Ethereum

Overview

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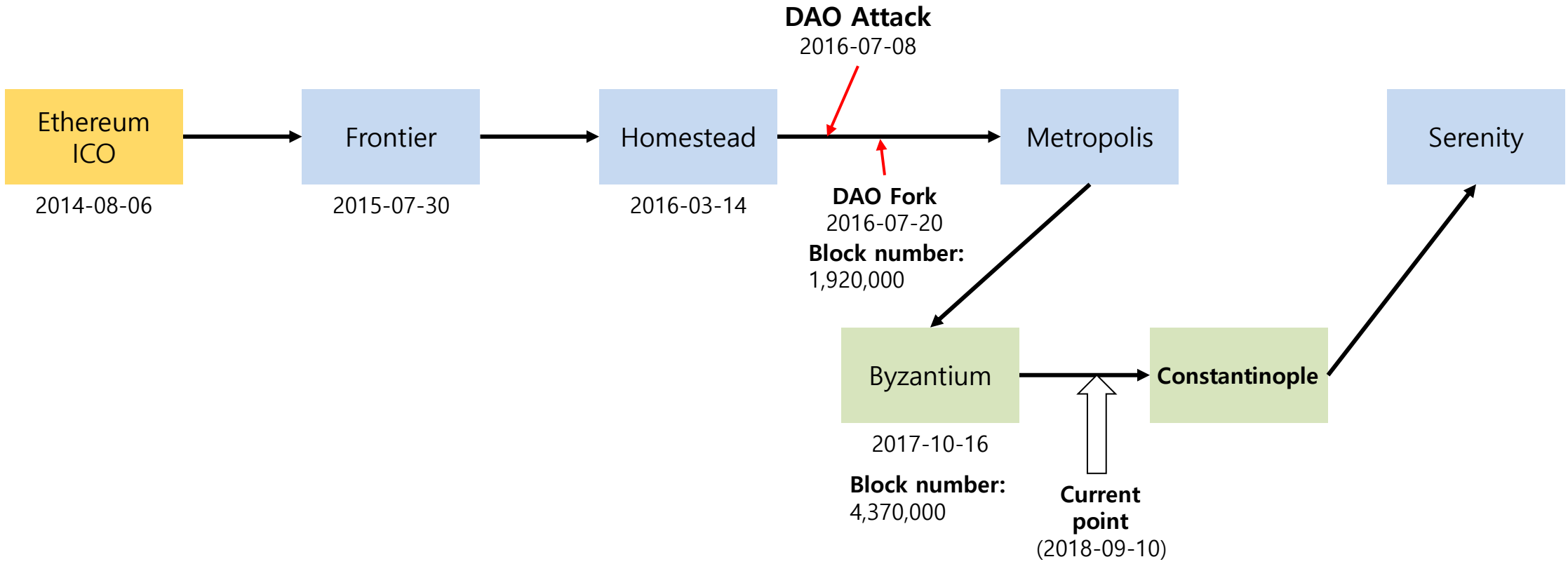
- Ethereum – Data Layer
- Ethereum – Consensus Layer
- Ethereum – Execution Layer
- Ethereum – Common Layer
- Ethereum – Application Layer

