

Ping An Core Technologies 2: Ping An Blockchain (FiMAX)

平安核心科技（二）：平安区块链（壹账链）



AI
人工智能



Blockchain
区块链



Cloud
云技术



Ping An AI

PAII

FTMAX

/:>: 平安云



Eugene Huang

黄宇翔

Ping An OneConnect
EVP, CTO, COO

平安集团 金融壹账通

执行副总裁，首席技术官兼首席运营官



FiMAX Team: A group of technology, finance and IT experts

FiMAX团队：科技、金融和IT领域的精英组合



Head of FiMAX Core
FiMAX Core 团队负责人

密 保密单位



Head of FiMAX Cathaya
FiMAX Cathaya 团队负责人

密 保密单位



Senior Director –
Head of Blockchain Division
区块链高级产品总监，
区块链研发负责人



EVP, CTO, COO
执行副总裁，首席技术官
首席运营官



Head of product team
产品团队负责人



Head of FiMAX Concord
FiMAX Concord 团队负责人



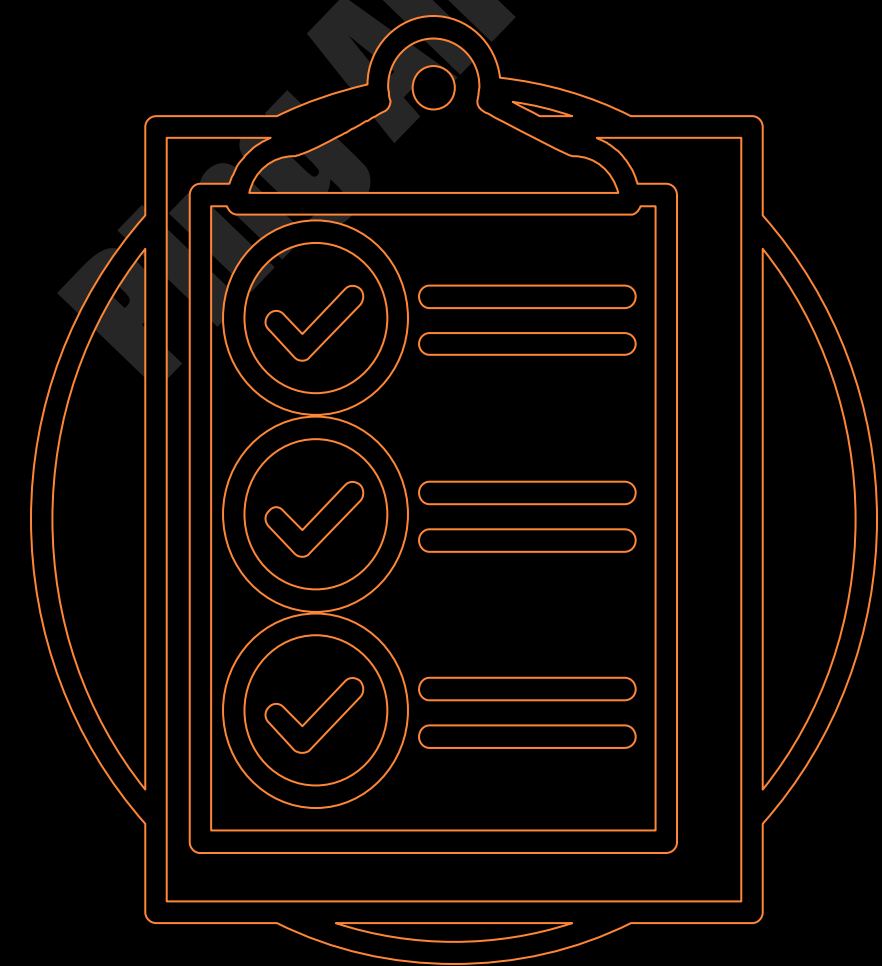
Expert in blockchain
区块链技术专家



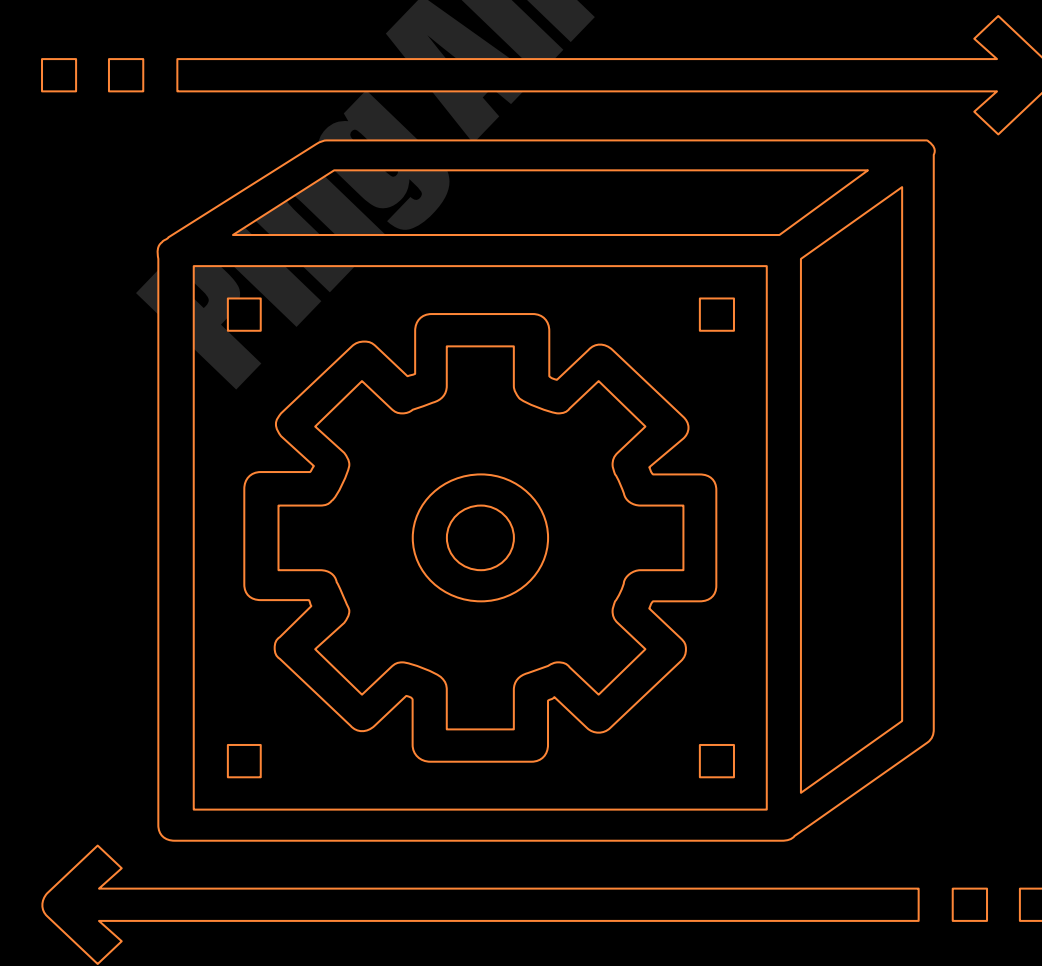
Where a brighter future is maximized
by a oneconnected network

