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01 The challenges we are facing and the experience Baidu gained

The challenges we are facing

Blockchain is only suitable for using consensus mechanisms and smart contracts to supervise data that already exists in the chain.

Trusted Data Collection

- How to confirm that the data that will be stored in the blockchain is truly from the real world?

Trusted Data Usage

- How to ensure that the data/order generated through the smart contract will be correctly recorded/executed in the real world?

Trusted Data Sharing

- How to cooperate with each other, share the real data we have without leaking our secret?

The experience we gained

Because the existence of these challenges, it is very difficult to solve practical problems only by using blockchain itself. It must be combined with other emerging technologies.



02 The real scenes where Baidu use Blockchain in

Two real scenes

Medical scene: Chongqing Medical Service Platform

Blockchain



Living Body Recognition
Optical Character Recognition
Lightweight Node Verification
Trusted Execution Environment
Big Data

Law & Justice Scene: Beijing/Guangzhou Internet Court

Blockchain

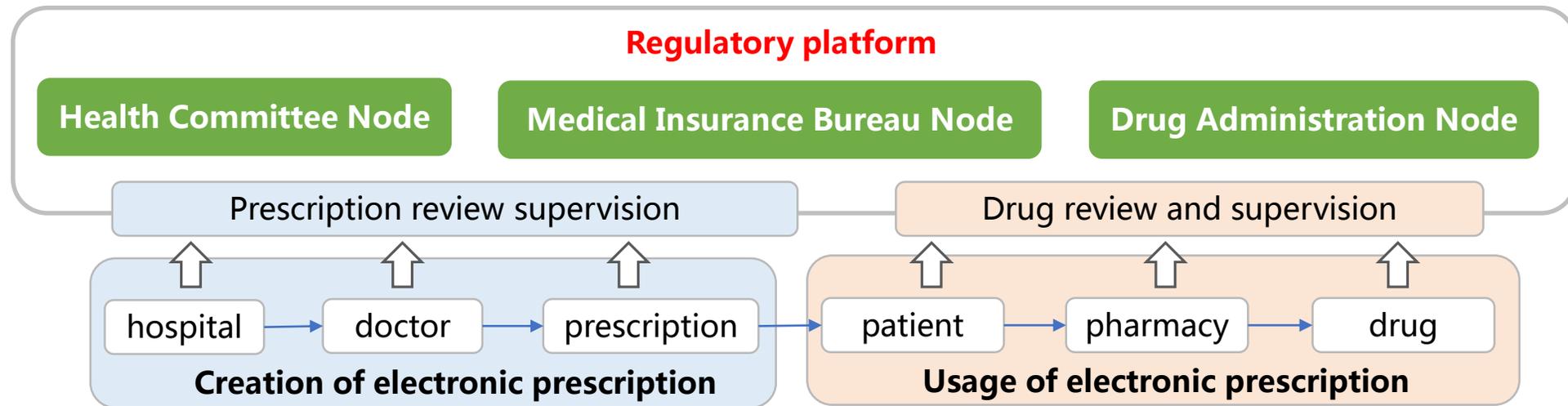


Spider
Infringement Detection

Medical scene: Chongqing Medical Service Platform



This platform uses blockchain to ensure that **transparency and regulatory** requirements are met. This removes the **technical barriers** to insurance coverage and obtaining prescription drugs from pharmacies.



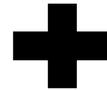
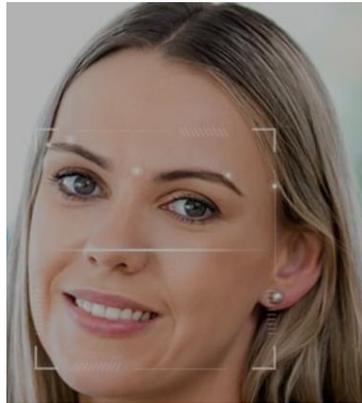
Benefits: The elderly or people with disabilities only need to go to hospital for once, get the electronic prescription from the doctor, and then can get drugs from nearby pharmacies for several times, without go to hospital again. And the medical insurance bureau will cover some of the expense.

