Ethereum

Overview

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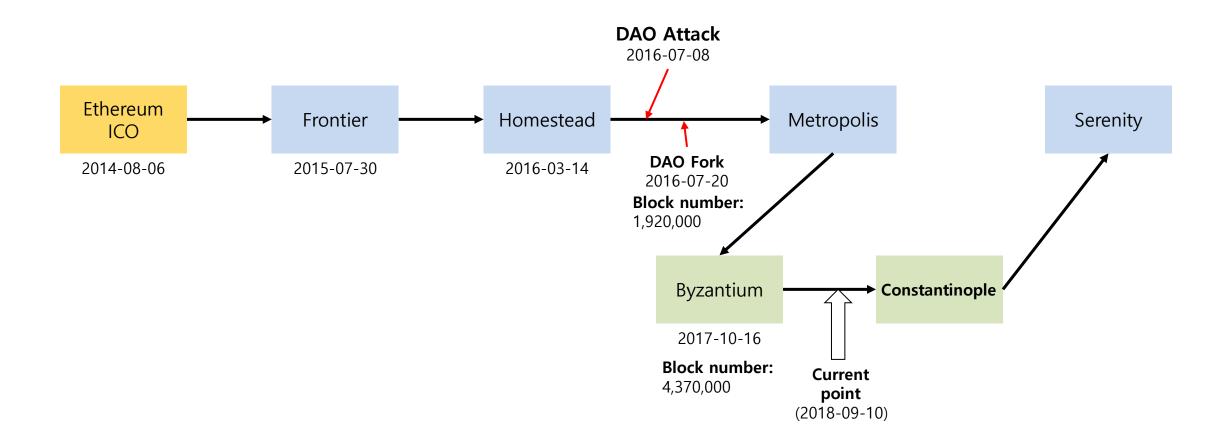




https://www.ethereum.org/



Ethereum Roadmap





Main Differences between Bitcoin and Ethereum

Smart Contracts

- Bitcoin: focus on crypto(digital)-currency service as a money transfer platform
- Ethereum: focus on a computing platform for supporting various industry applications

Turing-Completeness

- Bitcoin: Use a script language (Turing-Incompleteness) to validate transaction and purposely remove loop statement
- Ethereum: Use Turing-Complete languages such as Solidity which supports condition and loop statement

Account-based Model

- Bitcoin: Not support the account (UTXO-based Model)
- Ethereum: Support the account concept

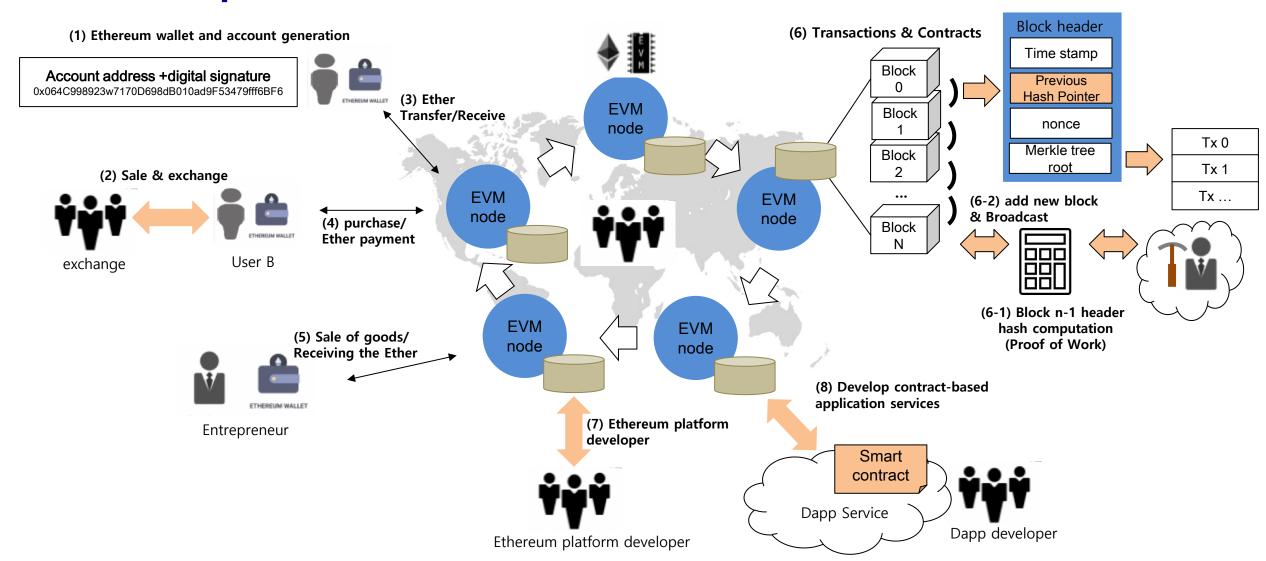


Comparison between Bitcoin and Ethereum

	Bitcoin	Ethereum
Block Generation Period	About 10 minutes	About 15 seconds
Transaction processing capacity	7 TPS	15 TPS
The number of nodes (08/24/2018)	9723 (https://bitnodes.earn.com/)	17519 (https://www.ethernodes.org/network/1)
Consensus	PoW	PoW (Later, PoS)
Genesis Block	01/03/2009	07/30/2015
Maximum Mint	Year 2150 → 21,000,000	Year 2128 → 100,000,000
Block Reward	12.5 BTC	3 ETH
Scope of Application	Cryptocurrency	All industry areas (including cryptocurrency)



Overall Operation Procedure of Ethereum





Ethereum Platform Reference Model (Based on Go-Ethereum)

Application Layer

DApp & Smart Contract, Whisper, Swarm

(Related Packages: swarm, whisper, ethclient, mobile)

Consensus Layer

Consensus engine, Mining, Gas, Ether

(Related Packages: consensus, consensus/ethash, miner)

Execution Layer

EVM, Contract

(Related Packages: console, contract, core/vm, event, internal,, rpc, eth, les, light,)

Data Layer

Block, Blockchain, Merkle tree, account, transaction, message, etc.

(Related Packages : account, core, core/state, core/types, node, trie)

Common Layer

P2P network, DBMS, Digital Signature, Encoding, cryptographic hah (Related Packages: P2P, ethdb, trie, rlp crypto0, kaccet 256, ethstats..)

Summary



- Ethereum
 - What is Ethereum?
 - Roadmap
- Bitcoin vs. Ethereum
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References



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