



OpenHealth

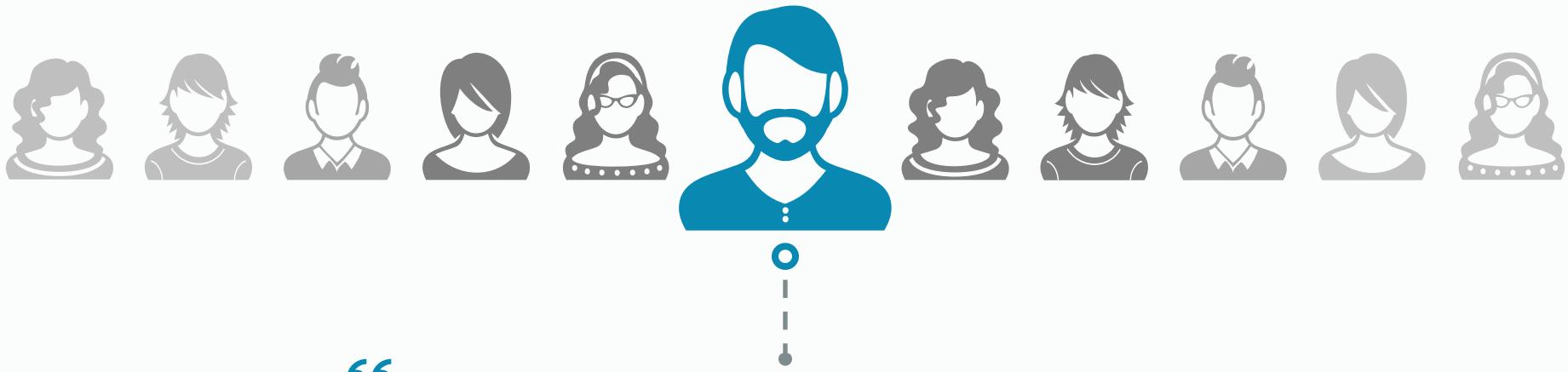


ZJU BITHACKS

李其柄、高天尧、林泽培、王兵、应昊

.....

# What People Say for Healthcare ?



*More **private**, more **accurate**, much **cheaper***

# Present Healthcare Ecosystem

What they want ...



## Government

Less medical expenses,  
regulation (e.g., drug traceability)



