internet.

What is Brave browser?

Based on the Chromium web browser, Brave is a free and open-source web browser created by Brave Software, Inc. With its default settings, the privacy-focused browser Brave automatically eliminates online ads and website trackers.

What is Covalent?

Covalent is a software that aggregates data from several of the leading blockchain platforms, including Ethereum, Avalanche and Polygon, and allows participants to access these data points for a variety of use cases

What is IDX?

IDX is a multi-platform identity protocol that replaces centralized user tables with a decentralized alternative. IDX allows users to build up a unified digital identity consisting of all their data while enabling developers to break down silos and freely share a users' data between applications.

What is Serto?

Serto is the quick-to-implement low-code decentralised identity solution. Start creating and distributing limitless verifiable credentials (VCs) and decentralised identities (DIDs) for free! Instead of producing code, start adding value. Free Trial of Serto Agent.

What is ONT ID blockchain?

ONT ID creates decentralised connections between individuals, data, and services using blockchain and cryptography technologies. By allowing consumers control over how and when their information is shared, it enables them to take control of their digital identity.

What is the ENS blockchain?

A blockchain version of the widely used Domain Name System is called ENS (DNS). A phone-book metaphor might be used to describe either of them. By converting names that can be read by humans into their underlying

representations—in the case of DNS and ENS, computer addresses rather than phone numbers—they act as lookup services.

What is Ceramic Crypto?

Ceramic is a public, permissionless, open source protocol that provides computation, state transformations, and consensus for all types of data structures stored on the decentralized web.

What is Offchain data?

Off-chain data is any non-transactional data that is too large to be stored in the blockchain efficiently, or, requires the ability to be changed or deleted.

What is lens protocol polygon blockchain?

The Lens Protocol ecosystem is on the Polygon (MATIC) blockchain and aims to challenge centralized social media platforms like Twitter and Instagram.

What is lens protocol graph blockchain?

Any programme can connect to the user-owned, open social graph known as Lens Protocol. The entire ecosystem benefits from each Lens-using application, changing the competition from a zero-sum to a cooperative one. Developers may concentrate on creating a fantastic user experience while leaving growth hacking to the protocol.

What is mem protocol?

Mem Protocol is building tools for the social layer of web3. Mem Protocol is developing tools for web3 social that are focused on people. Control your buddy network, learn about the blockchain, and make money by teaching others.

What is cyberconnect protocol blockchain?

A decentralised technology called CyberConnect is used to build social networks using blockchain addresses. We democratise social interactions and create self-sovereign, portable, composable, blockchain-independent, contextually meaningful social networks.

What is Biconomy protocol blockchain?

The Biconomy network is basically meant to allow gasless transactions, which essentially means that it will bring down costs for DeFi platforms which are facilitating transactions in the web3 world. The company has three main products — Mexa, Forward and Hyphen.

What is Authentication and Key Exchange(AKE)?

The exchange of session keys in a key exchange protocol that additionally authenticates the identity of the people involved in key exchange is known as authenticated key exchange or authenticated key agreement. The most extensively used AKE protocol is probably Transport Layer Security, which is essential to secure HTTP connections.

What is EIP 2771?

A standardised method for sending gasless transactions is the EIP-2771 methodology. Only a modest trusted forwarder contract serves as the security backbone for recipient contracts that are aware of meta transactions. This agreement confirms the sender's nonce and signature.

What is Brownie web3?

The Brownie framework is built on top of web3.py. Brownies are small rectangular confectionery items loved by everyone, but the Brownie we are

talking about today is a Python-based framework to develop and test smart contracts

What is the embark framework?

A framework called Embark makes it simple to create and implement decentralised applications (DApps). A serverless HTML5 application that makes use of one or more decentralised technologies is known as a decentralised application. Embark is a tool for quickly integrating smart contracts into conventional Javascript programming and instantly deploying them to the Ethereum EVM network. If there are several contracts, Embark manages the migration, deploys new contracts when necessary, and keeps an eye out for modifications.

drizzle + truffle = embark

What is an upgradable contract?

The storage configuration of a contract cannot be changed after an upgrade to a new version due to technological restrictions. This means that once a state variable has been defined in your contract, it cannot be changed, removed, or have another variable declared before it.

What is Etherscan?

Etherscan is a block explorer and analytics platform that allows you to access details on any Ethereum blockchain transactions that are pending or confirmed.

What is Utrust?

Utrust is a blockchain-based digital payment platform that combines elements of conventional online payment methods and blockchain technology in an effort to provide the finest options available.

What is Covalent crypto?

Covalent is a piece of software that gathers information from several of the top blockchain platforms, including Ethereum, Avalanche, and Polygon, and makes it available to users for a range of use cases.

What is an Oracle?

An oracle serves as a link between the real world and the blockchain. They serve as queryable on-chain APIs that you can use to input data into your smart contracts. Anything from price data to weather reports could be included in this. Oracles can also be used to "send" data into the outside world in a bi-directional manner.

What is Provable Oracle service?