Blockchain: Secure, trustworthy and efficient innovative distributed ledger

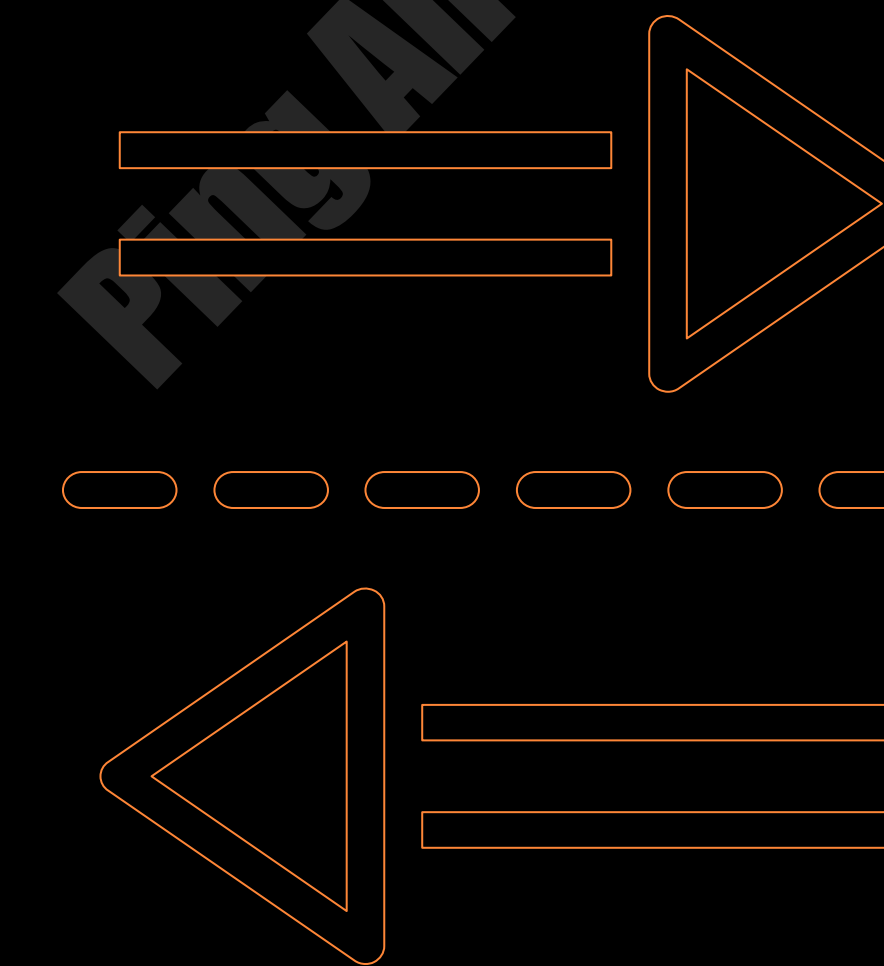
区块链：安全、可信、高效的创新分布式数据库



Consensus Mechanism
共识机制



Verified & Traceable Information
信息真实可追溯

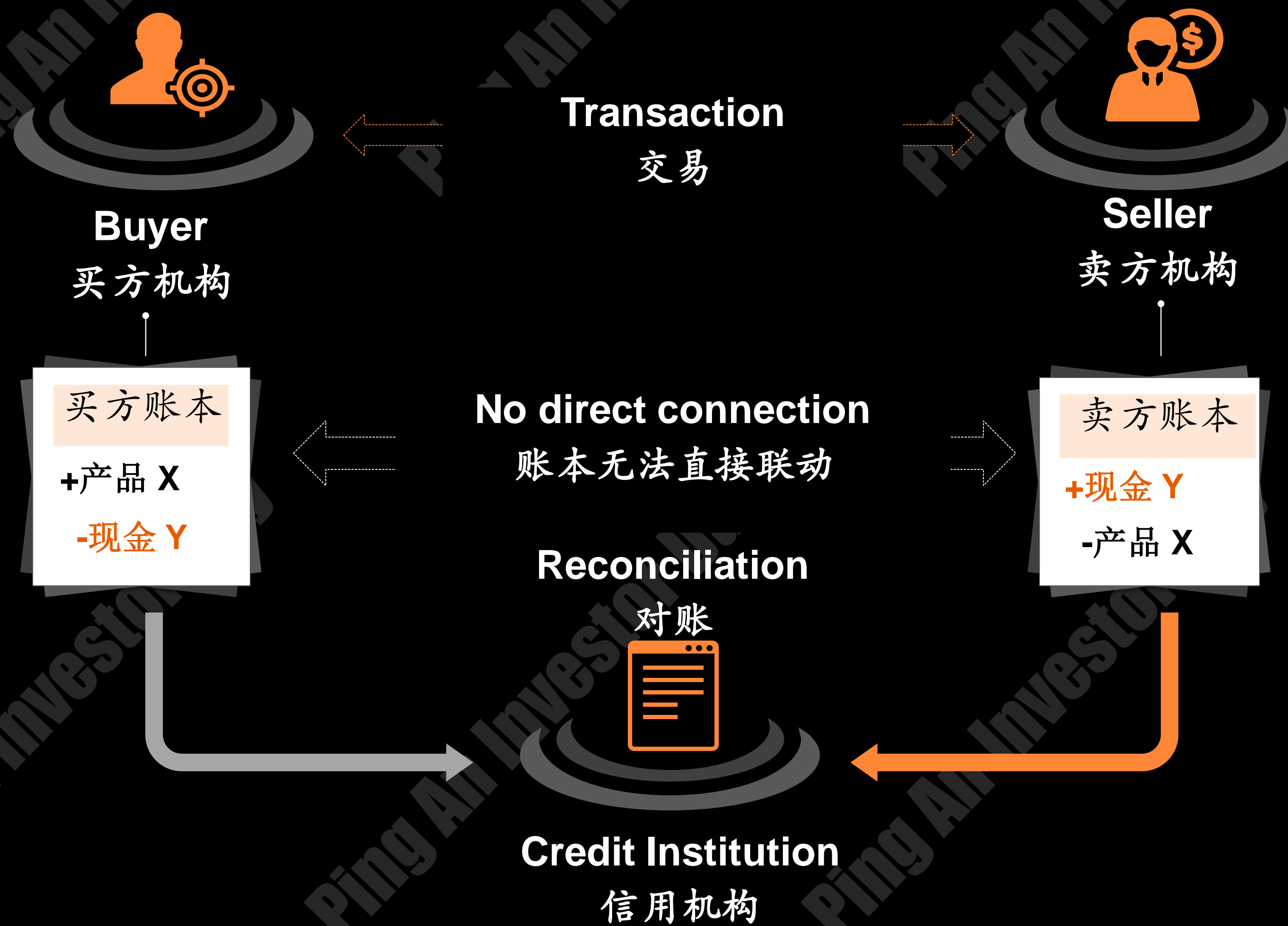


Distributed
分布式

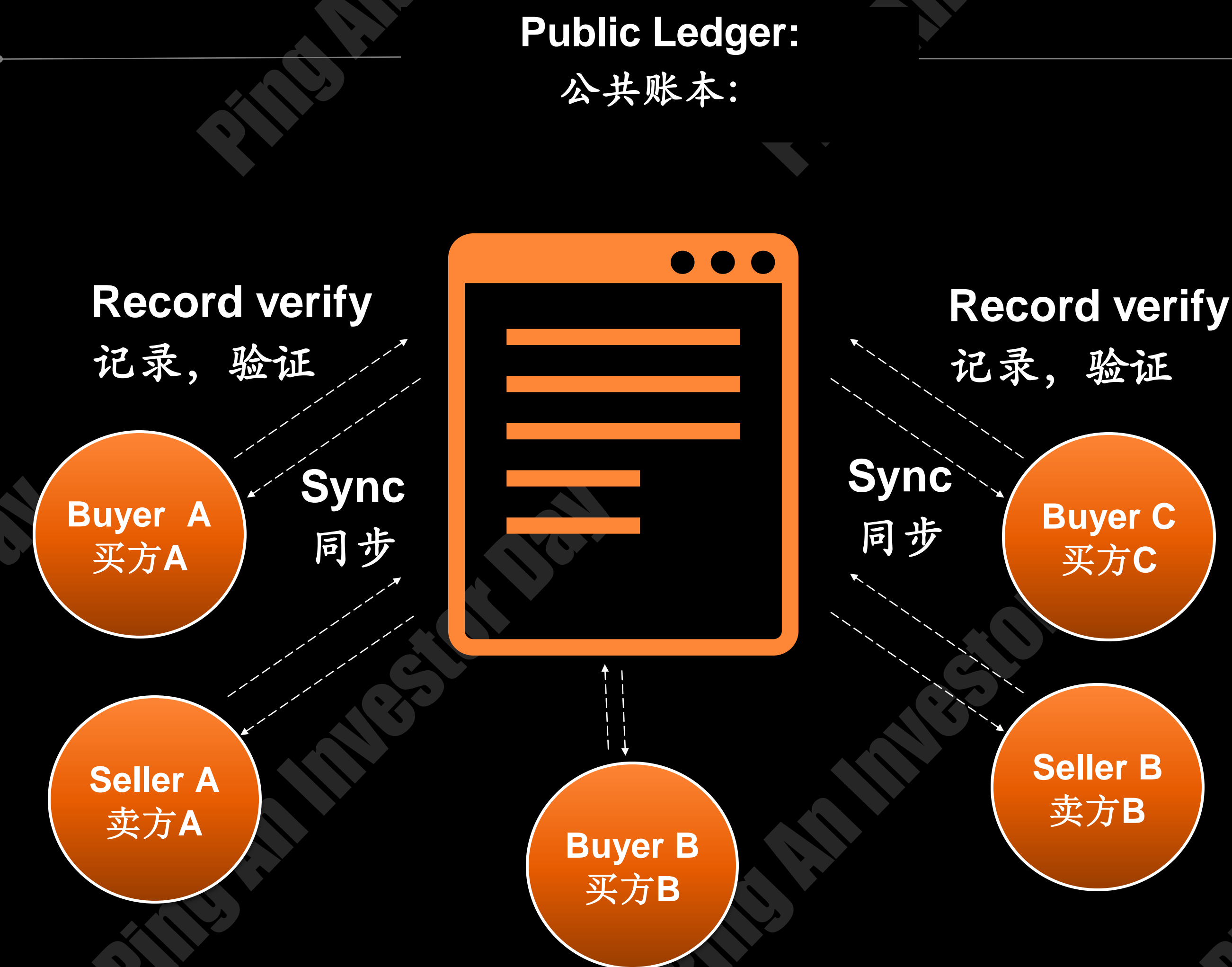
Blockchain: Innovative distributed ledger preventing fraud and manipulation

区块链：创新的分布式数据库防止欺诈和人为操控

Traditional Mode 传统模式



Blockchain Mode 区块链模式



Why is Ping An Blockchain Technology leading edge?

Ping An FiMAX offers industry-leading performance and exclusive functionalities

平安区块链提供业界领先的性能与独有功能

Conceal
隐私



The most comprehensive ZKP¹ solution
业内最强零知识验证算法库

Connect
连接



50K TPS, avg. latency <0.05s,
w/ China Crypto² standard enabled
国密环境下TPS 50K, 平均延时<0.05s

