Bitcoin Core

Bitcoin

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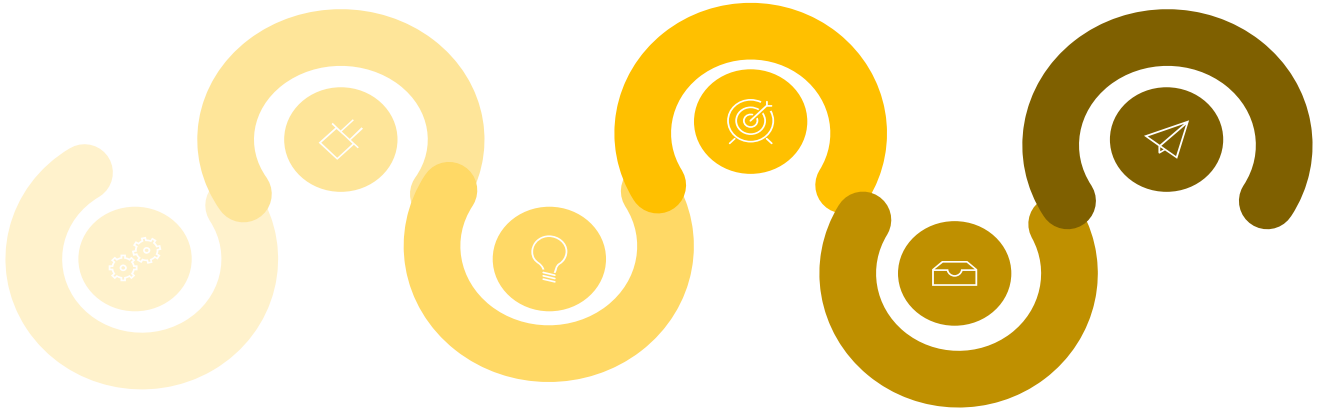
Video Presentation URL:
https://youtu.be/FBJd1r9bbe4

Team Members

Allen Geng 02
Global Control Flow and Concurrency

Yuanqi Liang 04
Abstract and Introduction & Overview
Group Presenter

Kevin Zhang 06
Architecture Style and Design Patterns



Connor Decean 01
Conclusion, Lessons Learned, Box Diagrams, Group Leader

Kevin Jiang 03
Subsystems / Components

Jayden Ting 05
Use Cases
Group Presenter

Contents

Introduction

- **Bitcoin core** is a client software and open source program that is not under the control of any third party, individual, organization or group.

- **Bitcoin core** ensures secure transactions for users and validates the authenticity of every transaction.

Derivation Process

01

We clearly define the topics we want to discuss in this report.

02

Next, we discussed the essential components and fundamental principles of the architecture based on github resource and developer guide of Bitcoin Core.

