

Etherbridge Ethereum Report



ETHERBRIDGE

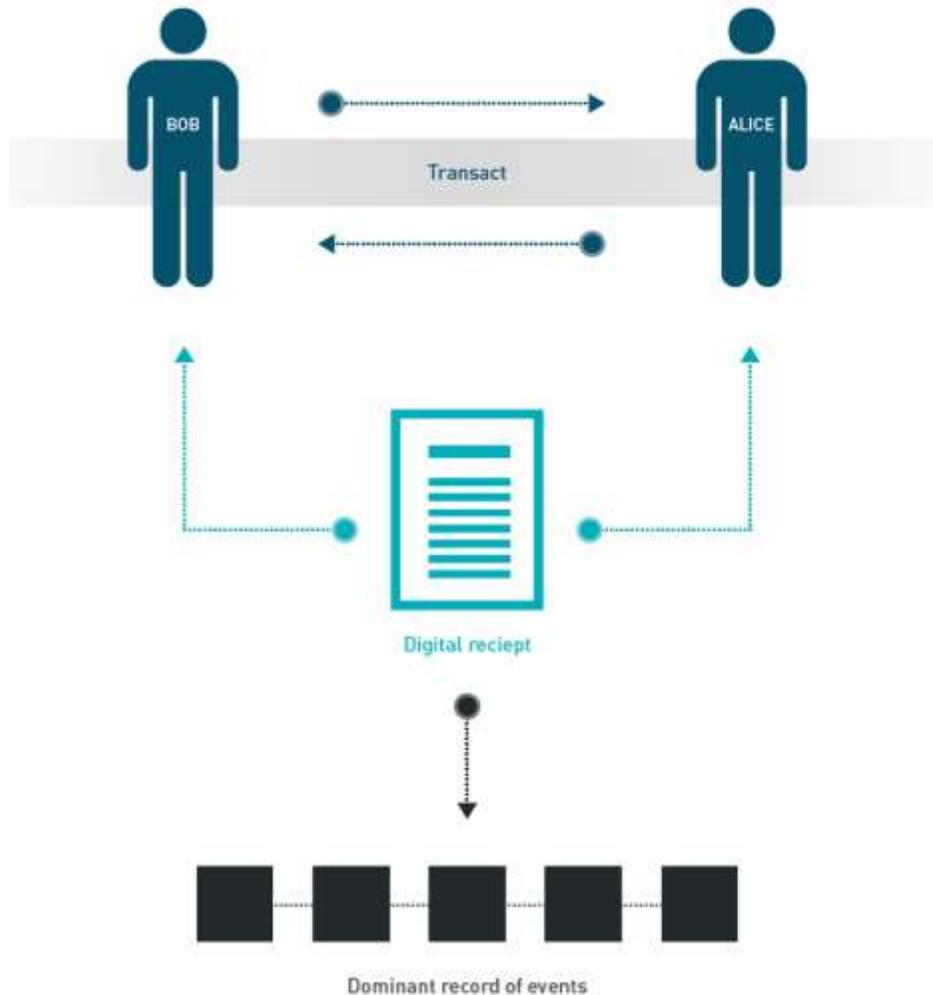
Introduction

- Ethereum is changing.
- The Ethereum network is currently using a the Proof of Work consensus algorithm. Consensus algorithms are the way cryptonetworks reach an agreement on the state of the networks ledger. As an example, who owns what and how much of it they own.
- Ethereum developers have been working on scalability and incentives for reaching consensus on the network. This has led them to Ethereum 2.0. A sharded, Proof of Stake blockchain.
- This report has been written based on the following assumptions:
 - Ethereum successfully launches ETH 2.0 and moves to a Proof of Stake consensus mechanism.
 - EIP 1559 is implemented. EIP stands for Ethereum Improvement Proposal. This particular proposal is very interesting as it calls for transaction fees paid for in ETH to be “burned” and removed from the supply. Giving Ethereum a commodity like nature.

Primary Function of Network

- Ethereum can operate as **infrastructure for a new financial system**, a platform that enforces trust between distrusting parties without the need of central coordinating entity.
- The Ethereum network provides guarantees around **transaction processing, execution and settlement**.
- It can also **process, execute and settle basic conditional agreements**. These basic conditional agreements are known as **smart contracts**.
- The network is in charge of **maintaining ETH's monetary policy**.
- The network has a faster, more mobile governance mechanism that allows it to change faster relative to Bitcoin. This can be a good thing, but it also brings up uncertainties around its future.
- The Ethereum network manages the **scarcity and settlement of ETH and other assets** between transacting parties.
- Similar to how the Bitcoin network keeps BTC scarce, the Ethereum network does the same for ETH and for other assets such as stocks, debt instruments, non-fungibles, cryptoassets and property.

Ethereum Network



The Ethereum blockchain is no different to other blockchains. It is simply a triple entry accounting mechanism that records transactions on a distributed ledger.

- However unlike bitcoins network, Ethereum has what we call a virtual machine (EVM). This is a powerful, sandboxed virtual stack embedded within each full Ethereum node and is responsible for executing contract bytecode.
- These contracts are normally written in a high level language like solidity and then compiled by the EVM into bytecode.
- At a high level the Ethereum virtual machine allows us as users to create contracts which are converted into machine readable bytecode. These contracts then live on the Ethereum blockchain where validators process, execute and settle them based on their conditions.

Smart Contracts

- Ethereum's value proposition is that it is "programmable money". This is due to its ability to **write, read and understand basic conditional agreements**.
- Smart contracts are simply **conditional agreements**. "If I do this then that must happen, or when that happens this must happen".
- These **smart contracts are written** in a programming language called **Solidity**. The EVM then converts these contracts into bytecode. Once in this form, smart contracts live on the Ethereum blockchain and self-execute when their conditions are met.
- As an example let's examine how escrow could be done on the Ethereum blockchain. Steve wants to sell a house to Jacob. Steve needs to know that Jacob has the necessary funds for the purchase of the house. Steve and Jacob create a contract using the Solidity programming language. The contract goes as follows.
 1. Jacob must lock up R1 million worth of ETH in the contract.
 2. The locked up ETH must remain locked until confirmation is received that the title deeds office has processed the transfer of the home from Steve to Jacob.
 3. When the condition is met (signed off by the title deeds office), the locked up ETH is automatically sent to Steve. (you don't even have to call your bank)

Proof of Stake

- Proof of Work was the first consensus mechanism to be used by cryptoassets. It successfully solved what is known as the byzantine generals problem.
- In Proof of Work, miners buy expensive computers and incur electricity costs. Only miners who have done this will get the chance to validate a block. Proof of Work makes bitcoin's blockchain tamper resistant because it requires a large upfront capital expenditure and incurs high on-going costs in the form of electricity in order to earn the right to validate a block.
- Miners essentially have to prove that they have performed work by burning electricity and solving mathematical problems.
- Proof of Stake is very similar to Proof of Work. However, instead of expensive computers and on-going electricity expenses, Proof of Stake requires validators to put up a financial stake in form of the ETH token. This stake makes ETH tamper resistant because a validator risks the loss of his entire stake if he acts maliciously. Similar to how a PoW miner would lose the electricity expenses incurred to validate a block.