Command
掌握



From "DOS" Era to "Windows" Era
跨越区块链DOS时代至区块链
Windows时代

Standard
标准



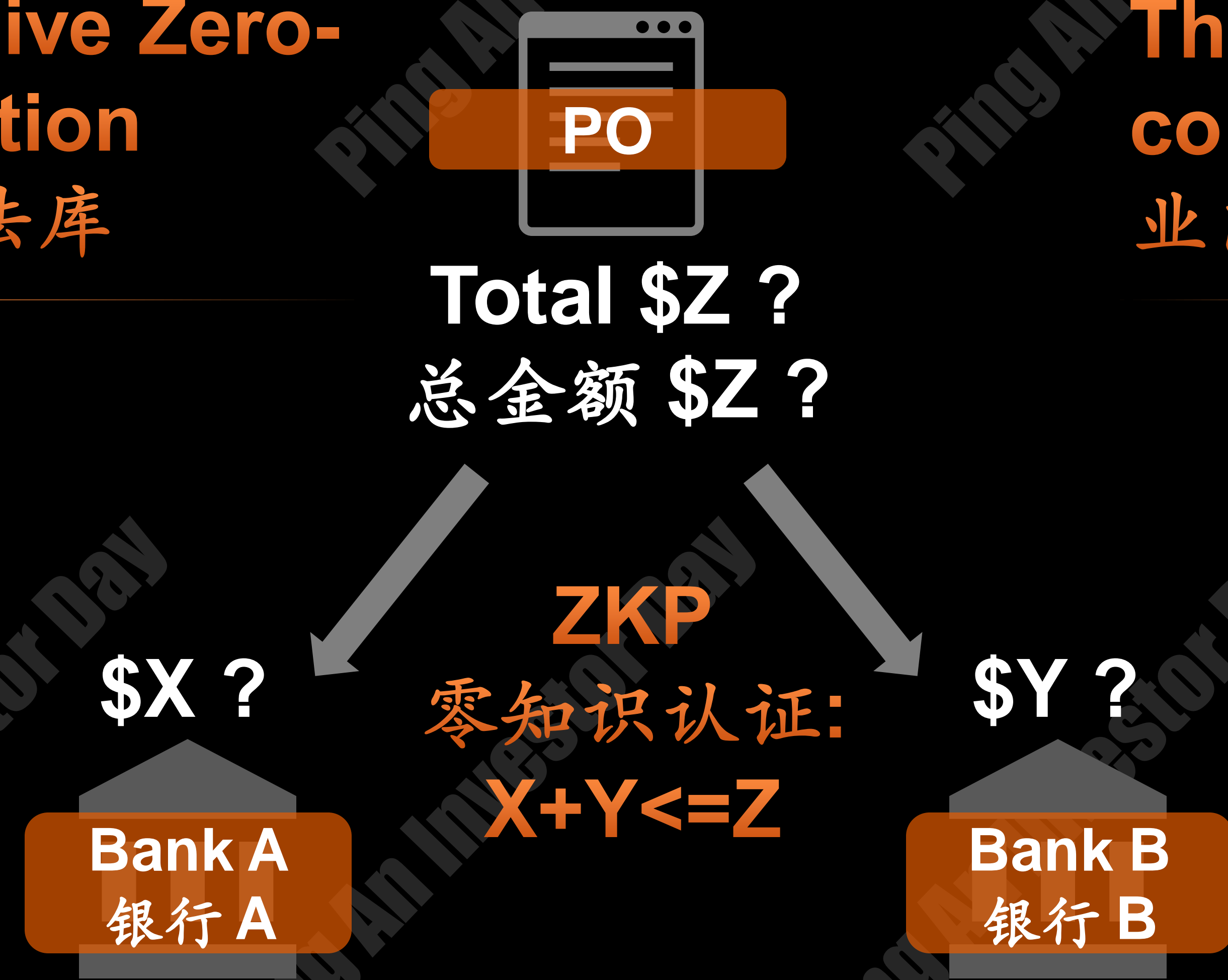
Only industrial standard blockchain APIs
with real applications
唯一有多场景落地的行业标准API

1. Zero-knowledge proof 零知识认证
2. China Crypto: 国家密码局认定的国产密码算法, 即商用密码

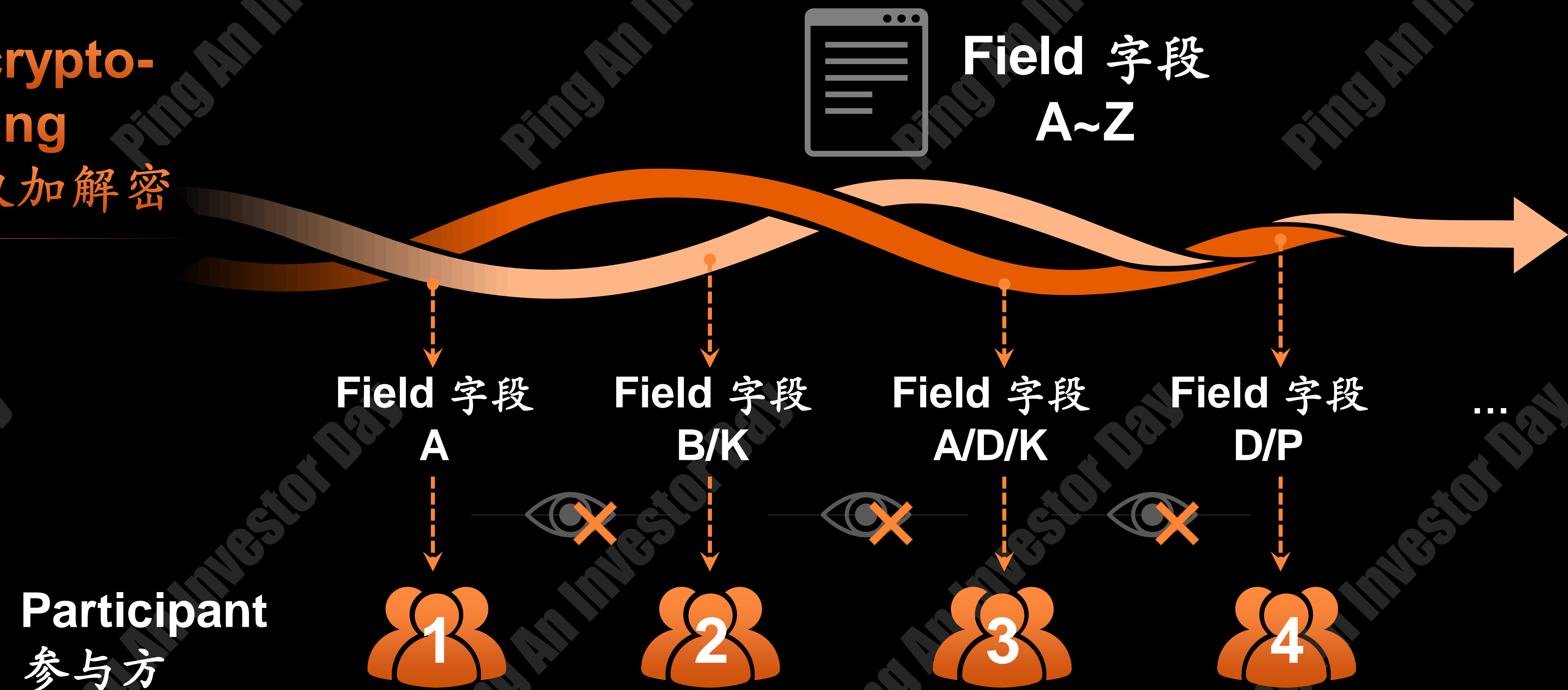
Conceal: FiMAX Cathaya ensures the most comprehensive privacy protection

隐私: FiMAX Cathaya提供综合性能最强的隐私保护系统

The most comprehensive Zero-Knowledge Proof solution
业内最强零知识验证算法库



The only field-level crypto-controlled data sharing
业内唯一字段级可授权加解密



Connect: FiMAX Core boosts ultimate blockchain performance

连接：FiMAX Core突破区块链极限性能

Only blockchain infrastructure to provide high throughput, low latency and efficient China Crypto solution simultaneously