Any external Web API can be connected to your blockchain DApp. The secret to safeguarding your decentralised logic is data authenticity. The majority of

public blockchains have this capability built in, and any private blockchain can use it as well.

What is Winet?

With the help of solid crypto-economic assurances, Witnet enables your smart contracts to respond to events in the real world.

What is Paralink?

Oracle for the most widely used blockchains that is open source. For popular blockchains such as Binance Smart Chain, Ethereum, and Polkadot, Paralink offers an open source and decentralised oracle platform.

What is Paralink PQL?

PQL, a new query tool for smart contracts, stands for Paralink Query Language. PQL definitions represent information sourcing, aggregation, and validation ETL (extract, transform, load) pipelines. They serve as the foundation for all oracle requests (jobs).

What is the Oracle Problem?

Smart contracts supported by blockchain are cut off from the internet and unable to directly access external data. The smart contract's computation is also prohibitively expensive and resource-constrained.

What is DOS Network?

Multiple heterogeneous blockchains are supported by the decentralised Oracle Service. In a secure, dependable, effective, and scalable manner, DOS

Network provides real-world data, event, and processing power to smart contracts.

What is Status?

Status is a robust communication platform that includes a private chat, safe cryptocurrency wallet, and Ethereum Web3 DApp browser. Talk to your pals and the expanding communities. Purchase, exchange, and store digital assets. Access the decentralised internet without risk of data exploitation.

What is Biconomy?

Biconomy was the first Indian cryptocurrency startup to issue a token on Coinlist after its founding in 2018. Biconomy essentially aims to take over as the payment gateway for cryptocurrency transactions in the web3 world. The native governance token for the network is the BICO coin.

What is a gas station network?

A network of relayers without centralised control is called the Gas Station Network (GSN). It enables you to create decentralised applications (dapps) where you pay for users' transactions, facilitating user onboarding by removing the requirement that they have Ether to pay for gas.

What is SKALE?

A high-throughput, low-latency, and inexpensive environment for decentralised app (dApp) development is provided by the Layer-2 Ethereum sidechain network known as SKALE.

What is DeFi governance?

Cryptocurrency users making decisions that are typically the domain of executives? Just one result of DeFi governance is this.

What is WalletLink?

Users can link their mobile crypto wallets to your DApp using the open protocol known as WalletLink.

What is native meta-transaction? How to make my contract native meta-transaction enabled?

Users can send signed messages to smart contracts directly through native meta transactions. Any third party may relay these Signed communications without altering the true "sender" value.Make careful to remove msg.sender and msg.value dependence from your contract if you want to support native meta-transactions in it. All input parameters must be signed by the user using his or her private key. Signature verification must take place within the contract itself, and following successful signature verification, the sender address must be retrieved within the contract. We have developed a standard and secure protocol for this in collaboration with the Ethereum community to benefit users and maintain a consistent method of enabling native meta-transactions on the contract.

I have inherited "EIP712MetaTransaction.sol**" in my contract. Now while sending transactions I am getting the "Signature & Signer does not match" error, Why?**

This is a very common error. Make sure the values (name & version respectively) you have provided while inheriting EIP712MetaTransaction into your contract like below example

1

contract TestContract is EIP712MetaTransaction("TestContract","1") {

2

3

//your implementation

4

5

}

Copied!

should be the same while setting the domainData in your script.

```
1
let domainData = {
2
name: "TestContract",
3
version: "1",
4
verifyingContract: "your Contract address"
5
chainId: 42
6
};
```

Copied!

Why do I have to change msg.sender to _msgSender()? Is it Safe?

Yes, it's perfectly safe. Our contracts are audited by QuantStamp & MixedBytes.

What values should I put in the domainData of "EIP712MetaTransaction.sol"?

Although the settings in domainData are completely up to you, they must match those chosen when your contract inherited the EIP712MetaTransaction.

Why is Metamask asking me to pay the fee?

In this instance, Biconomy has not been effectively integrated into the code. A few debugging tests you can perform are: a). Prior to initialising Biconomy, set the debug flag to true const biconomy = new Biconomy(provider, "apiKey>", "debug: true"); b). Check to see if the web3 object has Biconomy configured as its provider before calling the method. c). Verify the Biconomy Dashboard to see if the Smart Contract and Apis are correctly registered.

Can I create two instances of Biconomy at runtime (one on L1 & second on L2)?

You can set up two Biconomy instances, each with a provider object pointing to a separate network. However, this use case typically occurs when your dapp has both Layer 2 (Matic or xDai, for example) and Ethereum components, and the user wallet RPC URL points to the Ethereum mainnet. In this scenario, you can build the second Biconomy instance with the

provider object explicitly pointing to the Layer 2 blockchain and then communicate on Layer utilising meta transactions.

I have integrated Biconomy properly, but still, transactions are not going via mexa SDK.

Check the version on mexa SDK and the web3. Make sure you have installed the latest version of mexa, and web3 version >= 1.3.0. You can check here for the latest version of the Mexa SDK.As a last resort, you can also use our Native API directly in your code, in case you don't want to use the SDK.