Decentralised Applications (dApp)

- A decentralised application is an application that runs on a decentralised network and uses its resources.
- The standard features of a dApp are:
 1. **No central point of failure or control** – Currently apps centralise the storage of data and resources required to work, therefore creating a single point of failure. dApps store data in a decentralised database and use decentralised resources to operate.
 2. **Open source code** – decentralised architecture presumes that application source code can be accessible by all members of the network. In a trustless environment users of applications need to be able to verify what kind of application they are running and what it does. The easiest way to do this is by providing the open source code, where anyone can look at or read it.
 3. **Decentralised consensus mechanism**- When an application is operating in a decentralised environment, especially one where all users have equal rights to change the data, there has to be a way for all network participants to agree on which data and transactions to trust. This problem is resolved by the consensus mechanism of the underlying network.
 4. **Usage of internal currency or network currency** – dApp's no longer need to connect with legacy payment rails like banks because they can create their own medium of exchange or leverage the underlying networks medium of exchange.

Decentralised Applications (dApp) (continued)

- Think of a dApp as a business that is native to the digital economy.
- This business utilises the Ethereum network to exchange money, account for flows of funds, execute contracts and provide third party verification confirming that something has been done. **It is a settlement layer for internet businesses.**
- Ethereum can also through the use of smart contracts allow a company to automate basic administrative tasks in its everyday workflow. From automating payments to automated inventory management.

Primary Function of the Token

1. ETH is the **main form of money** on the Ethereum network.
2. ETH is **staked** to the Ethereum network to earn block rewards for validating transactions. Every transaction based on its size/complexity incurs a **gas cost** to pay for its processing, execution and settlement. This can only be paid for in ETH. When a gas cost is paid, ETH is burned (EIP 1559).
3. ETH is also used as a **collateral asset** to create debt positions against. This is similar to early banking, when banks would store gold and issue IOU's as loans. Each IOU was redeemable for X amount of gold.

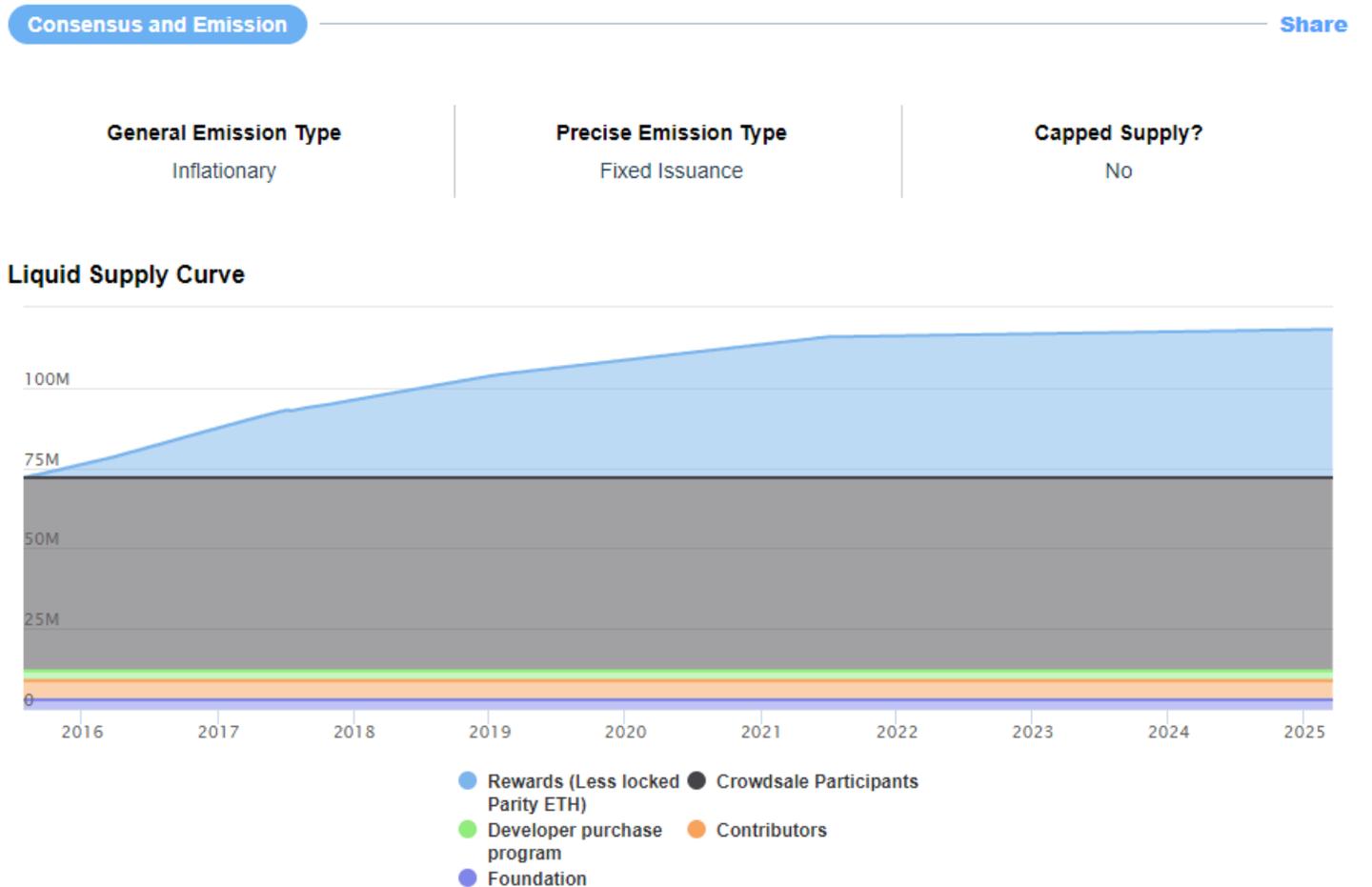


ethereum

Supply Schedule

- Ethereum does not have a fixed supply.
- The Ethereum network aims to keep issuance of ETH at a level that maintains stakers interest. At all times issuance must be the minimum required to support the network.
- The maximum annual issuance is capped at 1,81%.

ETH validating	Max annual issuance	Max annual network inflation %	Max annual reward rate (for validators)
1,000,000	181,019	0.17%	18.10%
3,000,000	313,534	0.30%	10.45%
10,000,000	572,433	0.54%	5.72%
30,000,000	991,483	0.94%	3.30%
100,000,000	1,810,193	1.71%	1.81%



Token Value Accrual

ETH can be classified as a triple point asset. It possesses characteristics of a **capital asset**, a **commodity asset** and a **store of value asset**.