业内唯一同时提供高吞吐量、低延时和高效国密解决方案的区块链架构

High Throughput

高吞吐量

50K

TPS¹

每秒事务处理量

Low Latency

低延时

<0.05s

response time

响应时间

China Crypto

国密加速

100x

more efficient

更高效

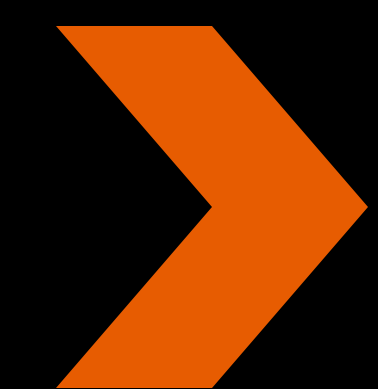
1. Transaction Per Second (TPS): 每秒事务处理量, 是衡量区块链系统的重要指标之一

Command: FiMAX Concord brings blockchain from “DOS Era” to “Windows Era”

掌握: FiMAX Concord带领区块链跨越“DOS”时代到“Windows”时代

```

17 static CBlock CreateGenesisBlock(const char* pszTimestamp, const CScript&
    genesisOutputScript, uint32_t nTime, uint32_t nNonce, uint32_t nBits, int32_t nVersion,
    const CAmount& genesisReward)
18 {
19     CMutableTransaction txNew;
20     txNew.nVersion = 1;
21     txNew.vin.resize(1);
22     txNew.vout.resize(1);
23     txNew.vin[0].scriptSig = CScript() << 486604799 << CScriptNum(4) << std::vector<
        unsigned char>((const unsigned char*)pszTimestamp, (const unsigned char*)
        pszTimestamp + strlen(pszTimestamp));
24     txNew.vout[0].nValue = genesisReward;
25     txNew.vout[0].scriptPubKey = genesisOutputScript;
26
27     CBlock genesis;
28     genesis.nTime = nTime;
29     genesis.nBits = nBits;
30     genesis.nNonce = nNonce;
31     genesis.nVersion = nVersion;
32     genesis.vtx.push_back(MakeTransactionRef(std::move(txNew)));
33     genesis.hashPrevBlock.SetNull();
34     genesis.hashMerkleRoot = BlockMerkleRoot(genesis);
35     return genesis;
    
```



FiMAX Concord

Name	Service Address	Type	Organization	Status	Client Access URL	Actions
peerNode04ForChain0928	30.4.210.102:3051	peer(endorser)	appOrg02ForChain0928	active	http://peerNode04ForChain0928hWDuRgyKiWj@30.4.210.106:8088/api/v1/blockchains/2	[Refresh] [Stop] [Close] [More]
ordererNode03ForChain0928	30.4.210.102:5050	orderer	ordererOrg01ForChain0928	inactive	http://ordererNode03ForChain0928hwjZSOVnylib@30.4.210.106:8088/api/v1/blockchains/2	[Close] [More]
peerNode01ForChain0928	30.4.210.102:6051	peer(endorser)	appOrg02ForChain0928	inactive	http://peerNode01ForChain0928MQUSCMBDDewH@30.4.210.106:8088/api/v1/blockchains/2	[Refresh] [Close] [More]
peerNode02ForChain0928	30.4.210.102:5051	peer(endorser)	appOrg02ForChain0928	active	http://peerNode02ForChain0928RQfSzxnmRsit@30.4.210.106:8088/api/v1/blockchains/2	[Refresh] [Close] [More]
peerNode03ForChain0928	30.4.210.102:4051	peer(committer)	appOrg01ForChain0928	active	http://peerNode03ForChain0928SKZcwRlibge@30.4.210.106:8088/api/v1/blockchains/2	[Refresh] [Close] [More]
ordererNode02ForChain0928	30.4.210.102:7050	orderer	ordererOrg01ForChain0928	active	http://ordererNode02ForChain0928pWdOGPKoHckF@30.4.210.106:8088/api/v1/blockchains/2	[Close] [More]

Blockchain “DOS” Era
区块链“DOS”时代

Blockchain “Windows” Era
区块链“Windows”时代

Ping An FiMAX Competitive Advantages

平安区块链竞争优势

FiMAX 平安壹账链 Ethereum 以太坊 Fabric 1.1 超级账本

Privacy 隐私	Privacy Control 隐私可控
	Zero-Knowledge Proof 零知识认证

Speed 速度	Single Chain TPS (request / second) 单链吞吐量
	Average Latency (second) 平均响应时间/延时性

Ease of Use 易用性	One-click Deployment 一键部署
	Blockchain Management Console 区块链管理平台

✓	✗	✗
✓	PoC Phase PoC阶段	PoC Phase PoC阶段

50K TPS w/ CC enabled	Non-CC: 40 TPS CC: N.A	Non-CC: 2300 TPS CC: ~ 50 TPS
<0.05s	15s	0.5s~2s