What happens to my transaction when Biconomy relays it? Is it safe? What if you change the Data of the transaction?

Biconomy is unreliable and non-custodial. The user signs every transaction that enters our platform using his private key. The data is signed by the user and contains all of the input parameters in encrypted form. Biconomy relays signed data along with the actual data parameters, making it impossible for Biconomy to alter the data because it is encrypted and signed with the user's private key. In the event that Biconomy modifies it, the signed data and the data input parameters received along with it are compared at the contract level to see if they match. If not, the transaction fails as a result of the Signature Verification failing.

Is Mexa ether.js compatible?

Yes, Mexa SDK is ether.js compatible.

I have a vanilla javascript project, how can I use Biconomy in it?

We have a Mexa SDK version for plain JS projects also. Check here under the "Let's get Started" section's Standalone JS File tab.

Biconomy is currently operating in a semi-centralised model, are there plans to decentralize?

The biconomy is moving steadily toward decentralisation. The current semi-centralized strategy provides non-custody of user cash and delivers a high level of security. We think that gradually decentralising will help us in the future to provide greater security and enhanced community involvement.

How does Biconomy differ from alternative approaches such as GSN?

Biconomy Pros:

Dashboard for developers to more granular control on meta transaction usage.

Quick 2 step integration with no extra smart contract deployments.

No need to worry about protocol changes or new trends on blockchain. Biconomy makes sure the system is up to date with market trends.

Less gas per transaction as no extra hops on-chain and payments are processed off-chain.

Gas fee can be paid in stable tokens or ERC20 tokens.

You can do network agnostic transactions - No need to change RPC URL in Metamask while doing transactions on Layer2

Biconomy Cons:

Not decentralized, so need to trust Biconomy servers for relaying transactions.

GSN Pros:

Decentralized system, so no need to trust any single relayer.

GSN2 is simpler than GSN1, so comparatively easy to set up.

Relayers can be paid in ERC20 tokens while paying back the fees.

GSN Cons:

Extra setup is required.

High relayers fees.

Regular monitoring of DApp funds is required to repay the relayers.

High transaction fee, as extra processing is done on chains like multiple hops, checking dapp deposits, and relayer payments.

What is a Chain List?

EVM networks are listed in Chainlist. The data can be used by users to link their wallets and Web3 middleware providers to the proper Chain ID and Network ID in order to connect to the right chain.

What is Bitquery?

A multi-blockchain explorer called Bitquery Explorer displays analytics for more than 30 different blockchains. Our explorer is backed by GraphQL APIs and constructed from embeddable widgets. We employ an OLAP multi-dimensional analytical database, which enables us to combine data to produce sophisticated blockchain analyses.

What is Web3-react?

An easy-to-use, straightforward, extendable web3 framework called web3-react is used to create dApps for the Ethereum blockchain network.

In a nutshell, web3-react is a state machine that maintains some vital pieces of information relevant to your dApp.

It supports injected providers like WalletConnect, Meta Mask, Gnosis Safe, and Frame by default.

It is simple to set up to use different wallets like Portis, Squarelink, and Arkane.

What is DeFi (Decentralised Finance)?

Decentralised Finance (DeFi) is an umbrella term for a collection of financial products which rely on smart contracts and blockchains to enable open, peer-to-peer (P2P) financial services and automate specific procedures. DeFi applications aim at decentralisation, although the degree to which they are varies. Decentralisation is quantified from multiple perspectives (starting from the base-layer blockchain, e.g. Ethereum, Solana, Avalanche, Cardano and Polkadot) and the code base of the protocol (e.g. Uniswap, Curve.fi and SushiSwap), and includes factors such as governance structures, voting procedures and more.Due to its open, decentralised and P2P nature, DeFi also enables 'money Legos'. The term refers to the interoperability of applications in the space, and it is often cited as one of the aspects responsible for the rapid innovation in the space.

Difference between TradFi(Traditional Finance) and DeFi(Decentralised Finance)?

TradFi and DeFi have many similarities in principle, and although the end goal is similar — to provide services to individuals and organisations — functionally, the differences are vast.

Features	TradFi	DeFi
Access	Permissioned models	Permissionless models
Data integrity	Read/write access is controlled, managed, gated, exclusive	Inclusive, immutable
Interoperability	Segmented, dependent on multiple intermediaries	Composability, money Legos
Innovation	Incremental and sustaining	Radical and disruptive
Value	Uses data to record (nominal) value	Data does not record value, but is value in itself

Human-facing aspects	Brick and mortar; Web 2.0	Web 2.0 transitioning to Web 3.0

What is the Components/Layers of DeFi?

The technology stack on which DeFi is built can be separated into five major components: (1) settlement layer, (2) asset layer, (3) protocol layer, (4) application layer, and (5) aggregation layer.