Blockchain + Living Body Recognition

Verify the digital identity

Baidu self-developed **living body recognition** technology

Medical insurance card recognition technology



全国银行卡四要素验证

请输入银行卡号,或点击  上传银行卡图片OCR输入:

银行卡号 *

请输入姓名及身份证号,或点击  上传身份证图片OCR输入:

姓名 *

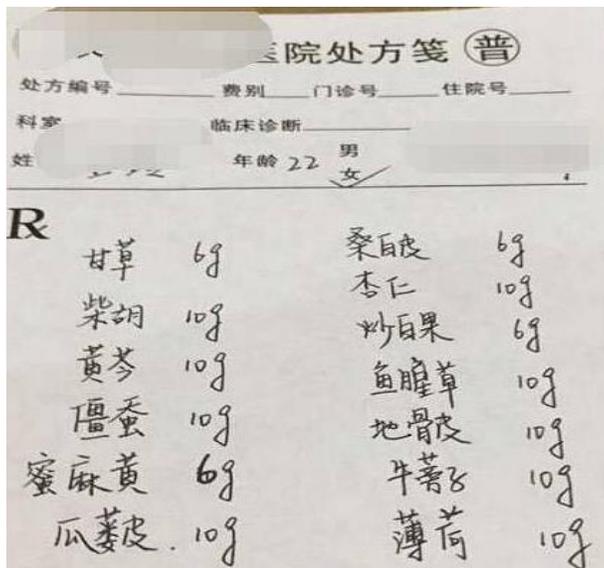
身份证号 *

手机号

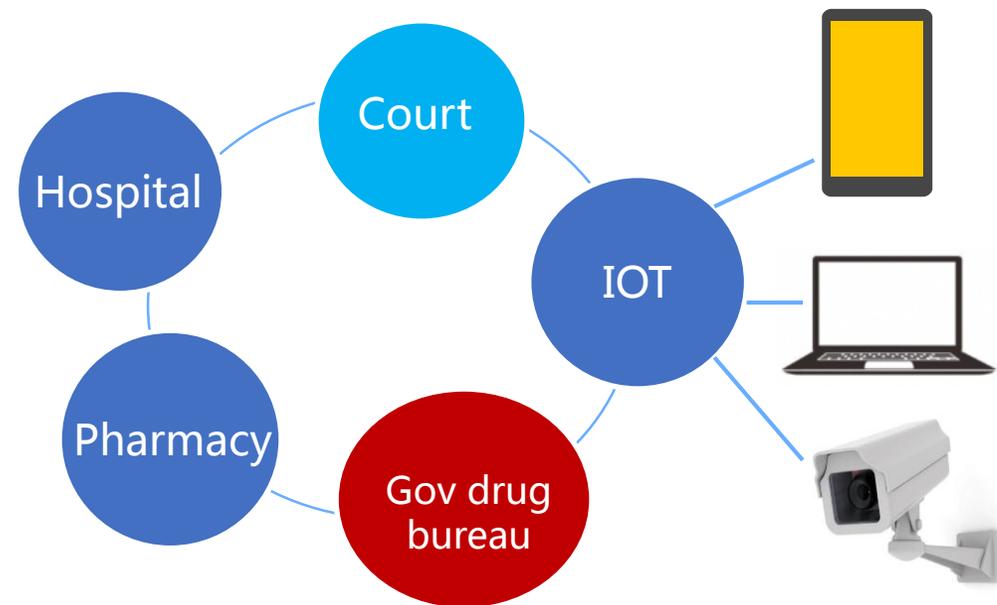
Using two-factor authentication to ensure digital identity and operational behavior are synchronized in the blockchain

Blockchain + OCR + LCV + TEE

Bring the real off-chain data to blockchain



Through **Optical Character Recognition(OCR)** technology, the handwritten prescriptions are directly converted into structured electronic prescriptions, which saves a lot of manual entry costs and ensures data reliability.



Through the **lightweight node verification(LCV)** and **trusted execution environment(TEE)** technology, widely used IOT devices such as scanner can directly broadcast the OCR-processed data to the full node of the blockchain network.