ETH as a **capital asset**: Cashflows

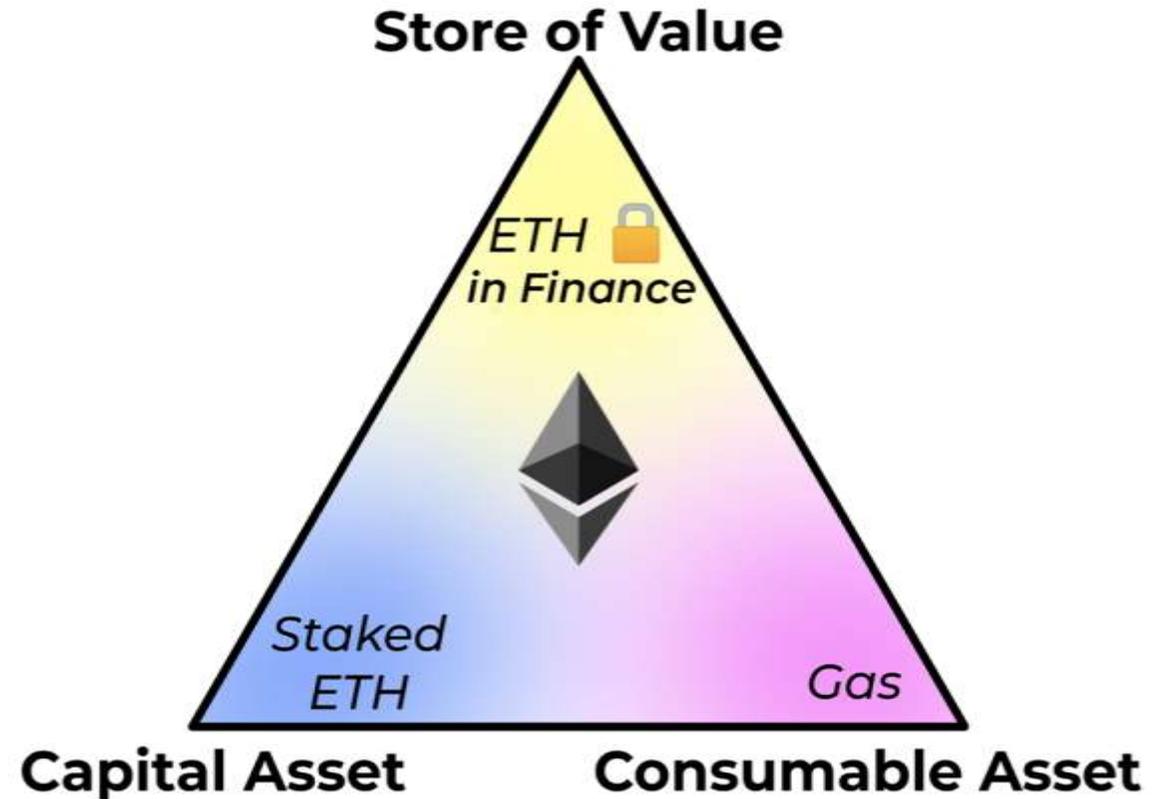
1. It represents a share of the Ethereum network.
2. It gives a staker a claim on Ethereum fees.
3. Gives the right to produce work for Ethereum.

ETH is a **commodity**: Reducing the supply of ETH

1. ETH is consumed every time a transaction on its network is executed.

ETH is a **Store of Value asset**: Locking up ETH to gain utility

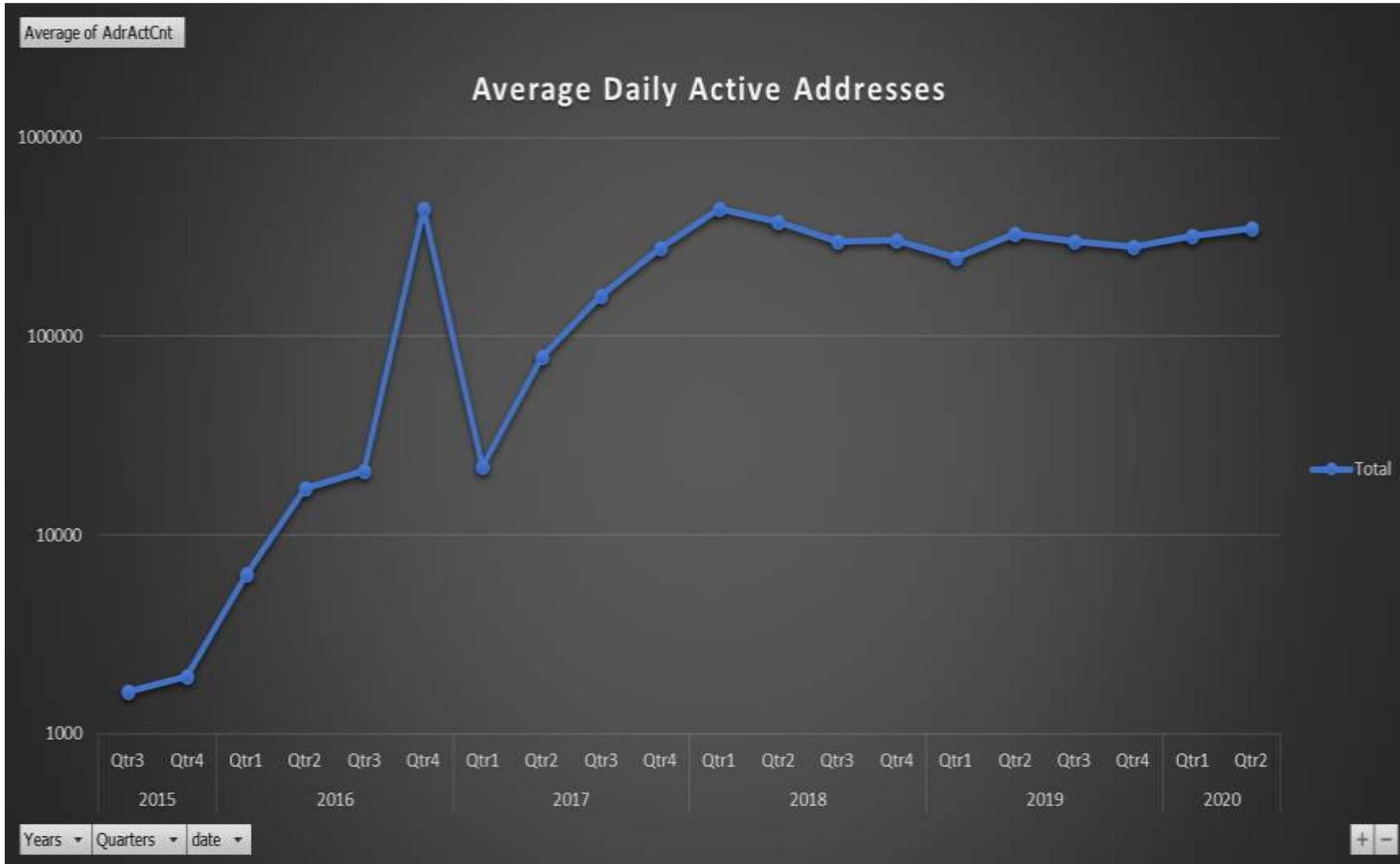
1. It can be collateralized to create debt positions.