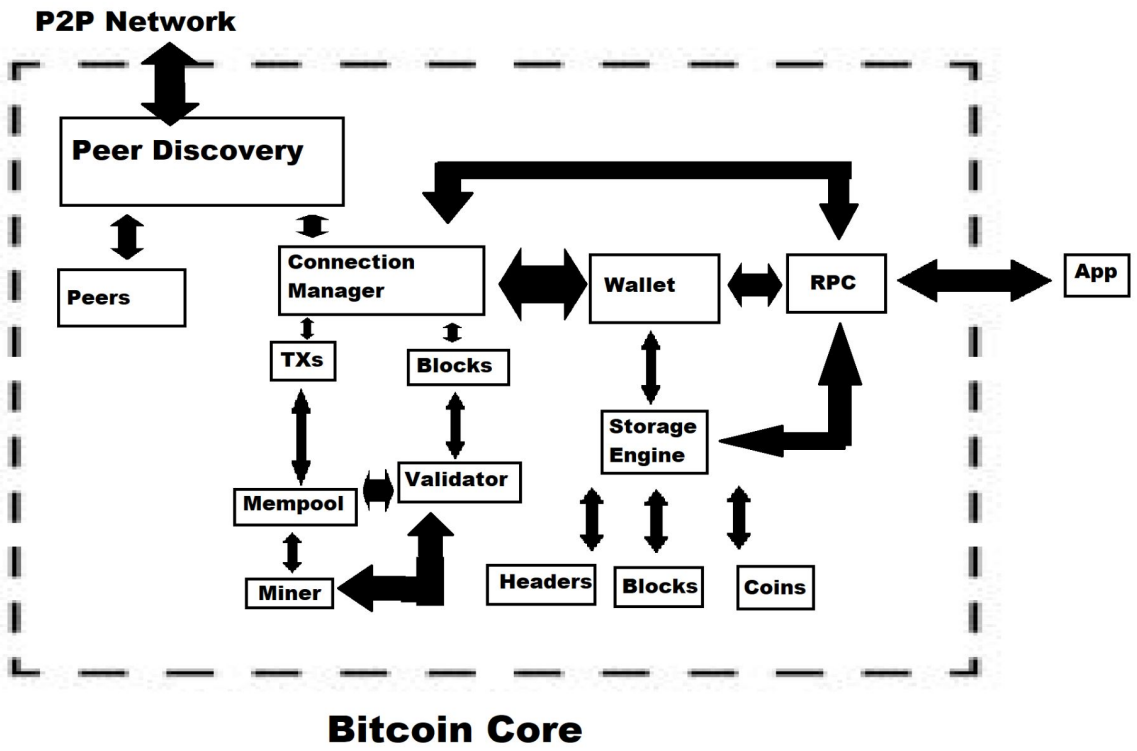
03

Finally, we conclude our thoughts to analyze the architecture.

Conceptual Architecture: Peer to Peer

Characteristics

- Partition tasks without centralized control
- Peers: provide service
- Network allows peers to access each other directly



Subsystems

Block Chain

Stores and manage the blockchain, is distributed ledger of all Bitcoin transaction, including proof of work and fork detection.

Transaction

Transfer of Bitcoin value between Bitcoin wallets that gets included in the blockchain.

Memory Pool

The holding area for all unconfirmed transactions on the network.

Mining

Responsible for creating new blocks and adding them to the blockchain.

Subsystems (continued)

Block Verification

Refers to the process of checking whether a newly received block is valid before accepting it and adding it to the blockchain.