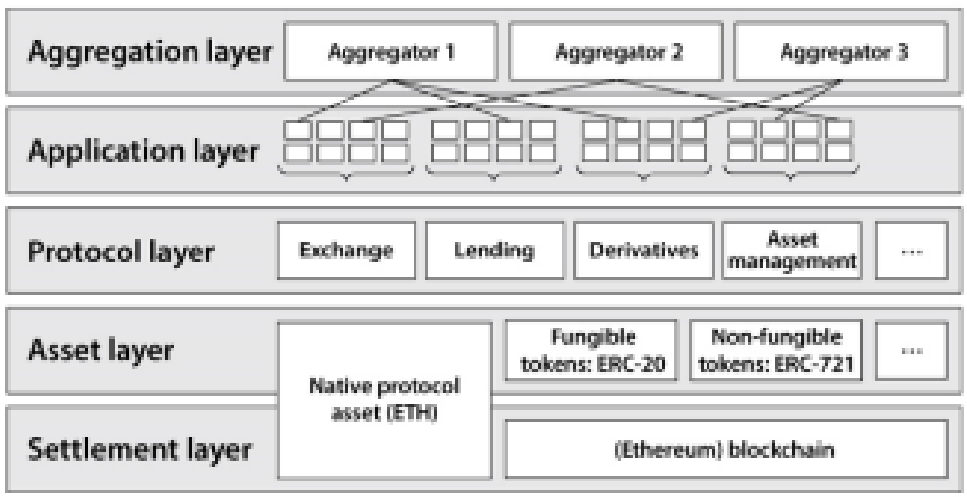
The foundational layer on which all distributed ledger technologies rest (and transitively, all of DeFi) is the settlement layer.

The asset layer consists of different types of tokens that have various functionalities

The internal logic of any DeFi application is defined by the protocol layer which consists of one or more independent smart contracts that dictate the rules of the protocol.

The application layer consists of a standard Web 2.0 user interface that connects a wallet, such as MetaMask or Phantom, to a smart contract, and creates a user-friendly way to interact with the DeFi protocol, by signing, creating and submitting valid transactions.

The aggregation layer combines the application layers of different protocols of the same type into a single interface.



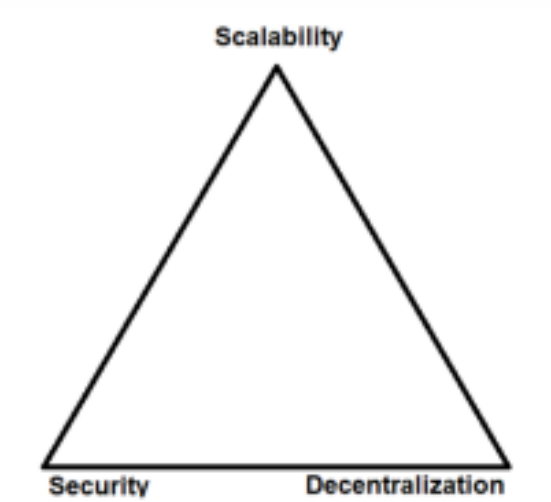
What is Blockchain Trilemma?

The Blockchain trilemma is a concept coined by Vitalik Buterin that proposes a set of three main issues that developers encounter when building blockchains. They are

1. Decentralisation: network control takeover resilience; capacity to spread the control over many nodes.

2. Security: network immunity on internal and external threads; ability to continue operation despite being under an attack.

3. Scalability: network ability to expand and to process more transactions.



Blockchain trilemma

What are the Top DeFi Dapps?

The top DeFi Dapps that are used by users(According to CryptoRank ,April 2022) are: Pancakeswap,Orca,Katana,Trader Joe,Uniswap v2,Uniswap v3,Raydium , 1inch network and many more.Also It is said by CryptoRank that there are 2,570 DeFi Dapps in total amount.

What are the Various Applications of DeFi?

The Various applications of Defi includes: Stable coins, Decentralised lending and Borrowing, Decentralised Exchanges, Derivative metrics and keyplayers, Decentralised insurance and DeFi Risks

What are stable coins?

Stablecoins are digital currencies that aim to maintain a stable value against a set target price. This set price can be that of any financial or real asset, or even of a collection of assets. Since most stablecoins aim to serve as an effective unit of value, the elected target price is usually that of the United States dollar.

What is Stable coin Taxonomy?

Stablecoins use a variety of techniques to minimise volatility and maintain a stable price against their target. They can also be issued either by centralised custodians or in a decentralised manner.

We can thus broadly categorise stablecoins based on:

(1) their degree of (de)centralisation

(2) their mechanism for maintaining their peg.

In terms of decentralisation, we identify:

(1.1) custodian, or centralised stablecoins

(1.2) non-custodian, or decentralised stablecoins.

In terms of mechanisms, we identify:

(2.1) reserve-backed

(2.2) collateral-backed

(2.3) algorithmic

(2.4) mixed-approach stablecoins.

What is Decentralised Lending and Burrowing?

Decentralised lending and borrowing are simply transactions of transferring and returning cryptocurrencies at a fixed or variable interest rate, which use smart contracts.

Difference between TradFi and DeFi Lending and Burrowing?