Key Value drivers

Ethereum benefits from network effects just like any technology. For every additional user of the Ethereum network the utility of the network in its entirety grows. To observe the growth of Ethereum we monitor:

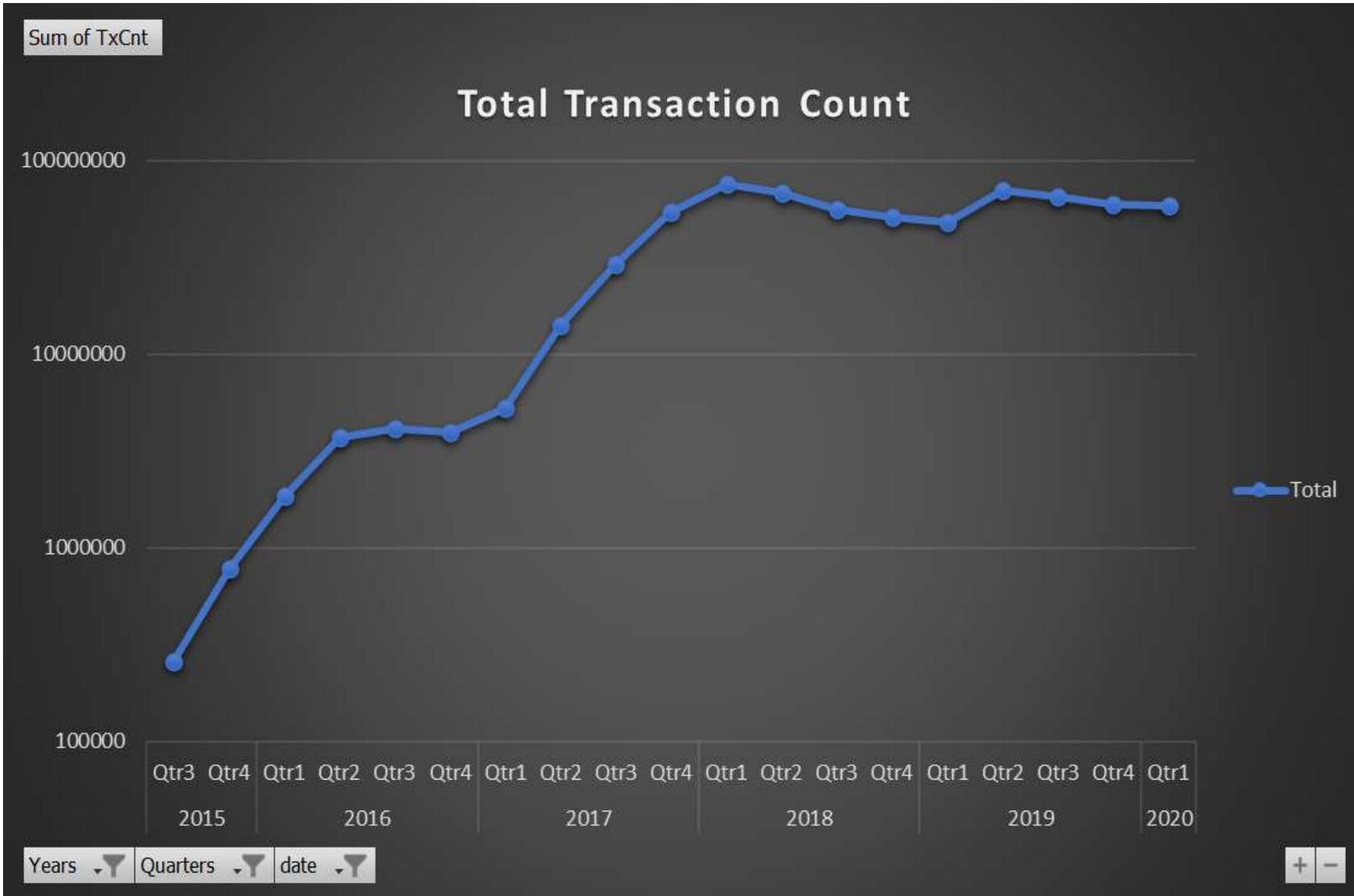
- The **daily active users** of the network
- The **total transaction count** of the network
- The **total transaction volume** of the network
- The **total transaction fees** incurred on the network
- The **amount of decentralised applications** built on the Ethereum network.
- The **amount of ETH locked up** in Decentralised finance (DeFi) applications.
- The **amount of enterprises** leveraging the Ethereum network.



Daily active users of the Ethereum network.

Ethereum's daily active users have grown hugely since its early years. In 2019 there were more than **300 000 users on average everyday.**

Q1 of 2020 has seen an average of **323 940 users daily.**



This is the amount of transactions that have been processed, executed and settled on the Ethereum network.

In 2019 242 million transactions were facilitated on the Ethereum network.

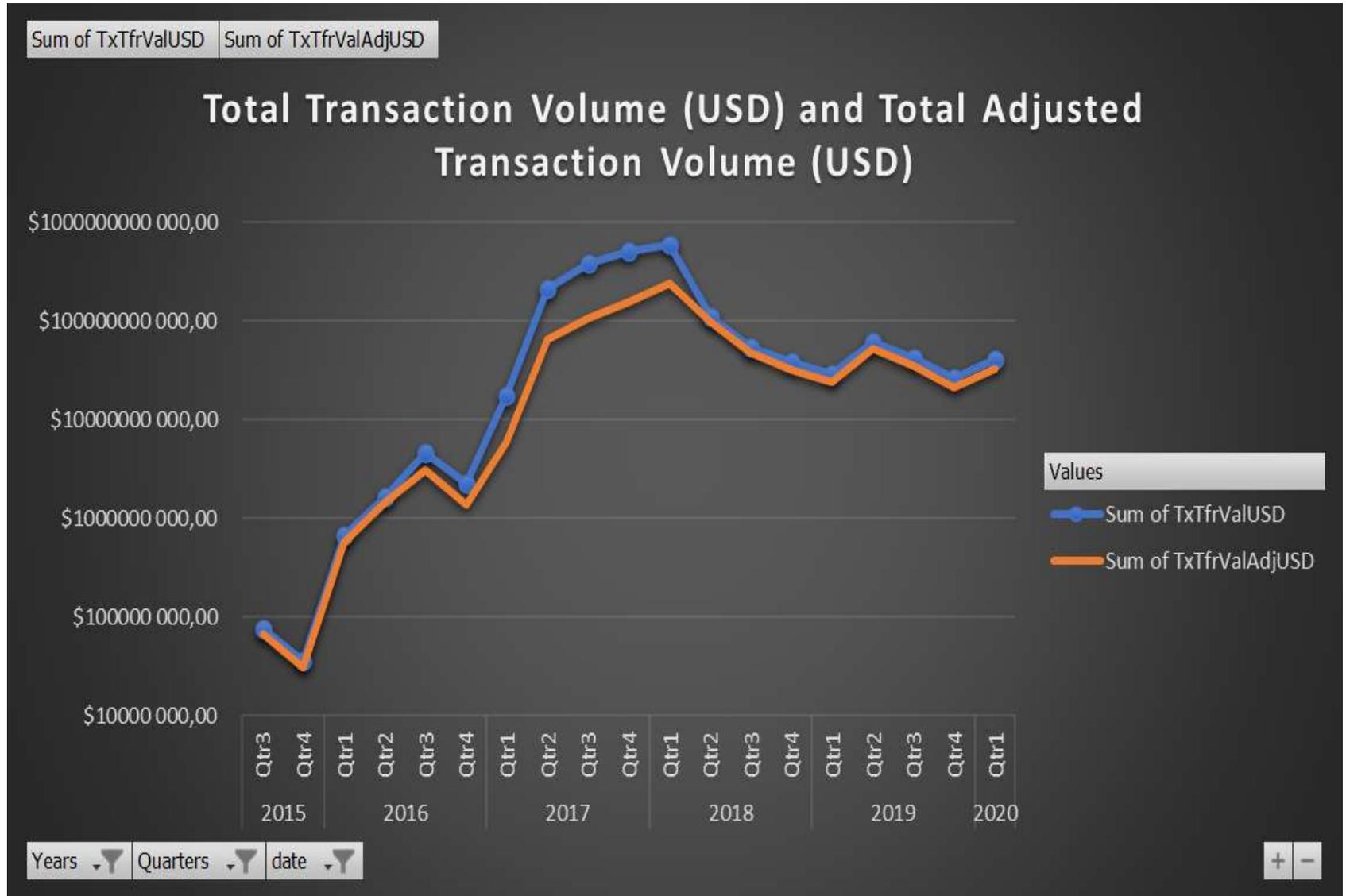
Currently in Q1 of 2020 Ethereum has performed 58 933 265 transactions.