✓	✗	✗
• Node Management • Network Management	N.A.	✗

#1 IDC Real Results
Awards in Blockchain
IDC首个区块链应用实践类奖项



131 patent pending, 6 granted (#1 within industry)
131个专利申请, 6个已授权, 业内第一

How deep have we applied in real-life scenarios

FiMAX BaaS platform providing solutions for Ping An 5 ecosystems

围绕集团五大生态圈，打造丰富解决方案，建立三流合一的区块链服务平台



1. Asset-backed securities 资本证券化

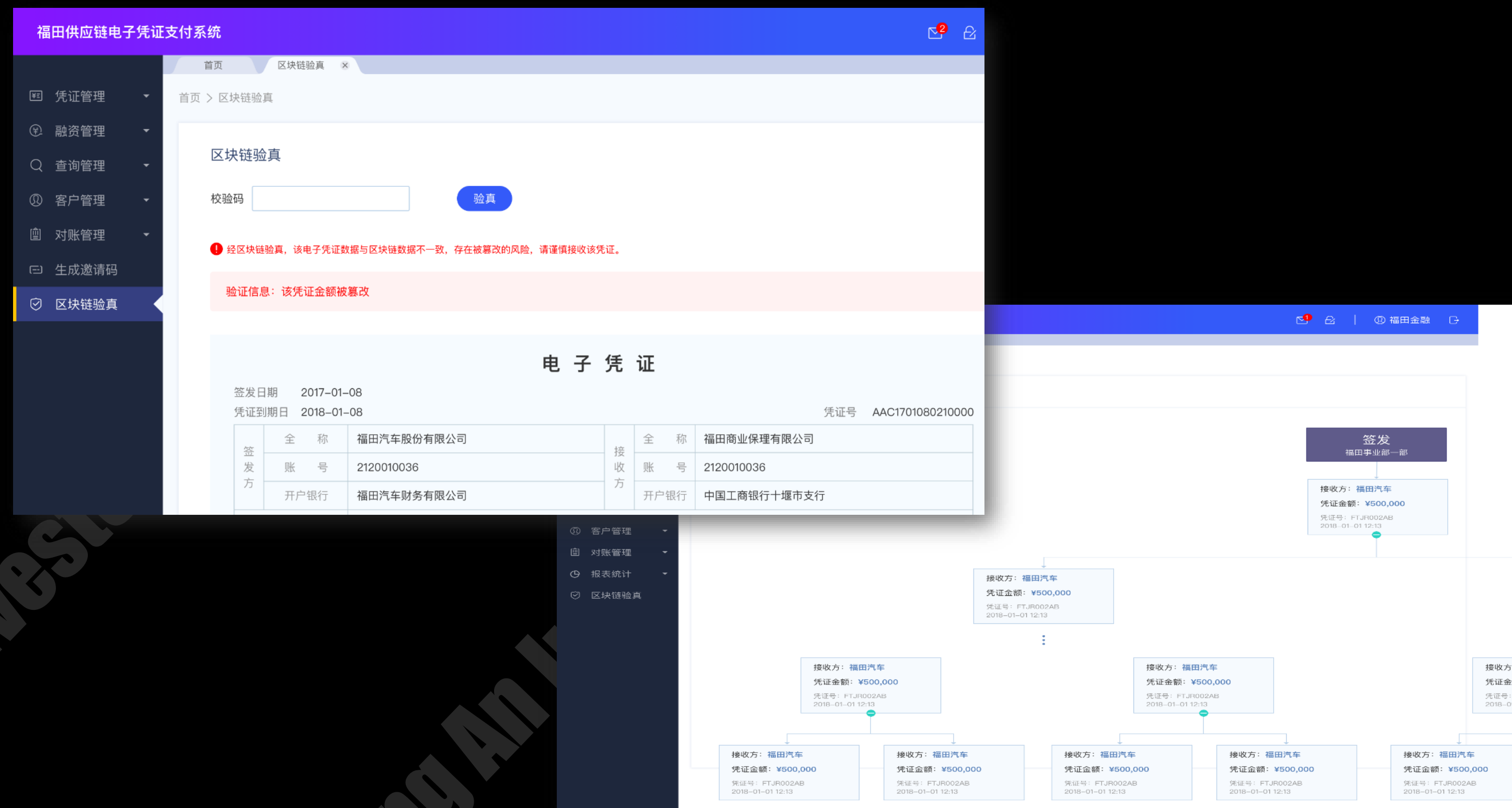
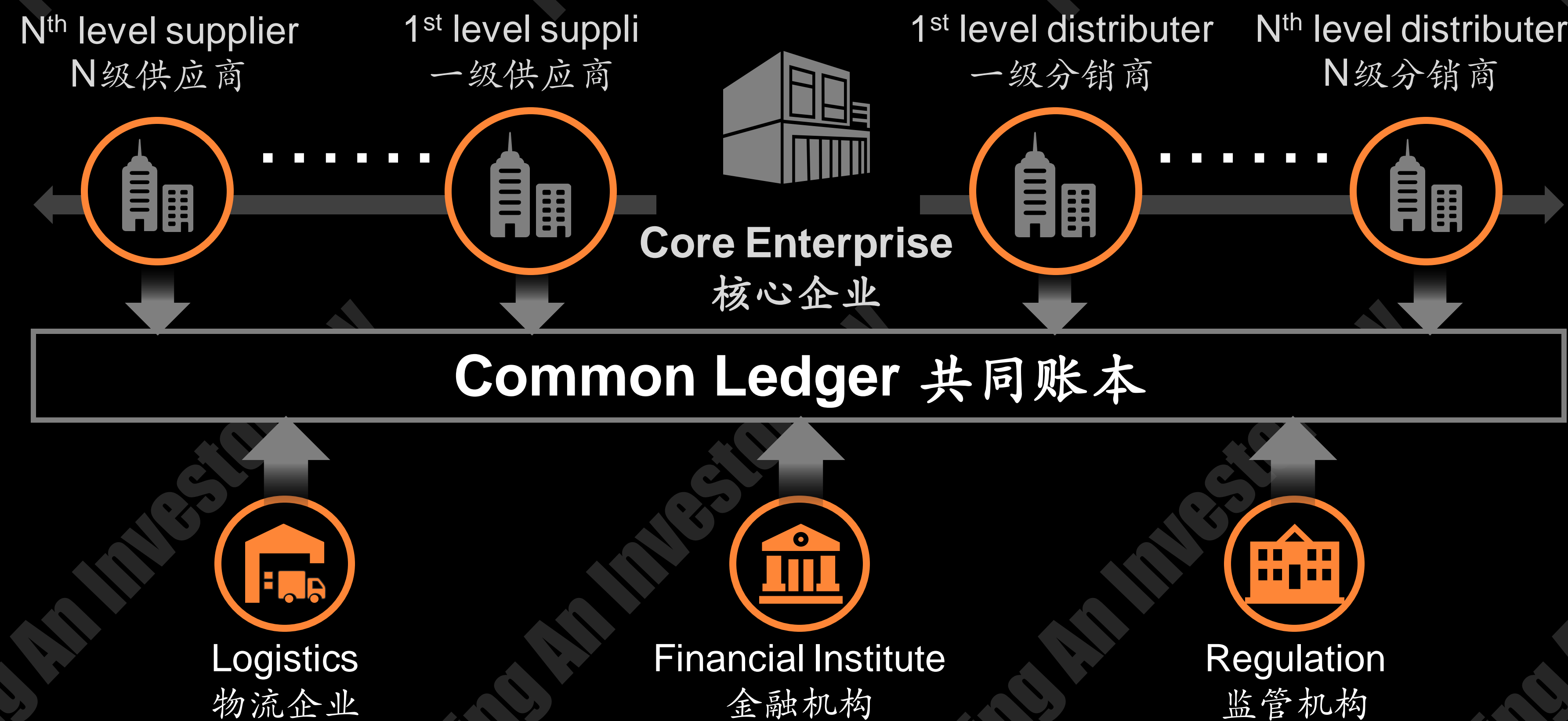
OneConnect Supply Chain Platform: Providing innovative products and efficient services



