ETHEREUM'S HISTORY: FROM ZERO TO 2.0

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Vitalik Buterin came up with the idea of Ethereum in 2013 at the age of 19. Later that year, he published a white paper describing Ethereum as "a next-generation smart contract and decentralized application platform,"[1] marking the beginning of Ethereum's journey.

Ethereum is now the second-largest cryptocurrency by market capitalization, accounting for approximately 18% of the cryptocurrency market. Its success cannot be separated from a creatively elegant idea, a nicely executed development process and the continued support of the community.

In this article, we will look back at the history of Ethereum's development and provide an outlook for what's upcoming.

Pre-launch

Ethereum's invention was inspired by Bitcoin.

Bitcoin established the foundation for decentralized blockchain technology. But its functionality is limited to peer-to-peer electronic cash transfers. Seeing this limitation, Buterin wanted to expand blockchain's functionality to programmable apps.

At first, he wanted to achieve this by adding a more advanced scripting language on top of Bitcoin to allow smart contracts processing, but this idea was rejected by the Bitcoin community. Then, Buterin decided to create a completely new blockchain to enable this "world computer."

In late 2013, Buterin published his white paper outlining the idea of Ethereum. In January 2014, Ethereum was first announced at The North American Bitcoin Conference in Miami. The idea attracted many developers, including Gavin Wood, who published the famous "Yellow Paper" on the technical implementation for Ethereum[2].

By the end of 2014, Ethereum had its first crowdfunding, raising more than $18 million by selling the native token, ether. Early Ethereum founders and developers[2] also hosted the first Ethereum conference, called DEVCON0, during which the developers met for the first time.

Execution

Ethereum's development was planned with four main stages. Each stage represents a necessary system-wide upgrade of the network, at which point old versions are no longer supported. They are also called "hard forks."

Within the main stages, there have been planned and unplanned sub-upgrades.

July 30, 2015–March 14, 2016: Implementing basic technical foundation ("Frontier" phase)

On July 30, 2015, the first version of Ethereum (Ethereum 1.0) was released, called Frontier. It had the two most basic functions: to enable users to mine ether and run smart contracts. The purpose of the initial stage was to get the network started, so miners could set up their mining processes and developers could test their decentralized applications (DApps).

A minor fork called **Frontier Thawing** followed, during which gas was limited to 5,000 per transaction, to ensure transaction fees were not too high and hindering usage.

March 14, 2016–October 16, 2017: Improving infrastructure to address security issues ("Homestead" phase)

If Frontier was the working version of Ethereum, **Homestead** was the "safer" version of Frontier.

Ethereum's security vulnerability was brought to public attention with the DAO hack. Launched in 2016, DAO was an innovative idea to allow users to crowd source funds. However, it failed due to a bug in its smart contract code that hackers exploited to steal a portion of the organization's funds. This event resulted in a controversial decision to implement a hard fork on the Ethereum network to return the stolen funds. Part of the community did not accept the change, creating a branch called Ethereum Classic, which still exists today.

After suffering several DoS (denial-of-service) attacks, two sub-upgrades called **Tangerine Whistle** and **Spurious Dragon** were released to address security issues, through adjusting gas fees and implementing state clearing.

October 16, 2017–January 2, 2020: Solving challenges that come with expansion and growth ("Metropolis" phase)

Metropolis was a comprehensive improvement of Ethereum's security, privacy and scalability. It solved many challenges Ethereum faced during its scaling process and brought a lighter, more efficient experience for developers and users. Because the update was so complicated, it was released in two steps: **Byzantium** and **Constantinople**.

Byzantium was the first stage, with main upgrades introduced in nine patches, also called Ethereum improvement protocols (EIP). These included important features such as zk-SNARKs[3], account abstraction[4] and the difficulty bomb[5].

Constantinople was supposed to launch in mid-2018 but was delayed for more than half a year due to a critical bug found hours before its intended launch. Constantinople was meant to fix any problems that might arise from Byzantium's implementation. In addition, it laid the groundwork for the transition from proof-of-work to proof-of-stake, which will significantly reduce Ethereum's validation energy consumption.