The majority of transaction fees will be burnt and removed from supply. (base fee)

Validators do earn transaction fees above the base fee for staking their Ethereum. (Tip)

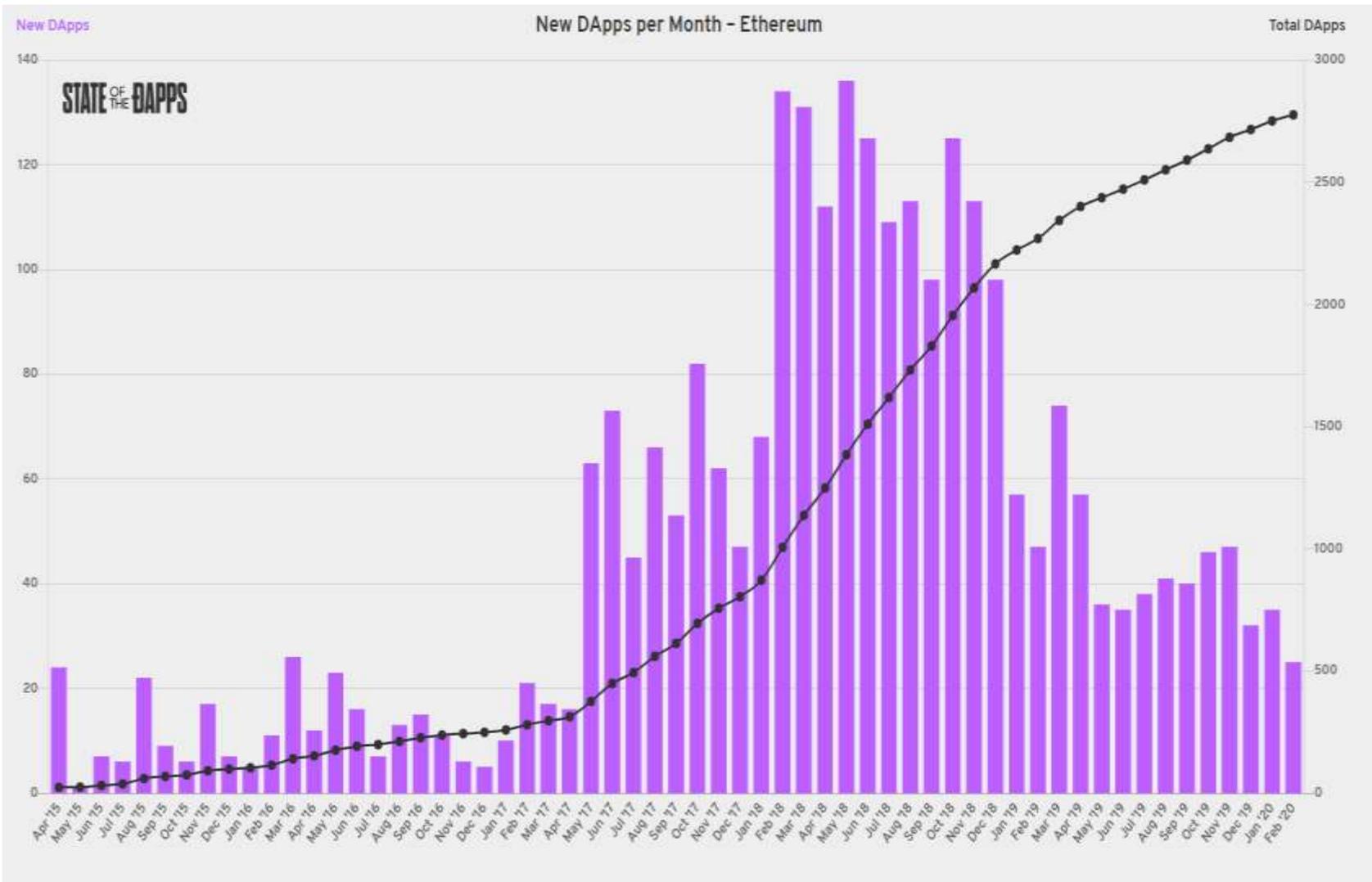
In 2019 Ethereum miners collected \$34 million. Q1 of 2020 has generated \$8,3 million worth of transaction fees.



Total transaction volume and Total adjusted transaction volume for the Ethereum network.

Average quarterly transaction volume for 2019 was \$39 782 873 226.

Currently processing, executing and settling more than \$40 billion worth of transaction volume in Q1 of 2020.