金融壹账通供应链平台：提供创新产品及高效服务

Common Ledger by multi-parties based on ZKP Authorization
基于ZKP认证，多方共同维护统一账本

Case example of No.1 large auto manufacturer
某大型汽车制造商应用案例



Impact 效果



Credit support 信用支撑

5+ level 层



Enterprises / banks 覆盖企业/银行

200,000+/200+



Account period 账户周期

Greatly reduced 大幅缩短

OneConnect Trading Platform: Connecting overseas & domestic platforms

金融壹账通区块链贸易平台：打造统一标准、连通境内外的贸易空中走廊



HK eTradeConnect launched in Sep. 2018
香港金管局贸融平台2018年9月上线



Impact 效果

Scale
规模



Largest

Commercial
platform
商业平台

Node
节点数



40k+

Nodes
节点

Organizaiton
覆盖机构



200+

Banks
银行

200k+

Corporates
企业

500+

Others
其他

Smart medical platform: end-to-end medicine info-tracing and record-sharing

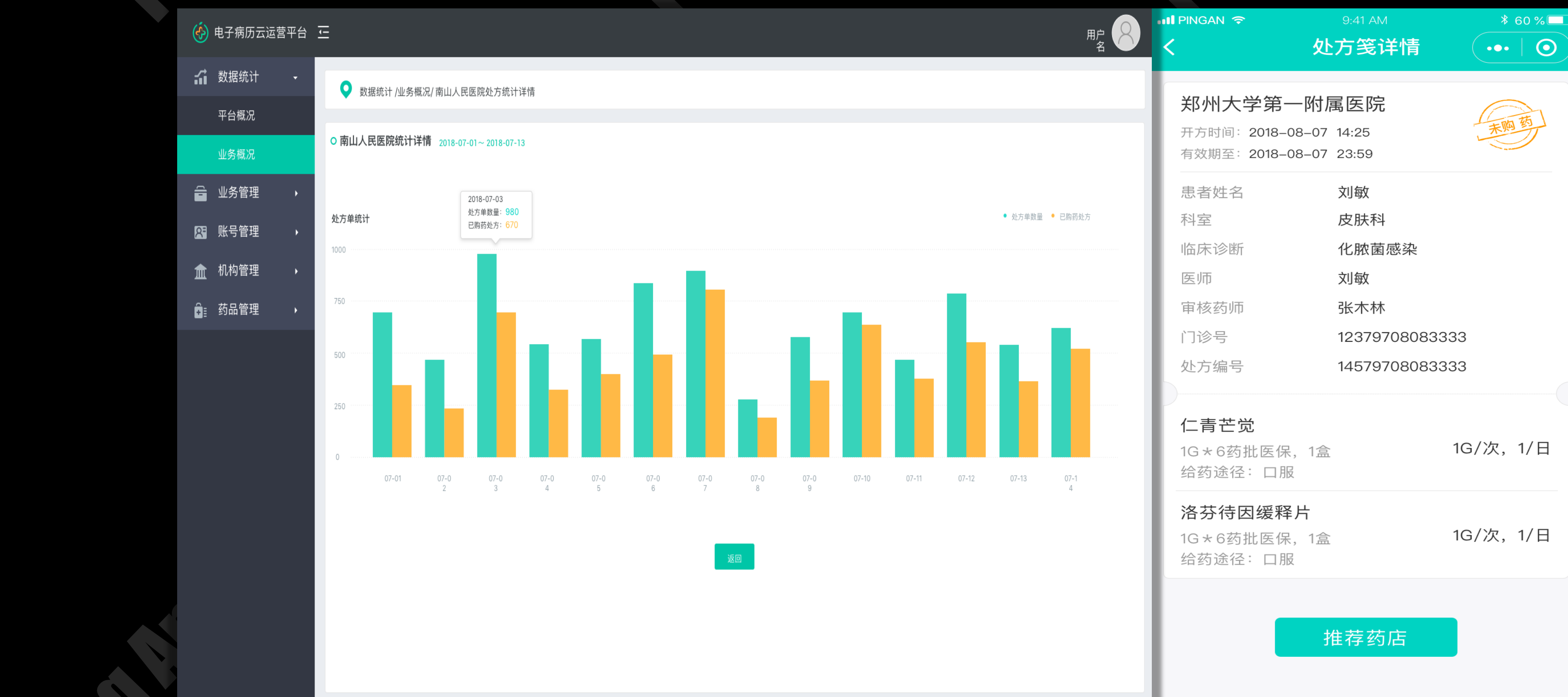


智慧医疗平台：打通端到端药品信息追溯及病例共享

Medicine Info-tracing 药品信息追溯

E-medical Record Sharing 电子病历共享

Impact 效果



Information monitoring 药品信息监控

Real time



Investigation efficiency 问题调查效率

+80%



Health record security 病例流转安全性

100%

Environmental protection platform: Info-sharing platform connecting multi-parties