(1)Interest rates in TradFi are determined by the decisions of influential institutions such as central banks or politicians, in the form of forward guidance, and also by consumer and interbank demand. In DeFi, interest rates are set algorithmically by the protocol, and while influenced by wider market conditions, they rarely, if ever, fall in line with the interest rates of banks.

(2)Maturity in TradFi loans is usually mostly fixed, whereas in DeFi it is often undefined.

(3) In TradFi, lenders face two main types of risks, these being default risks and systemic risks, whereas DeFi lenders face a plethora of other risks such as platform, protocol, governance and volatility risks.

(4) Borrowers in TradFi risk bankruptcy, loss of financial flexibility – and in extreme circumstances – loss of freedom, whereas in DeFi, they stand to lose their collateral through liquidation or exploits.

What is Decentralised Exchange?

A decentralized exchange (DEX) is a peer-to-peer marketplace where users can trade cryptocurrencies in a non-custodial manner without the need for an intermediary to facilitate the transfer and custody of funds.

What is Decentralised Insurance?

The basic objective of insurance in DeFi is more or less the same as insurance in the scope of traditional finance. Insurance in DeFi protects users from losses in return for a specific premium amount according to the size of their holdings and the platforms.

How many types of DeFi Risks?

There are 3 types of Defi risks: Technical Risks, Financial Risks and Procedural Risks

Technical risk: Technical risks concern failures of DeFi protocols stemming from their underlying technological infrastructure at a protocol, or Layer 1 level.

Financial Risks: Financial risks in DeFi stem mostly from the volatility of cryptocurrencies.

Procedural Risks: Procedural risks are a broad category that describes threats stemming from the idiosyncrasies of DeFi.

What is Synthetix? How are Synths Created?

Synthetix allows you to have exposure to different on chain derivatives such as forex, equities, commodities or crypto. These synthetic assets are collateralized by the Synthetix Network Token (SNX) which when locked in the contract enables the issuance of synthetic assets (Synths)

Define Synthetic Assets?

Synthetic Asset is simply a tokenised derivative that mimics the value of another asset. They allow investors to tokenize and trade with anything. Using a derivative to ties the value to an existing asset ,one can create a token for this derivative and trade on blockchain .

Define Yield Farming?

Yield Farming is the process involves lending crypto assets for interest to DeFi platforms, who lock them up in a liquidity pool, essentially a smart contract for holding funds.

How do Inverse Synths Work?

Inverse Synths allow anyone to go short on the price of an asset and profit inversely to any price depreciation of the asset synth represents .

What is CBDC?

CBDC is “a digital form of central bank money that is different from balances in traditional reserve or settlement accounts”.

DAO(Decentralized Autonomous Organization)

what is DAO?

A decentralized autonomous organization is an entity structure in which tokenholders participate in the management and decision-making of an entity.

There is no central authority of a DAO, instead, power is distributed across tokenholders who collectively cast votes.

All votes and activity through the DAO are posted on a blockchain, making all actions of users publicly viewable.

One of the first DAOs named the DAO was an organization created by developers to automate decisions and facilitate cryptocurrency transactions and DAO is a bottom up approch or entity structure.

What Is the Purpose of a DAO?

A DAO is intended to improve the traditional management structure of many companies. Instead of relying on a single individual or small collection of individuals to guide the direction of the entity, a DAO intends to give every member a voice, vote, and opportunity to propose initiatives. A DAO also strives to have strict governance that is dictated by code on a blockchain.

one of the key features of digital currency is that they are decentralized.This means they are not controlled by a single institution like a government or central bank, but instead are divided among a variety of computers, networks, and nodes. In many cases, virtual currencies make use of this decentralized status to attain levels of privacy and security that is mostly unavailable to standard currencies and transactions.

Inspired by the decentralization of cryptocurrencies, a group of developers came up with the idea for a decentralized autonomous organization, or DAO, in 2016.

The concept of a DAO is to promote oversight and management of an entity similar to a corporation. However, the key to a DAO is the lack of central authority; the collective group of leaders and participants act as the governing body.

How Does a DAO Make Money?

A DAO initially raises capital by trading fiat for its native token. This native token represents voting power and ownership proportion across members. If a DAO is successful, the value of the native token will increase.The DAO can

then issue future tokens at a greater value to raise more capital. A DAO can also invest in assets if the members decide to approve such measures. For an example, a DAO can acquire companies, NFTs, or other tokens. Should those assets appreciate in value, the value of the DAO increases.

What are the distinct models for membership in DAOs?

The developers of DAOs have the authority to develop membership models. The membership privileges can provide a clear idea of the mechanisms underlying voting and other significant parts of the DAO. You could find two distinct models for membership with DAOs such as token-based membership and share-based membership.

What is the basic objective for introducing DAOs?

Decentralized autonomous organizations help in empowering new prospects for worldwide collaboration and coordination among organization members. With completely transparent and verifiable code, DAOs could take away the need for trusting other members in the organization. Basically, decentralized autonomous organizations streamline governance.

How DAO's works?

