Ethereum ECO System

Ethereum is the second-largest popular cryptocurrency after bitcoin. It was designed to complement bitcoin, but its broad application beyond cryptocurrency has resulted in competition between the two.

It's important to understand that Ethereum is not a cryptocurrency but a computing network built on blockchain that stores and exchanges value using its native coin (digital currency) called ether (ETH). Hence, we can refer to Ethereum as the world's supercomputer.

In 2014, the Ethereum blockchain development was financed through online crowdfunding of its cryptocurrency (ETH). Then in 2015, the Ethereum blockchain was launched to the public.

In summary, Ethereum is a decentralized, open-source blockchain network that enables smart contract functionality, and is also used in building and deploying decentralized applications (DAPPs)

Ethereum ecosystem

Ethereum itself is an ecosystem. It provides a versatile and secure platform to create, connect, and monetize a growing ecosystem of DAPSS and smart contracts. Anyone with a good knowledge of the ecosystem can create smart contracts, build various DAPPs and also own ETH or other cryptocurrencies.

The Ethereum ecosystem is governed by the principle of distributed ledger and cryptography. This ecosystem uses Ethash as its consensus protocol (proof of work). This means that the network participants called miners use their computational resources to verify and validate a block before adding it to the blockchain.

The participants of the ecosystem are rewarded with ether. For every transaction on the Ethereum ecosystem, a small amount of ETH is paid, known as a **gas fee**. Also, a gas fee is equally paid for any smart contract to be developed and deployed on Ethereum. The gas fee is used for the smooth running and maintenance of the ecosystem.

Features of Ethereum

Ethereum derives its unique features from blockchain technology. It is censor-resistant, immutable, secure, transparent, and decentralized; its ledger of transactions is public while the transacting parties are anonymous. The core features that distinguish Ethereum include:

- **Ether (ETH)**: Ethereum has gained popularity from its application in cryptocurrency using ether. Investors and all, can buy, store and sell value using Ethereum's native coin. Ether is a peer-to-peer digital currency just like bitcoin. Computational resources, gas fees, and other peer-to-peer payments are paid on the Ethereum network using ether.

- **Smart contracts**: Smart contract is also one of the major features of Ethereum. Ethereum network allows the development and deployment of smart contracts. This feature extends the application of Ethereum beyond cryptocurrency (buying and selling ETH). A smart contract is to DAPPs as API is to traditional apps. The smart contract functionality of the Ethereum network fetches data from the network (the back-end) and sends it to the front-end of the applications.

- **Decentralized applications and finance (DAPPs & Defi):** Ethereum is also known for building and deploying DAPPs

and Defi (decentralized finance). DAPPs are open-source, decentralized, and use ether (or other blockchain-based tokens) to run their applications. There are varieties of use cases for DAPPs ranging from very simple use cases to very complex use cases. Some examples of DAPPs include status, storj, and many more.

- **Decentralized autonomous organizations (DAO)**: DAO is another feature of Ethereum. These are organizations that exist on the blockchain network and operate in a decentralized and democratic manner. Decision-making in DAO is based on the protocols of the smart contract.

- **Ethereum Virtual Machine**: A core feature of the Ethereum ecosystem is the Ethereum Virtual Machine (EVM). It is a runtime compiler that executes the terms and conditions of a smart contract. Once the EVM deploys a smart contract, a copy of the contract is sent across to every participant of that network.

- **Proof of work**: This feature is at the core of the ecosystem, as it manages all transactions and secures the ecosystem. Proof of work is the consensus protocol used in the Ethereum ecosystem. It involves verifying the required amount of computational power used by the network participants (miners) in calculating valid alphanumeric codes, known as a hash.

Applications of Ethereum

Ethereum, being a blockchain-based ecosystem, can be applied in areas where blockchain technology is being applied.

- **Voting system**: The DAO feature of Ethereum has led to the wide adoption of Ethereum in voting systems. This has enhanced a transparent and democratic voting system.

- **Banking system**: Ethereum is applied in banking systems to enhance faster and more secured peer-to-peer payment and transactions. For example, in business deals with smart contracts, Ethereum provides a more effective and transparent way of doing business. Hence, it is applied in businesses.

- **Shipping**: Ethereum is adopted in shipping to track cargo and prevent misplacement of goods or goods being counterfeited.

- **Supply chain**: Ethereum is employed in supply chain management to reduce complexity in a supply chain and promote traceability and efficiency.

Ethereum Accounts

An **Ethereum account** is a type of account that may hold ether and send transactions on the Ethereum network. It could be either deployed as a smart contract or a user-controlled account.

Smart contract account

This account type has its code and it is controlled by the codes of the smart contract. Smart contract accounts can send transactions only in response to receiving a transaction. Major features of smart contract account are:

1. Has an ETH balance
2. Controlled by its codes
3. Creating a smart contract account comes with a gas fee
4. Has a 42 character hexadecimal contract address

Externally owned account (EOA)

This is an Ethereum account that can send ether and messages. It is controlled by a private key. Major features of EOA:

1. Has an ETH balance
2. Can send transactions
3. Controlled by a private key
4. The private key is a 64 hexadecimal character that can be encrypted with a password.
5. Has no associated codes