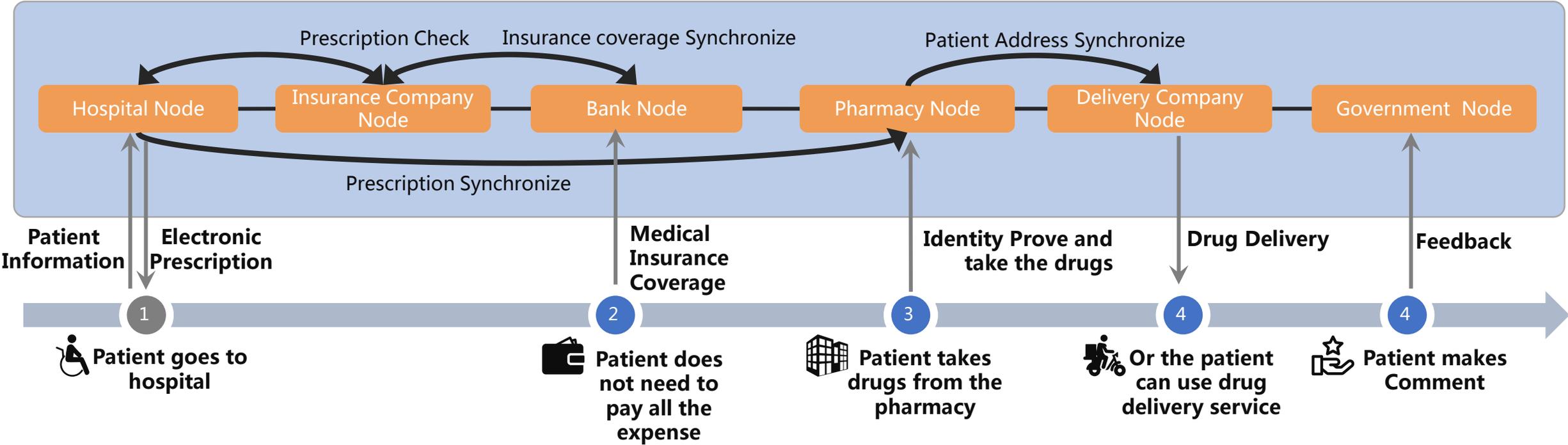
Blockchain + Big Data



Connect isolated data islands

Advantages :

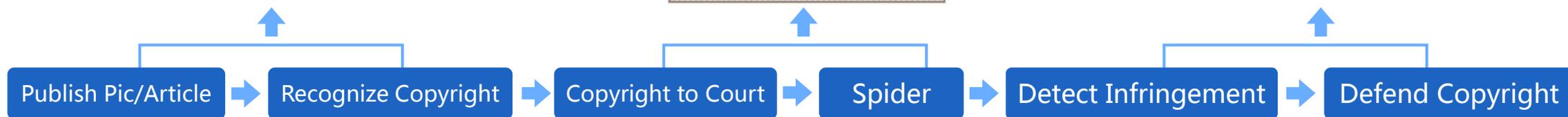
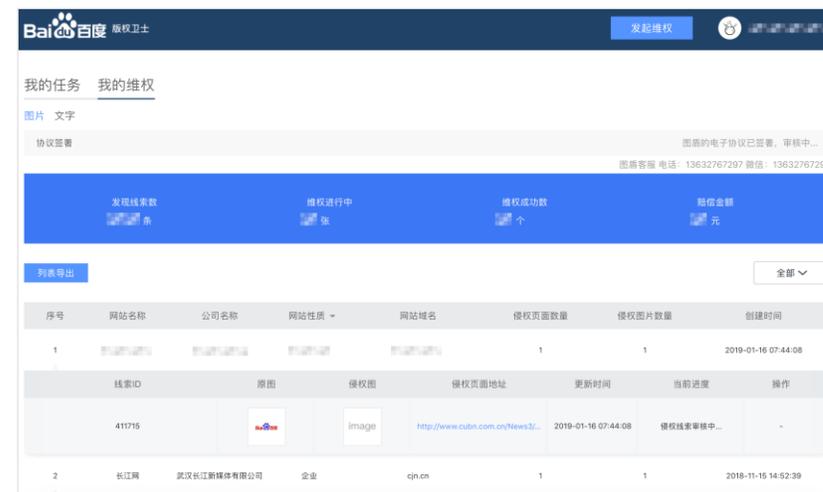
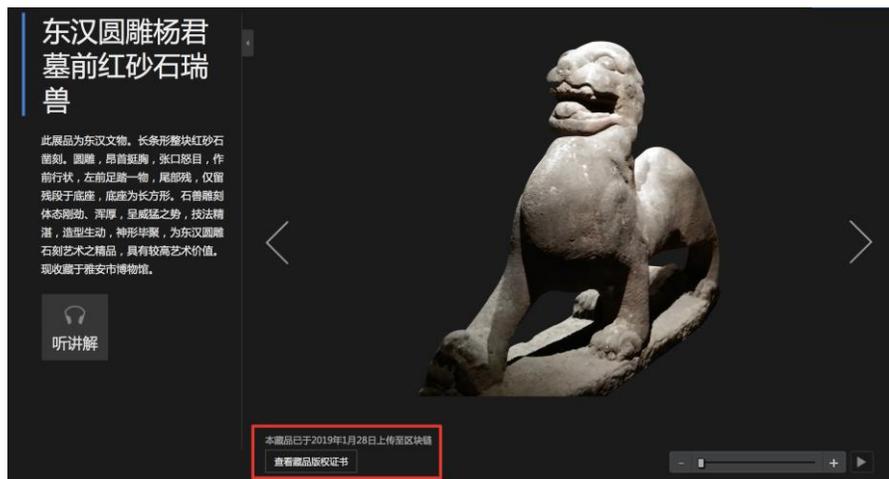
- ① Promote big data circulation
- ② Guarantee medical data privacy
- ③ Regulate the sale and purchase of prescription drugs
- ④ Achieve fast and reliable reimbursement



Blockchain + Spider + Infringement Detection



Make it easier to defend copyright



Baidu has helped the copyright owners locate infringers and won many IPR cases in the Beijing Internet Court

Thank You!

Baidu

Blockchain Lab – Bo Jing