DAOs rely heavily on smart contracts. These logically coded agreements dictate decision-making based on underlying activity on a blockchain. For example, based on the outcome of a decision, certain code may be implemented to increase the circulating supply, burn of a select amount of reserve tokens, or issue select rewards to existing tokenholders.The voting process for DAOs is posted on a blockchain. Users must often select between mutually-exclusive options. Voting power is often distributed across users based on the number of tokens they hold. For example, one user that owns

100 tokens of the DAO will have twice the weight of voting power over a user that owns 50 tokens.The theory behind this practice is users who are more monetarily invested in the DAO are incentivized to act in good faith. Imagine a user who owns 25% overall voting power. This user can participate in bad acts; however, by doing so, the user will jeopardize(kept in harm or dangerous) the value of their 25% holding.DAOs often have treasuries that house tokens that can be issued in exchange for fiat. Members of the DAO can vote on how to use those funds; for example, some DAOs with the intention of acquiring rare NFTs can vote on whether to relinquish treasury funds in exchange for assets.

8) what are the benefits of DAO?

Decentralization: Decisions impacting the organization are made by a collection of individuals as opposed to a central authority that is often vastly outnumbered by their peers. Instead of relying on the actions of one individual (CEO) or a small collection of individuals (Board of Directors), a DAO can decentralize authority across a vastly larger range of users.

Participation: Individuals within an entity may feel more empowered and connected to the entity when they have a direct say and voting power on all matters. These individuals may not have strong voting power, but a DAO encourages token holders to cast votes, burn tokens, or use their tokens in ways they think is best for the entity.

Publicity: Within a DAO, votes are cast via blockchain and made publicly viewable. This requires users to act in ways they feel is best, as their vote

and their decisions will be made publicly viewable. This incentivizes actions that will benefit voters reputations and discourage acts against the community.

Community: The concept of a DAO encourages people from all over the world to seamlessly come together to build a single vision. With just an internet connection, tokenholders can interact with other owners wherever they may live.

9)What are the limitations of DAO?

Speed: If a public company is guided by a CEO, a single vote may be needed to decide a specific action or course for the company to take. With a DAO, every user is given an opportunity to vote. This requires a much longer voting period, especially considering time zones and prioritizes outside of the DAO.

Education: DAO has the responsibility of educating a lot more people in regards to pending entity activity. A single CEO is much easier to keep comprised of company developments, while tokenholders of a DAO may have ranging educational backgrounds, understanding of initiatives, incentives, or accessibility to resources. A common challenge of DAOs is that while they bring a diverse set of people together, that diverse set of people must learn how to grow, strategize, and communicate as a single unit.

Inefficiency: DAOs run a major risk of being inefficient. Because of the time needed to administrative educate voters, communicate initiatives, explain strategies, and onboard new members, it is easy for a DAO to spend much more time discussing change than implementing it. A DAO (involved in some complicated tasks)administrative tasks due to the nature of needing to coordinate much more individuals.

Security: An issue facing all digital platforms for blockchain resources is security. A DAO requires significant technical expertise to implement; without it, there may be invalidity to how votes are cast or decisions made. Trust may be broken and users leave the entity if they can't rely on the structure of the entity. Even through the use of multi-sig or cold wallets, DAOs can be exploited, treasury reserves stolen, and vaults emptied.

Third Generation: Hyperledger / Steem / Ripple / Corda / IOTA

What is Hyperledger?

Hyperledger is a global enterprise blockchain project that offers the necessary framework, standards, guidelines, and tools to build open-source blockchains hosted by. It is a simple, powerful, easy-to-use, well-maintained, open-source utility to browse activity on the underlying blockchain network.It is designed to create B2B businesses and cross-industry applications.It has limited access or allowed blockchain network. This is highly secured and confidential and governed by the Linux Foundation. IBM is also one of the major contributors to this framework. Like the smart contracts, Hyperledger fabric also allows the member organizations to run some code on peers that create the transactions on a specific condition. These are known as chaincode. Go is widely used to write the chaincode along with that some extent of Java and JavaScript are also used.It allows 2000 transactions per second. Which is far larger than Ethereum.

HYPERLEDGER

In order to facilitate the cooperative development of blockchain-based distributed ledgers, the Linux Foundation launched Hyperledger in December

2015 as an umbrella project for open source blockchains and related technologies. IBM, Intel, and SAP Ariba have also made contributions.It's not a blockchain; rather, it's a project to develop a blockchain using several frameworks. This effort is crucial for assuring interoperability, longevity, and transparency.