Ethereum Overview

https://www.ethereum.org/

Ethereum Overview

Ethereum Roadmap



Ethereum Overview

- **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

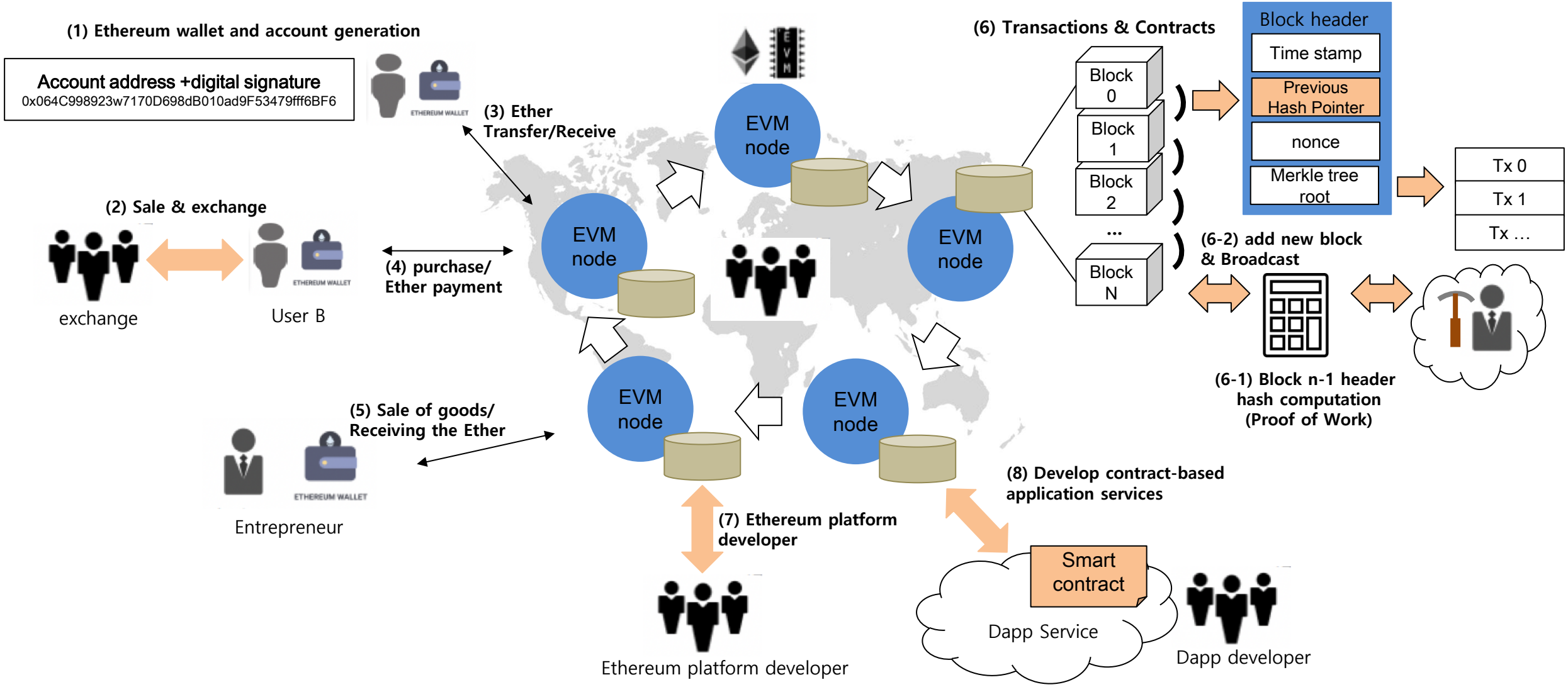
Ethereum Overview

- **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)

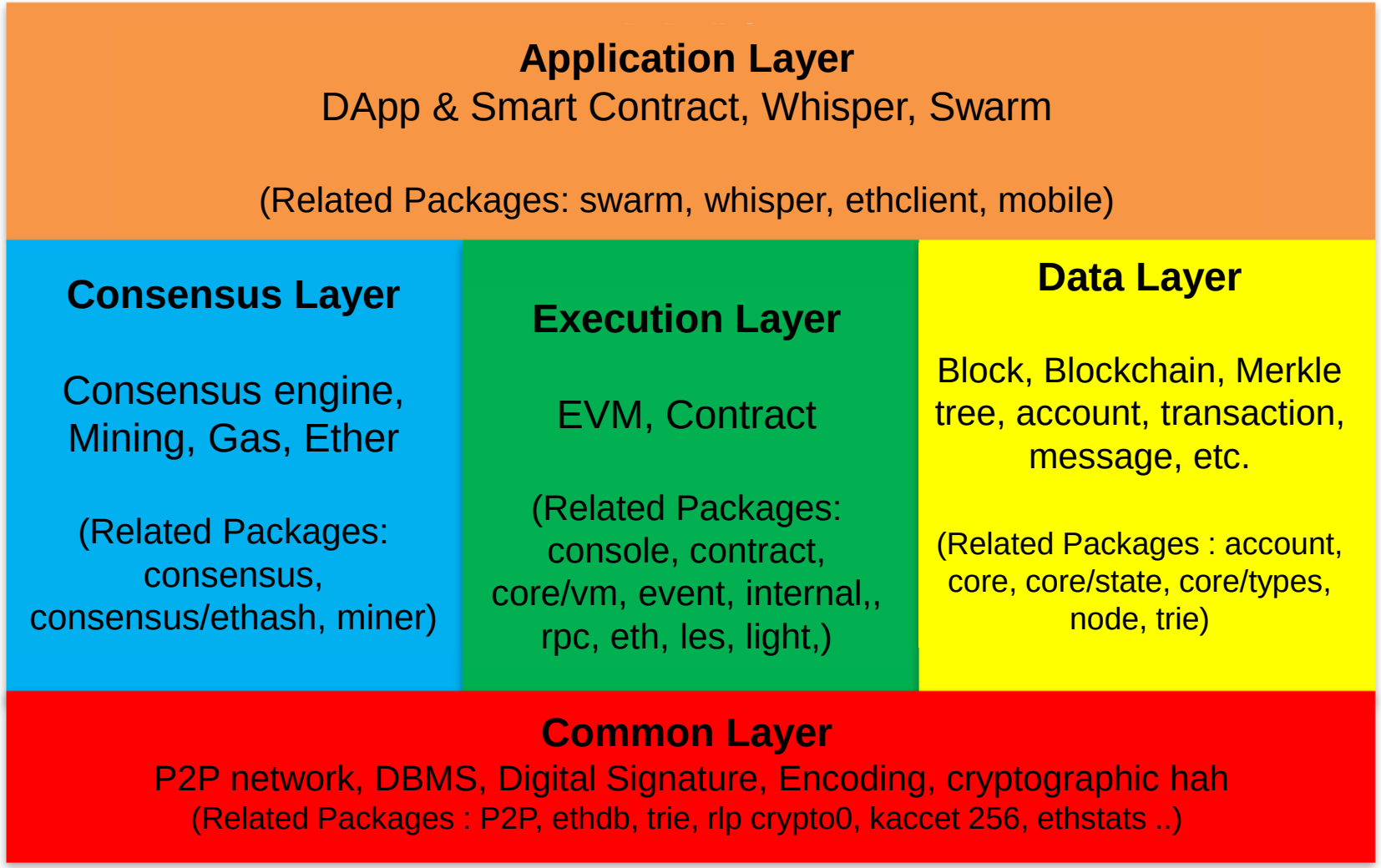
Ethereum Overview

Overall Operation Procedure of Ethereum



Ethereum Overview

- **Ethereum Platform Reference Model (Based on Go-Ethereum)**



Summary

- **Ethereum**
  - What is Ethereum?
  - Roadmap
- **Bitcoin vs. Ethereum**
  - Main differences
  - Comparison Table
- **Overall operation process**
- **Reference Model**

References

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