Ethereum’s History: From Zero to 2.0

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Vitalik Buterin came up with the idea of Ethereum in 2013 at age of 19. Later that year, he published a whitepaper describing Ethereum as “a next-generation smart contract and decentralized application platform,”1 marking the beginning of Ethereum’s journey.

Ethereum now is the second largest cryptocurrency by market capitalization, accounting for approximately 17% of the cryptocurrency market.2 Its success cannot be separated from a creatively neat idea, a nicely executed development process, and continual support from 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 is inspired by Bitcoin.

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

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

In late 2013, Vitalik published the 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, among who included Gavin Wood, who published the famous yellow paper on the technical implementation for Ethereum.3

By the end of 2014, Ethereum had their first crowdfunding, raising more than $18 million by selling the native token, ether. They also hosted the first Ethereum conference called DEVCON0, during which the developers met for the first time.

There are four main stages of Ethereum’s development, planned at the very beginning. Each stage represents an improvement of the network that is a necessary system-wide upgrade where old versions would no longer be supported. They are also called hard forks.

Within the main stages, there are planned and unplanned sub-upgrades that took place.

July 30th, 2015 - March 14th, 2016: implementing basic technical foundation (“Frontier” phase)

On July 30th, 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 is to get the network started, so miners can set up their mining process and developers can test their DApps.

A minor fork called **Frontier Thawing** followed, during which gas was limited to 5000 per transaction, to ensure transaction fees are not too high and hindering usage.

March 14th, 2016 – October 16th, 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 hack4. Launched in 2016, DAO was an innovative idea to allow users to crowdsource funds. However, it failed due to a bug that existed in its smart contract code. As a result, hackers stole 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 gas5 fees and implementing state clearing.

October 16th, 2017 – January 2nd, 2020: solving challenges that came with expansion and growth (“Metropolis” phase)

Metropolis is 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 is so heavily involved, it was released in two steps: **Byzantium** and **Constantinople**.

Byzantium is the first stage where main upgrades were introduced in nine patches, also called Ethereum improvement protocols (EIP). These include important features such as zk-SNARKs6, account abstraction, and difficulty bomb.

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

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

Currently, we are at the still developing Serenity stage. 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 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.7

Two of the major upgrades include the shift from proof-of-work to proof-of-stake and the implementation of shard chains which would spread the workload of the network.8 Ethereum 2.0 is envisioned to be more scalable, secure, and sustainable, although when (or if) it will ultimately be implemented, and other fall-out issues, remain unclear.

Figure 1: 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 seven years of development, Ethereum has gone from an idea to a vivid ecosystem, supported by one of the largest developer community in the crypto space. As a software platform, it needs to evolve to address its issues. Its community is progressist and has implemented several significant changes over time. Some of the most important changes still lie ahead, and we will address them more in details in future posts.

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

2 https://coinmarketcap.com/currencies/ethereum/, as of 6/23/2021.

3 Early founders included Vitalik Buterin, Anthony Di lorio, Charles Hoskinson, Mihai Alisie, Amir Chetrit, Joseph Lubin, Gavin Wood, Jeffrey Wilcke.

4 Launched in 2016, The DAO was an early decentralized autonomous organization (DAO) intended to act as an investor-directed venture capital firm.

5 Gas refers to fees that need to be paid in ether to miners in order to facilitate transactions and execute smart contracts.

6 The acronym zk-SNARK stands for "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.

7Proof-of-work is a consensus mechanism that is used to verify blockchain transactions' validity, through solving of computationally intensive puzzles using miners' computers' processing power.

8 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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