Projects	Tools	LIBRARIES
HYPERLEDGER BESU	HYPERLEDGER AVALON	ARIES
HYPERLEDGER BURROW	HYPERLEDGER CALIPER	QUILT
HYPERLEDGER FABRIC	HYPERLEDGER CACTUS	TRANSACT
HYPERLEDGER INDY	HYPERLEDGER CELLO	URSA
HYPERLEDGER IROHA	HYPERLEDGER EXPLORER	GRID
HYPERLEDGER SAWTOOTH	HYPERLEDGER FIREFLY	LABS

Hyperledger Besu

A Java-based open source Ethereum client called Hyperledger Besu was created under the Apache 2.0 licence. Both public and private networks are utilised. It is an Ethereum client built on Java. For running, maintaining, debugging, and monitoring nodes in an Ethereum network, Besu comes with a command line interface and a JSON-RPC API. You can use WebSocket or RPC over HTTP to access the API.Using tools like Truffle, Remix, and web3j, the Besu client covers common smart contract and dapp development, deployment, and operational use cases. Common JSON-RPC API calls like eth, net, web3, debug, and miner are supported by the client. Key management is not supported by Besu within the client. To access your key store and sign transactions, utilise EthSigner with Besu.

Hyperledger Burrow

Burrow is a permissioned smart contract that utilises both Web Assembly (WASM) and the Ethereum Virtual Machine (EVM). This distributed database runs code and functions as a complete blockchain node and smart contract execution engine.On a proof-of-stake Tendermint consensus engine, Burrow offers high transaction throughput and transaction finality.

Burrow is a tamper-resistant merkle state, meaning a node can tell whether a validator is executing the protocol dishonestly or if its state has been compromised.Run a private or public permissioned network with support for proof-of-stake.Stakeholders may vote on autonomous smart contract improvements under primitive on-chain governance.

The world-view state and code of an Ethereum account are separated into cryptographically accessible accounts.

Low-level permissioning - code execution permissions can be set on a per-account basis.

Event streaming - application state is organized in an event stream and can drive external systems.

SQL mapping layer - map smart contract event emissions to SQL tables using a projection specification.

GRPC interfaces - all RPC calls can be accessed from any language with GRPC support. Protobuf is used extensively for core objects.

Javascript client library - client library uses code generation to provide access to contracts via statically Typescript objects.

Keys service - provides optional delegating signing at the server or via a local proxy Web3 RPC - provides compatibility for mainnet Ethereum tooling such as Truffle and Metamask

Hyperledger Fabric

With several significant advantages over other well-liked distributed ledger or blockchain platforms, Hyperledger Fabric is an open source permissioned distributed ledger technology (DLT) platform developed for usage in business contexts.

It is mostly utilised in supply-chain management use cases in the financial, healthcare, insurance, and human resources sectors.

As opposed to restricted domain-specific languages, Fabric is the first distributed ledger platform to support smart contracts written in general-purpose programming languages like Java, Go, and Node.js (DSL).

Since its first commits, its development community has expanded to over 35 organisations and approximately 200 developers.

Hyperledger Indy

Hyperledger Indy provides tools, libraries, and reusable components for providing digital identities rooted on blockchains or other distributed ledgers so that they are interoperable across administrative domains, applications.

Used as a decentralized identity database.

Hyperledger Iroha

With the strength of permission-based blockchain combined with Crash fault-tolerant consensus, Hyperledger Iroha is a simple blockchain platform that you can utilise to create trustworthy, safe, and quick apps. It is open-source, free, and compatible with many different desktop and mobile libraries. It runs on Linux and Mac OS.

It is a general-purpose permissioned blockchain system with the ability to manage serialised data, digital assets, and identities. Applications like interbank settlement, central bank digital currencies, payment systems, national IDs, and logistics, among others, can all benefit from this. Also it has

Simple deployment and maintenance

Variety of libraries for developers

Role-based access control

Modular design, driven by command–query separation principle

Assets and identity management

Hyperledger Sawtooth

Sawtooth is an open source project under the Hyperledger wing . Hyperledger Sawtooth is an enterprise blockchain platform for building distributed ledger applications and networks. keeping ledgers distributed and making smart contracts safe, particularly for enterprise use. Sawtooth simplifies blockchain application development by separating the core system from the application domain.

Its used in supply-chain network and highly modular Sawtooth's core design allows applications to choose the transaction rules, permissioning, and consensus algorithms that support their unique business needs.

Hyperledger Avalon

Hyperledger Avalon (formerly Trusted Compute Framework) enables privacy in blockchain transactions, moving intensive processing from a main blockchain to improve scalability and latency, and to support attested Oracles.

The Trusted Compute Specification was designed to help developers gain the benefits of computational trust and to mitigate its drawbacks.Hyperledger Avalon leverages the existence of a distributed ledger to

Maintain a registry of the trusted workers (including their attestation info)

Provide a mechanism for submitting work orders from a client(s) to a work

Preserve a log of work order receipts and acknowledgment Hyperledger Avalon uses the Off-Chain Trusted Compute Specification defined by Enterprise Ethereum Alliance (EEA) Task Force as a starting point to apply a consistent and compatible approach to all supported blockchains.

Hyperledger Caliper

A blockchain benchmarking tool called Hyperledger Caliper enables users to evaluate the effectiveness of a blockchain implementation using a number of predefined use cases.

For use with the following blockchain solutions: Hyperledger Besu, Hyperledger Burrow, Ethereum, Hyperledger Fabric, FISCO BCOS, Hyperledger Iroha, and Hyperledger Sawtooth, Hyperledger Caliper will provide reports covering a variety of performance indicators.

