QUORUM

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Ethereum for enterprise applications

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What is Quorum?

JP Morgan Chase implementation

Enterprise-focused version of Ethereum

Open-source

Soft-fork of Ethereum (soft-fork of geth)

Ethereum as an enterprise solution?

What about...

- Privacy
- Scalability
- Network performance

4 major distinctions

- Network and peer permission management
- Transaction and contract privacy
- Voting-based consensus algorithm
- Higher performance

Primary features

Privacy

Voting-based consensus mechanism (Raft-based, Istanbul BFT)

Peer/node permissioning using smart contracts

Increased scalability and network performance

Transactions per second

Ethereum: 15-20

Quorum: 100

Why use Quorum

Trust

      Blockchain systems: trust without relying on external authorities

      Open-source implementation that can be transparently audited and validated

Community

      Invites collaboration

      GPL/LGPL licensed like Ethereum: free to use + encourages experimentation

Maturity

      Designed to develop and evolve alongside Ethereum

Basic Architecture

2 main components:

- Quorum node
- Constellation

Basic Architecture: Quorum Node

Soft-fork of geth (the Go-ethereum client)

Ethereum as the base code

Plus a thin layer on top:

> => allows important modifications like

> > - Voting-based consensus mechanisms (instead of PoW)
> > - Transactions and Smart Contracts to be privately executed

Basic Architecture: Constellation

Implements the privacy features

Part 1: **Transaction Manager**

    responsible for transaction privacy

Part 2: **The Enclave**

    responsible for:

- private key management
- encryption/decryption of private transaction data

Who is using Quorum?

Accenture

ConsenSys

Microsoft

Blk.io

Blockapps

Blockmatics

Reuters

7nodes example

7nodes github page

Truffle 7nodes example

Step by step

Other hands-on examples

Resources

Github   https://github.com/jpmorganchase/quorum

Wiki   https://github.com/jpmorganchase/quorum/wik

Docs   https://github.com/jpmorganchase/quorum/blob/master/docs