平安智慧城
PING AN SMART CITY

Build trust mechanism and connect different parties

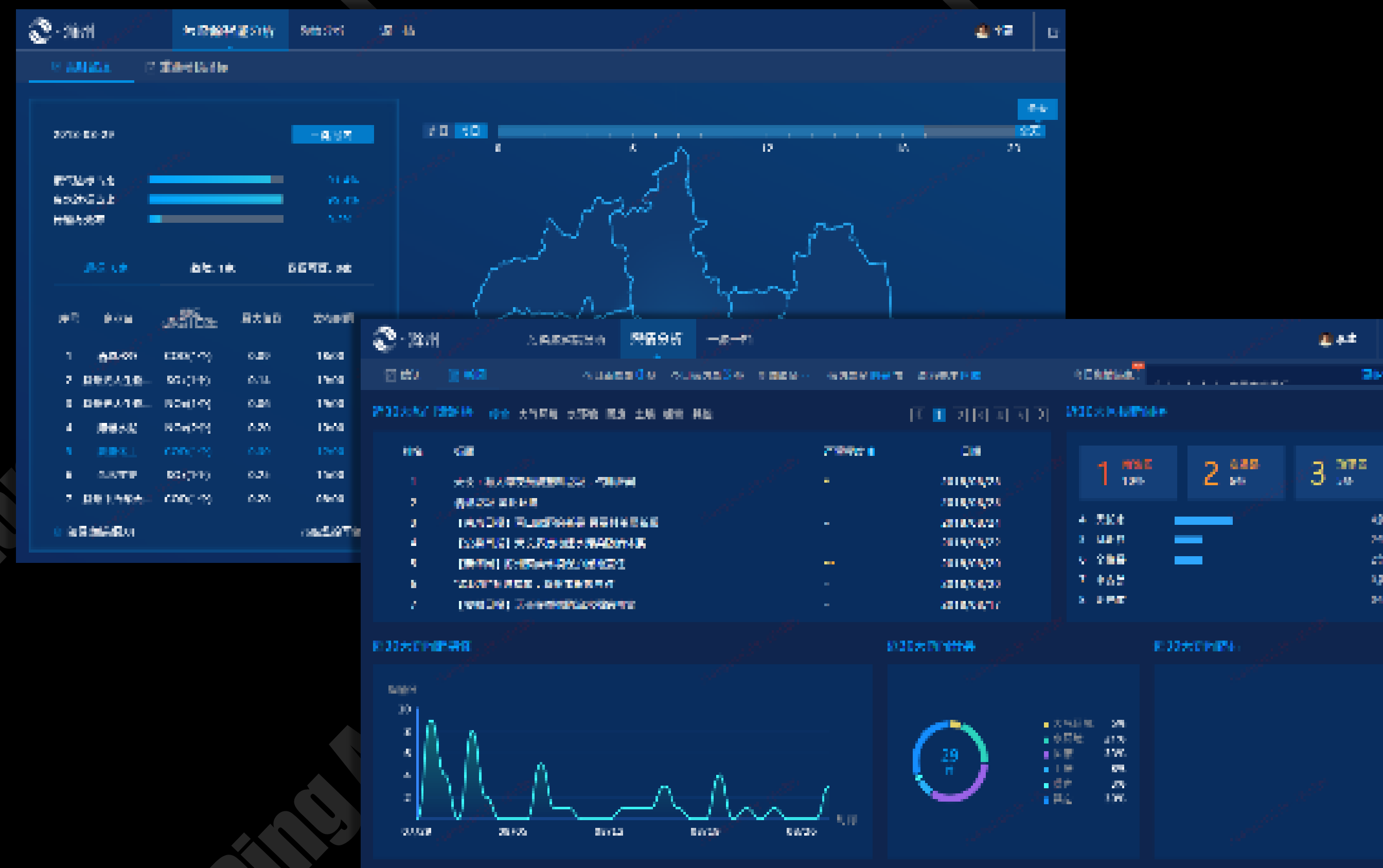
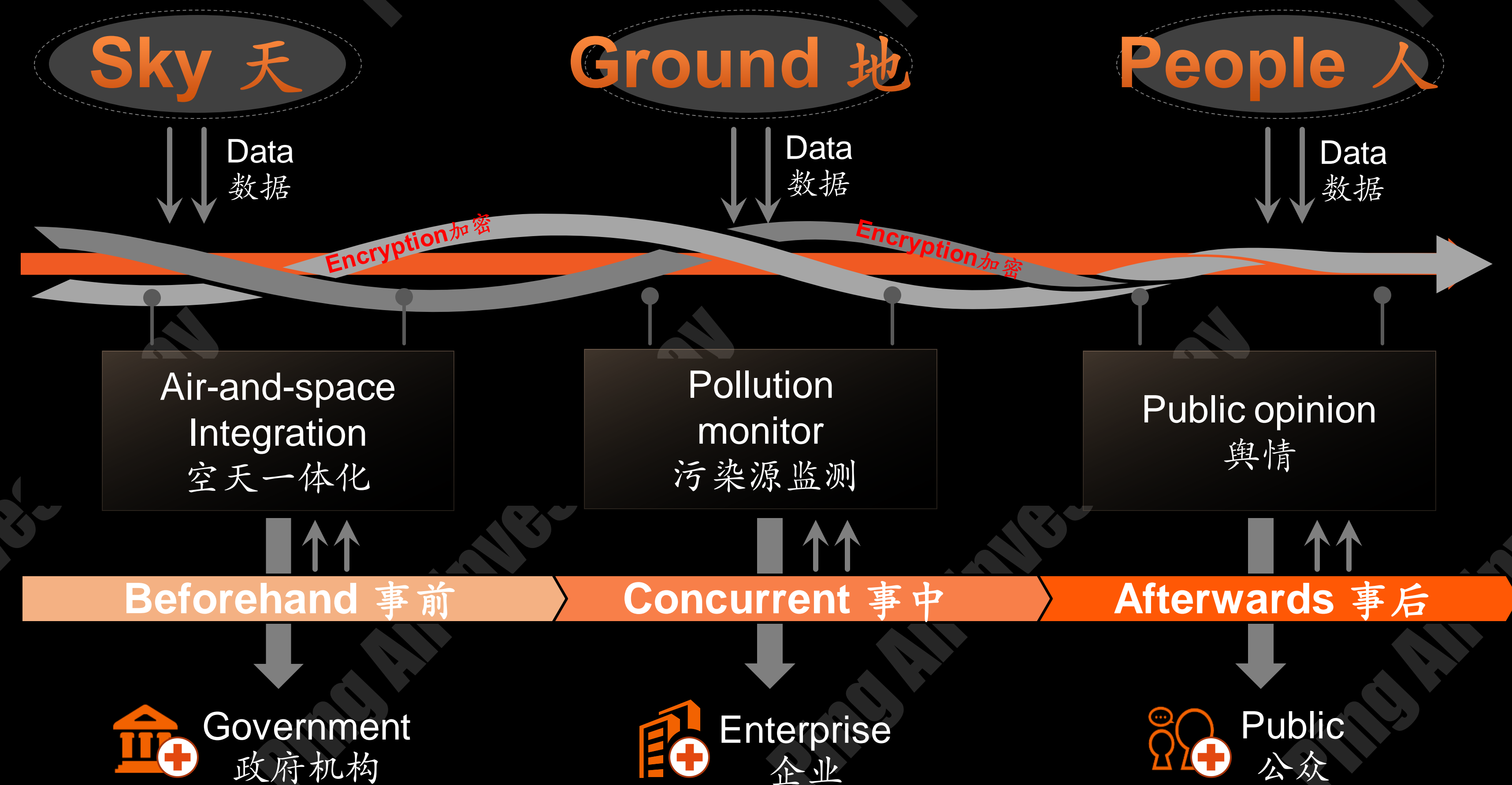
建立信任机制，联接各参与主体

智慧环保平台：建立联接多方的信息共享平台

Case example

应用案例

Impact 效果



Standard data sharing
标准化数据共享平台



8mn+ data covered
覆盖超800万数据记录



Real time monitoring
数据实时监控

Key message

关键点

Leading technology with the most comprehensive ZKP solution, <0.05 sec response time, and 100x faster speed with China crypto standards

技术领先，业内最强零知识验证算法库，延时<0.05秒，以及百倍国密加速方案

Largest commercial blockchain platform with 40k+ nodes across 200+ banks, 200,000+ corporates, and 500 other entities

世界最大商业区块链平台，承载4万多个节点，连接200多家银行、20多万家企业，及500多家其他商业与政府机构

Dozens of applications, including HK eTradeConnect and OneConnect's China supply chain finance platform with 200,000+ corporates

已有几十个企业级应用解决方案，包括香港贸易平台和链接20多万家企业的金融壹账通供应链平台

Thank You

感谢聆听