Hyperledger Cactus

Hyperledger Cactus aims to provide Decentralized, Secure and Adaptable Integration between Blockchain Networks. Hyperledger Cactus is currently undergoing a major refactoring effort to enable the desired to-be architecture which will enable plug-in based collaborative development to increase the breadth of use cases & Ledgers supported.

Cactus is a pluggable, enterprise-grade framework to transact on multiple distributed ledgers without introducing yet another competing blockchain.

Cactus allows developers to abstract the application layer from the DLT addressing protocol fragmentation, lowering coupling and reducing implementation risks

Cactus allows different DLT networks to interact with each other, through atomic transactions and state commits, this eliminates information silos and increases network's value.

Hyperledger Bevel

With the help of Hyperledger Bevel, cloud infrastructure can be quickly and reliably updated with production-ready DLT platforms.

Bevel speeds up the deployment of DLT networks, allowing developers to concentrate on creating blockchain applications rather than wasting time setting up the environment or worrying about whether the network will scale and satisfy production requirements. Bevel makes it easier to deploy and manage various DLT platforms in a secure manner.

Corda, Hyperledger Fabric, Hyperledger Indy, and Quorum are currently supported by Hyperledger Bevel. In the near future, support will be added for Corda Enterprise and Hyperledger Besu. Adding additional DLT platforms is simple.

Hyperledger Cello

A blockchain provision and operation system called Hyperledger Cello (HLC) enables more effective use and management of blockchains.

A blockchain dashboard, that is.

Cello offers powerful blockchain services based on contemporary PaaS tools.

Control the lifespan of blockchain networks, such as creating, starting, stopping, deleting, and maintaining health.

Support for specialised blockchain network configurations, such as network size and consensus method.

Support for a variety of underlying infrastructures, such as Kubernetes, native Docker hosts, bare-metal, virtual machines, vSphere, and swarms. Additional supports are coming.

By integrating with current technologies like ElasticStack, it adds sophisticated capabilities like monitoring, logging, health, and analytics capability.

Hyperledger Explorer

A tool for showcasing blockchain operations on the Hyperledger Fabric platform is called Hyperledger Explorer. It is the first-ever blockchain explorer for permissioned ledgers, enabling anyone to look inside the distributed ledger projects being developed by members of Hyperledger without jeopardising their privacy. IBM, DTCC, and Intel all contributed to the project. In order to extract business value from data, the capability to visualise it is crucial. This crucial functionality is offered by Hyperledger Explorer.

It is an intuitive Web application tool used to examine, invoke, deploy, or query blocks, transactions and related data, network information (name, status, list of nodes), chain codes, transaction families, and any other pertinent data kept in the ledger.

Hyperledger Firefly

An organization's gateway to Web3, including all of the blockchain ecosystems in which they take part, is Hyperledger FireFly. There are numerous blockchains, token economies, and business networks.

FireFly is a pluggable API Orchestration and Data layer that works with all of the different kinds of decentralised technologies that are now available in Web3. It is not another blockchain implementation.

It is a toolset for creating new full-stack decentralised applications (dapps), connecting them to existing core systems, and integrating them with the Web3 ecosystem.

A wide range of functionalities are available with Hyperledger FireFly to help you create new apps and link existing Web3 ecosystems to your enterprise.

Hyperledger Aries

The infrastructure for peer-to-peer interactions with a blockchain foundation is called Hyperledger Aries. Both a blockchain and an application are not what it is.

Both Hyperledger Indy, which offers a resolver implementation, and Hyperledger Ursa, which it utilises for cryptographic capabilities, are tied to Hyperledger Aries. Ursa's cryptographic assistance will be used by Aries to provide hardware security modules and safe secret management.

One of the main goals of this project is to modify Hyperledger Indy's client layers to make them compatible with other identity projects. Since a while ago, Hyperledger Indy has been developing protocols for peer-to-peer interactions between identity owners, but as the development community has expanded, it has been evident that the work's scope goes beyond the functionality that Indy offers to support other systems and networks.

Hyperledger Transact

Hyperledger Transact makes writing distributed ledger software easier by providing a shared software library that handles the execution of smart

contracts, including all aspects of scheduling, transaction dispatch, and state management.

Transact provides an extensible approach to implementing new smart contract languages called “smart contract engines.” Each smart contract engine implements a virtual machine or interpreter that processes smart contracts. Examples include Seth, which processes Ethereum Virtual Machine (EVM) smart contracts, and Sabre, which handles WebAssembly smart contracts. Transact also provides SDKs for implementing smart contracts and smart contract engines, which makes it easy to write smart contract business logic in a variety of programming languages.

Hyperledger Ursa

As a shared cryptography library, Hyperledger Ursa enables implementations to avoid repeating existing cryptographic work, hopefully resulting in increased security. For both Hyperledger and non-Hyperledger projects, the library is an opt-in repository to store and use cryptocurrency.

Source https://sites.google.com/site/blockchaintutorial/about-me