<https://www.youtube.com/watch?v=34H2O2AG0qQ>

I don't think any Blockchain was able to tackle the scalability issue without sacrificing security or decentralization or both of them.

Ethereum is kind of trying to hit the golden standard of

* scalable
* decentralized and
* secure

all at the same times this triangle of qualities that are very incredibly difficult to achieve on their own.

Achieving one of them or even two of them is much easier.

Bitcoin has the Lightning Network which is layered to scaling solution that it's working on his way and Ethereum really needs to scale

Ethereum 1.0 it's kind of like a very slow version.

Today’s Ethereum is a kind of a prototype yes they have a mainnet, yes it is working but it's not really the full vision of it.

<https://medium.com/rocket-pool/ethereum-2-0-whos-building-it-54a735442e>

<https://medium.com/rocket-pool/ethereum-2-0-76d0c8a76605>

<https://www.rocketpool.net/>

Rocketpool it's a next-generation Ethereum proof of stake pool.

Ethereum is not even proof of stake yet.

<https://bitcoinexchangeguide.com/potential-ethereum-blockchain-soft-fork-could-enable-scaling-10000x/>

Buterin commented:

*“So if you get a 100x from sharding and a 100x from Plasma, those two basically give you a 10,000x scalability gain, which basically means blockchains will be powerful enough to handle most applications most people are trying to do with them.”*

What is Sharding, Plasma & Casper?

Ethereum 1.0 is POW (Proof of Work)

Ethereum 2.0 is POS (Proof of Stake) + Sharding

Here no miners only Stakers

So how are they going to shift from a one Blockchain which is proof of work to proof of stake?

They are going to create something that's called a beacon chain.

And it's going to the first block I guess would include a copy of all of the existing deposits.

You'll need 32 Ether to start staking.

The beacon chain will not include an execution engine (like the EVM).

All beacon chain transactions will be gas free — making the whole process cost effective.

So instead of having each validator sends their signature to the Blockchain what you can do is you can kind of have them sign a petition of like 100 different stackers signed with their own signature and then once you have these 100 signatures they are which are sent off chain then you can send them through the Blockchain.

Therefore, instead of doing a hundred different transactions you only have to do one you know because you aggregated these signatures so it's much more efficient.

Sharding

Basically right now all the transactions are going through one blockchain they are all verified transactions on one chain. Well sharding will allow you to split each Ethereum into about thousand different shards that are kind of like their own mini Ethereums they're having own shorted chains which are going to have their own States their own code etc.

eWASM

The Ethereum Virtual Machine (EVM) is itself becoming a performance bottleneck;

Even the speed in which the EVM can run is causing issues so for that reason they created the solution

which is the eWASM.

eWASM is being developed as a replacement to the EVM.

The Ethereum shards will not use the existing EVM but will jump straight to using eWASM. Compilers will be developed that convert Solidity and Vyper into the new eWASM instruction-set.

<https://etherevolution.eu/la-beacon-chain-di-ethereum-2-0-serenity/>