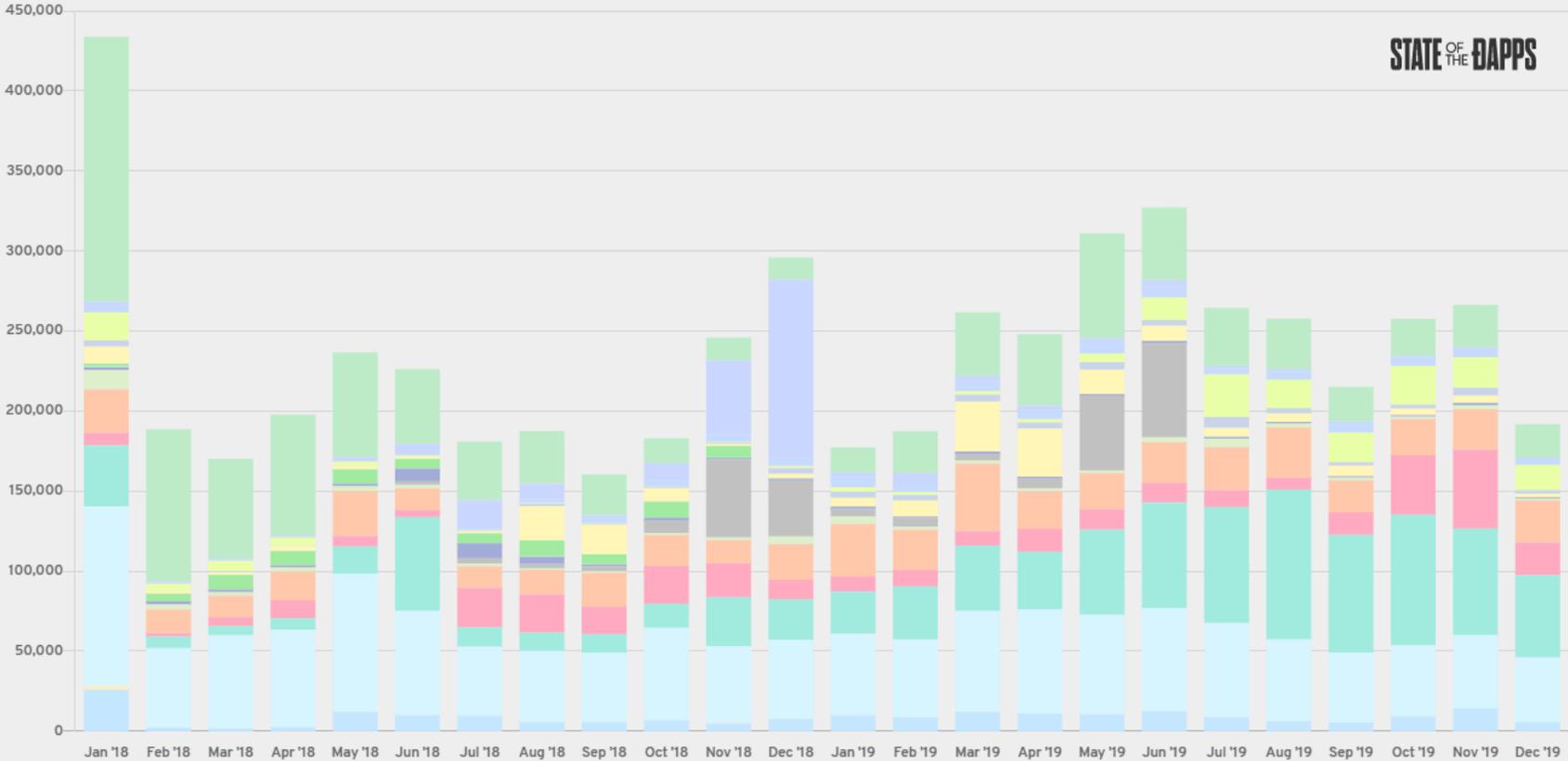
The number of dApps built on Ethereum and the new dApps that are created monthly.

All of these dApps provide some kind of service which incurs gas costs on the Ethereum network that can only be paid in ETH.

Ethereum DApp Activity by Category

Active users

- Development
- Energy
- Exchanges
- Finance
- Gambling
- Games
- Governance
- Health
- High-risk
- Identity
- Insurance
- Marketplaces
- Media
- Property
- Security
- Social
- Storage
- Wallet



STATE OF THE DAPPS

Breakdown of dApp active users across different categories.

Enterprises Building on Ethereum



Finance is Ethereum's First Killer Use Case

- The financial networks of today roughly boil down to messaging networks, where banks and other financial institutions are responsible for interfacing with these networks on behalf of their customers – sending the right messages and responding appropriately to the messages received.
- Banks are the trusted entities in charge of interacting with these messaging networks, this is due to a deep structural reality that participation in our financial system carries **high counterparty risk**. Banks essentially provide guarantees to their clients that the actions they choose to take will be processed, executed and settled. Their ability to provide these guarantees are closely tied to whether their counterparties (other banks) meet their obligations.
- The actions that their clients decided to take can range across many money verbs such as hold, lend, borrow, trade, invest, spend and earn.
- Ethereum presents an opportunity to **rearchitect** these financial networks at an **order of magnitude lower counterparty risk**. This due to the Ethereum networks ability to provide similar guarantees that the banks of today do.
- Instead of siloed banks and complicated interbank relationships, the Ethereum network leverages a decentralised community of validators that provide guarantees around the execution of financial transactions.
- The following pages will illustrate how Ethereum is being used as a collateral asset for its own financial system and the rapid growth of this financial system that has been built on Ethereum.

ETH Locked in DeFi

TVL (USD) | [ETH](#) | BTC | DAI

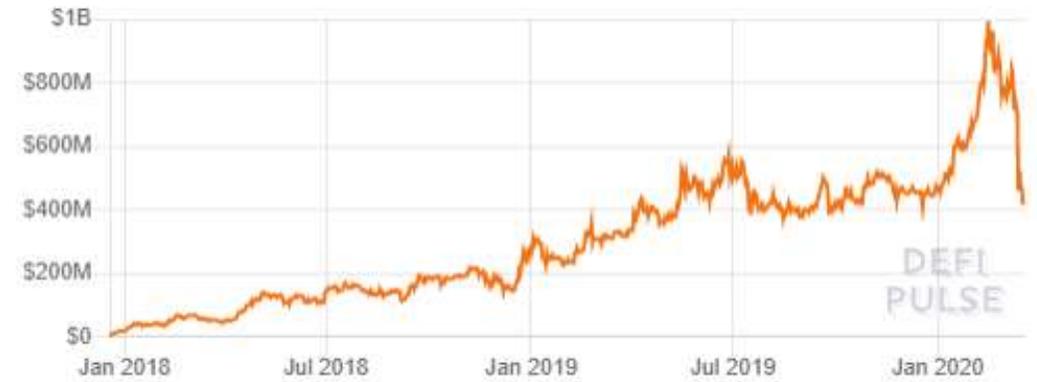
[All](#) | 1 Year | 90 Day | 30 Day | 7 Day



Total Value Locked (USD) in Lending

TVL (USD) | [ETH](#) | BTC | DAI

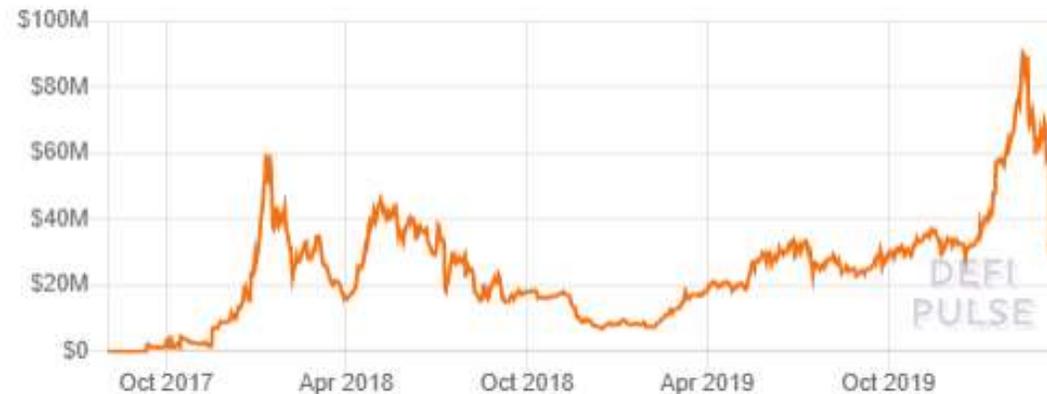
[All](#) | 1 Year | 90 Day | 30 Day | 7 Day