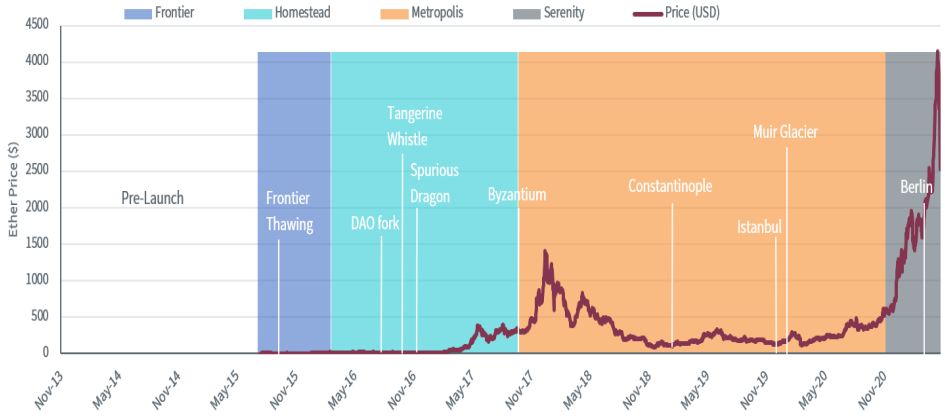
January 2, 2020–2022: Ethereum 2.0 to be more scalable, secure and sustainable ("Serenity" phase)

Currently, the Serenity stage is still in development. Also known as Ethereum 2.0, this version aims to advance Ethereum to a level that can be broadly used without encountering security or high-volume issues.

Specifically, it intends to solve two main challenges Ethereum is facing: a clogged network that can only handle a limited number of transactions per second (with increased gas fees for faster transactions), and the large consumption of energy that comes with the proof-of-work mechanism.[6]

Two of the major upgrades are the shift from proof-of-work to proof-of-stake and the implementation of shard chains which will spread the workload of the network.[7] Ethereum 2.0 is envisioned to be more scalable, secure and sustainable, although when (or if) it will ultimately be implemented, and other fallout issues, remain unclear.

Ether Price And Development Stages



Source: WisdomTree, Bloomberg, as of 5/20/2021. November 2013 - May 2021. **Historical performance is not an indication of future performance and any investments may go down in value. Istanbul, Muir Glacier, and Berlin are three sub-hard forks in Ethereum's development stages.**

Conclusion

After eight years of development, Ethereum has gone from an idea to a vivid ecosystem, supported by one of the largest developer communities in the crypto space. As a software platform, it needs to evolve to address its issues. Its community is progressive and has implemented several significant changes over time. Some of the most important changes still lie ahead, and we will address them in more detail in future posts.

[1] https://ethereum.org/en/whitepaper/

[2] Early founders included Vitalik Buterin, Anthony Di Iorio, Charles Hoskinson, Mihai Alisie, Amir Chetrit, Joseph Lubin, Gavin Wood and Jeffrey Wilcke.

[3] "Zero-Knowledge Succinct Non-Interactive Argument of Knowledge," and refers to a proof construction where one can prove possession of certain information, e.g. a secret key, without revealing that information, and without any interaction between the prover and verifier.

[4] https://eips.ethereum.org/EIPS/eip-2938

[5] Refers to the increase of difficulty in Ethereum's proof-of-work consensus mechanism.

[6] Proof-of-work is a consensus mechanism used to verify blockchain transactions' validity, through solving computationally intensive puzzles using miners' computers' processing power.

[7] Proof-of-stake is another consensus mechanism that is used to verify blockchain transactions. However, it does so by using miners' existing coins as a stake in the validation process, which demands less computer processing power.

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DEFINITIONS

Cryptocurrency : a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend.

Bitcoin (the currency) : A digital currency (also called a cryptocurrency) created in 2009, which is operated by a decentralized authority as opposed to a traditional central bank or monetary authority.

Blockchain : a distributed ledger system in which a record of transactions made in cryptocurrencies are maintained across computers linked in a peer-to-peer network

Gas : Fees that need to be paid in ether to miners in order to facilitate transactions and execute smart contracts.

State clearing : Removal of empty accounts to reduce time of syncing on the network