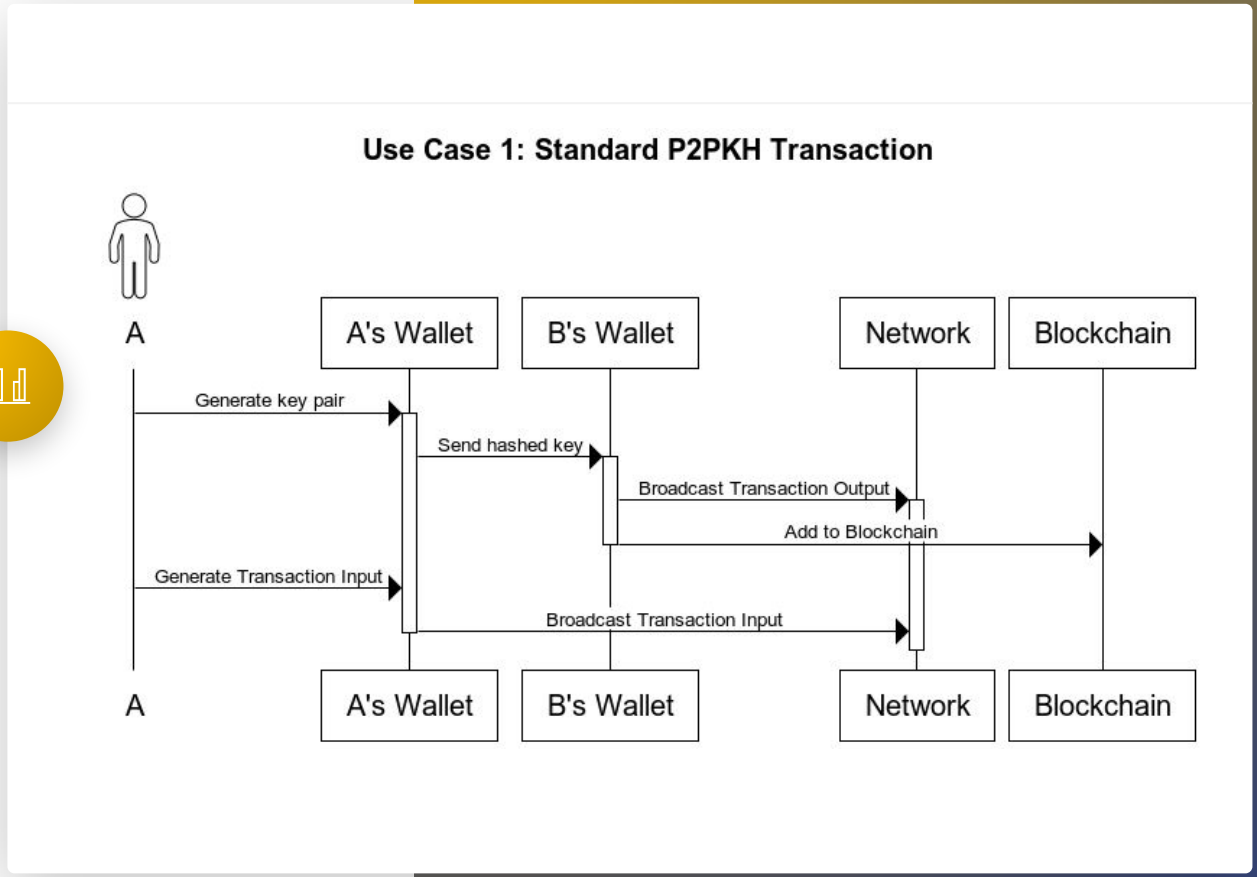
Network

Manage network connections and communications between nodes including peer discovery, communication and broadcasting.

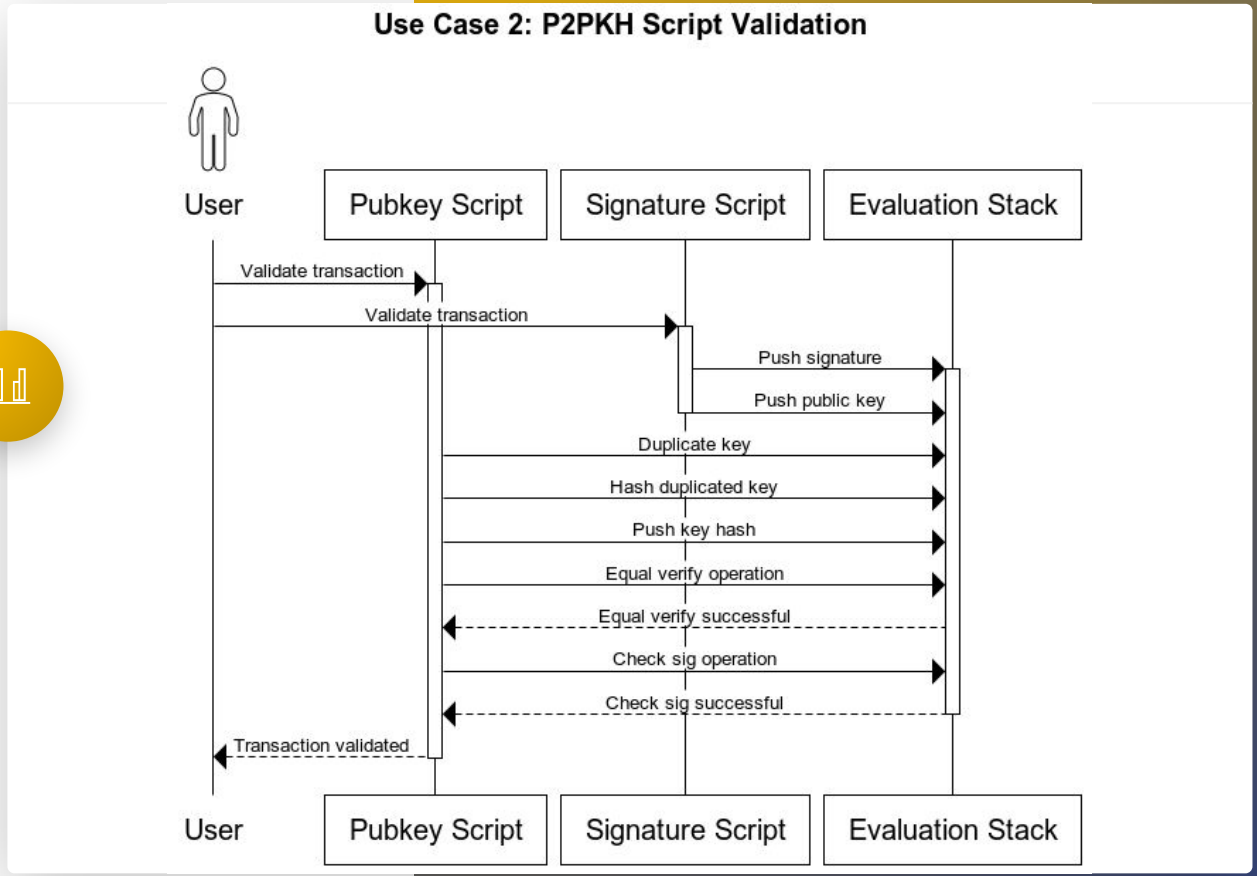
Wallet

Manages private keys and allows users to send and receive transactions including wallet program and wallet file.

Use Case: Standard P2PKH Transaction



Use Case: P2PKH Script Validation



THANK YOU