Total Value Locked (USD) in DEXes

TVL (USD) | [ETH](#) | BTC | DAI

[All](#) | 1 Year | 90 Day | 30 Day | 7 Day



Total Value Locked (USD) in Derivatives

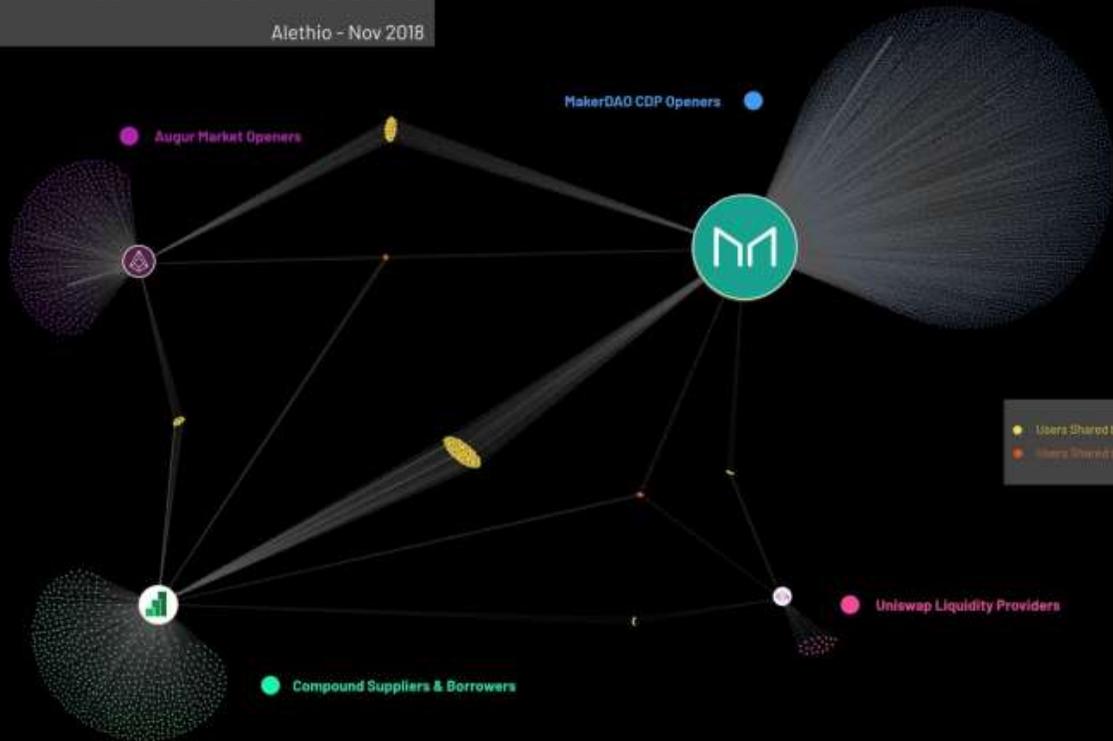
TVL (USD) | [ETH](#) | DAI

[All](#) | 1 Year | 90 Day | 30 Day | 7 Day



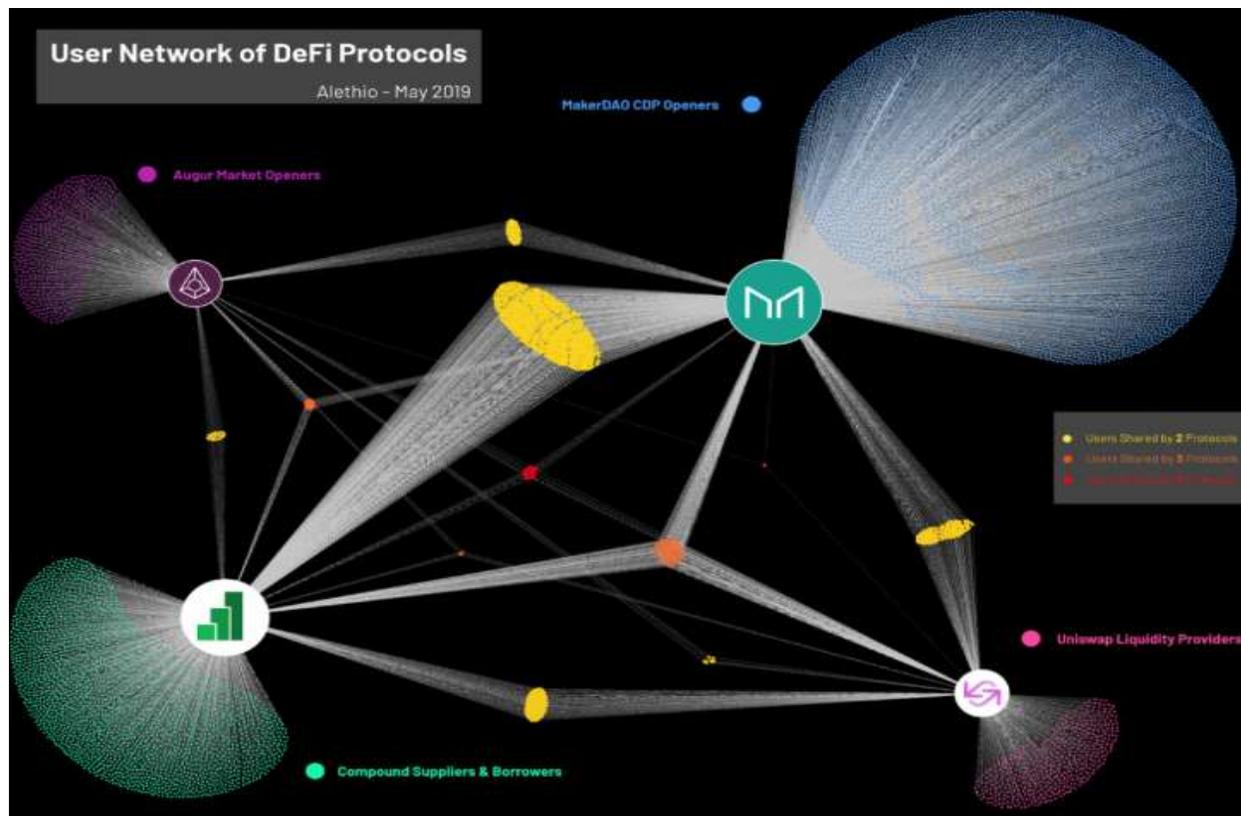
User Network of DeFi Protocols

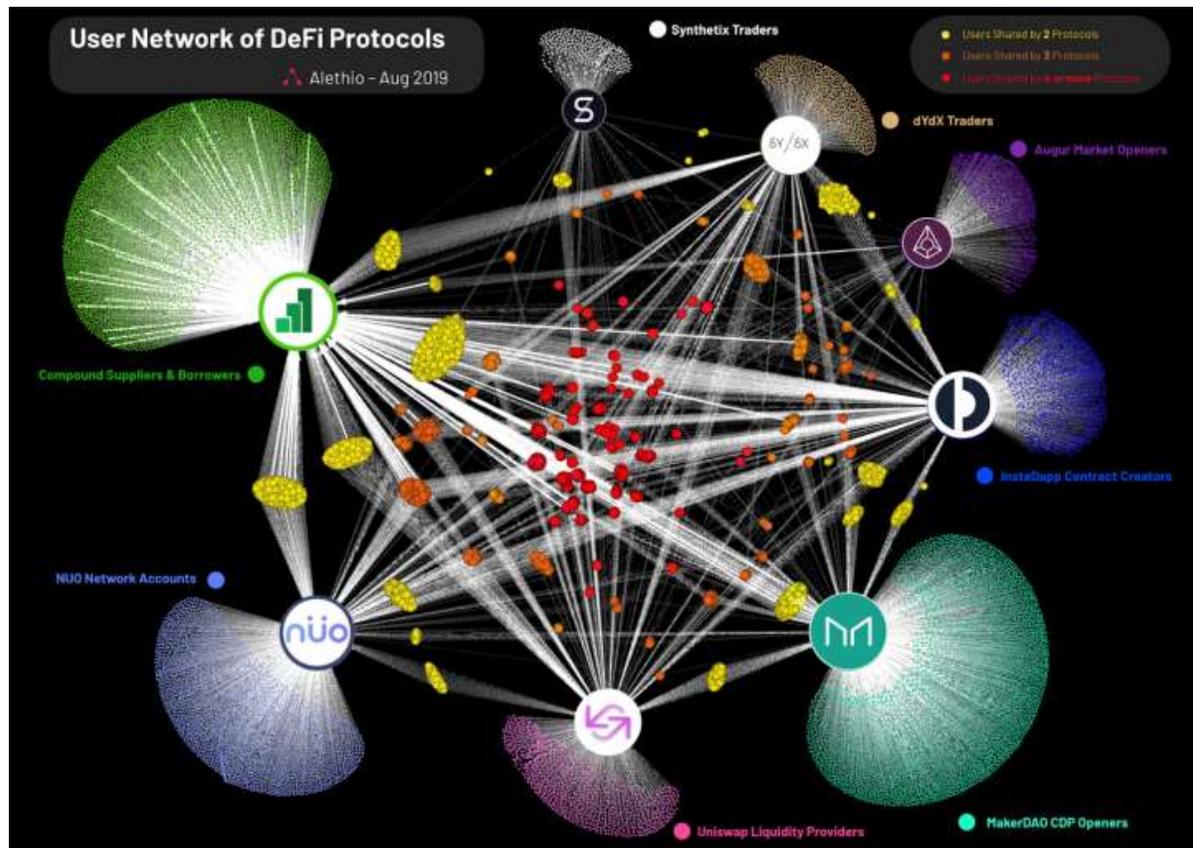
Alethio - Nov 2018



November 2018

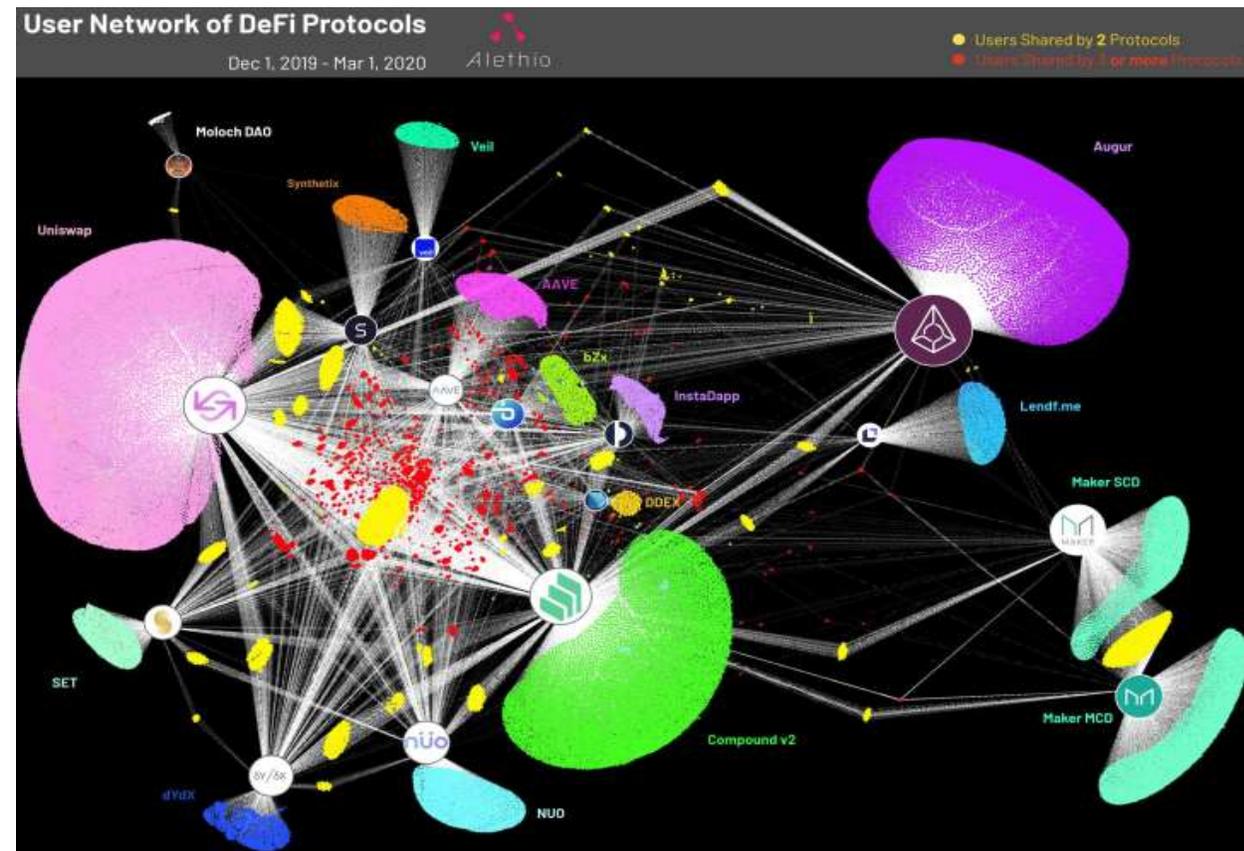
May 2019





August 2019

March 2020



References

<https://www.stateofthedapps.com/stats/platform/ethereum#new>

<https://bankless.substack.com/p/ethereum-is-an-emergent-structure>

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