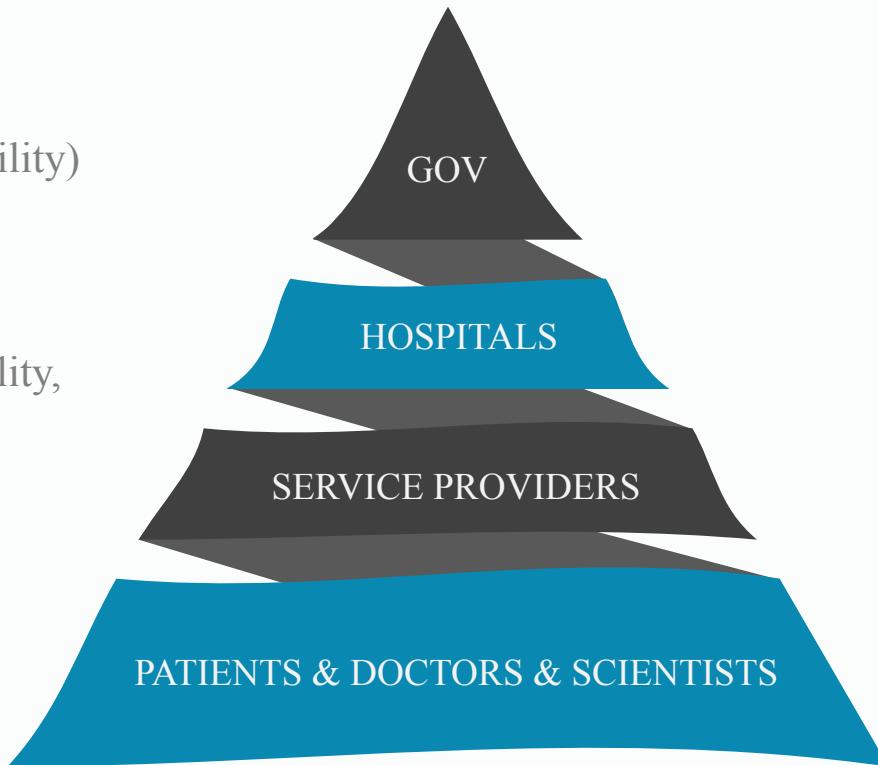
## Hospitals

Unified HER & interoperability,  
clinical trial recording



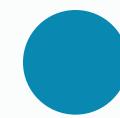
## Service Providers

Guaranteed private storage,  
more IOT data for AIs,  
Interoperability



## Patients

Privacy, data ownerships,  
cheaper and more accurate



## Doctors

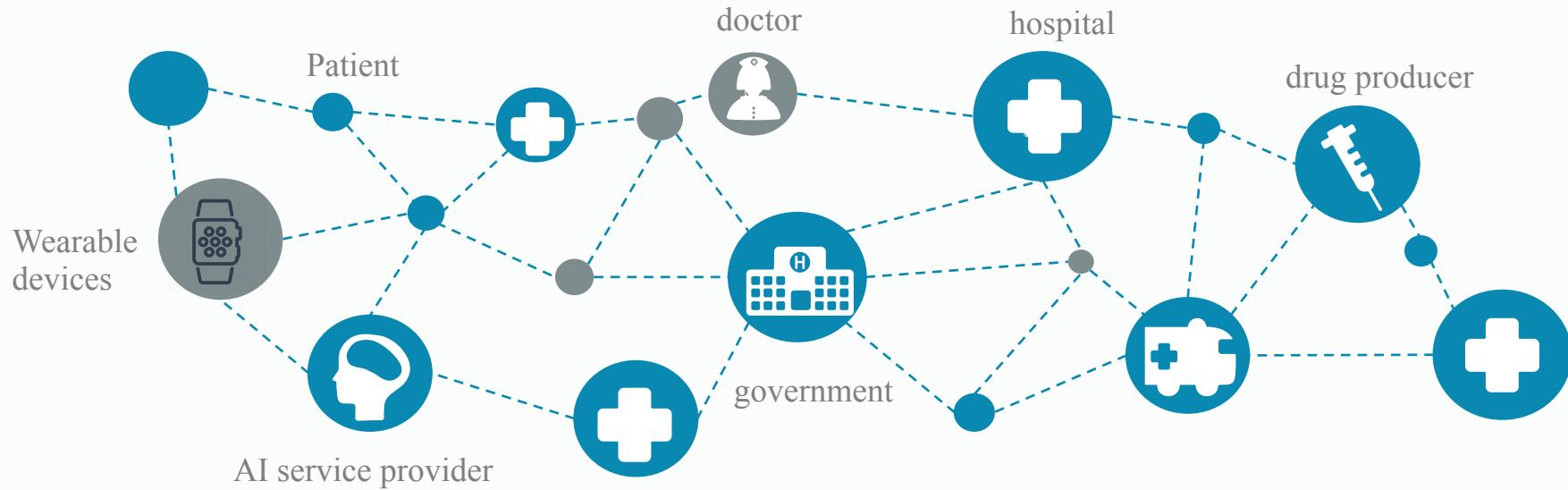
More accurate medicine,  
doctor-patient relationships



## Scientists

Open data marketplace,  
federated AIs for good

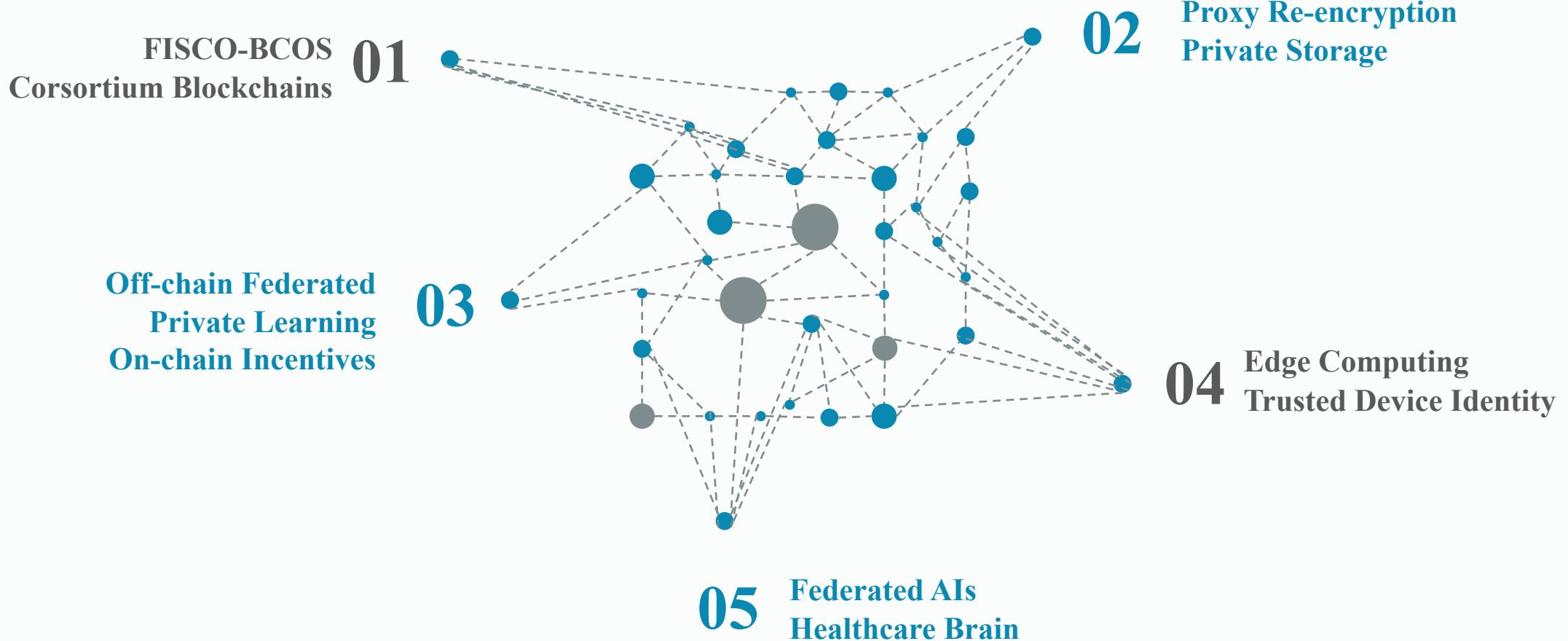
# Federated Healthcare Ecosystem?



## OpenHealth:

1. manage **data authorities** of private patient-controlled HERs
2. import existing isolated sources and maintain **shared, global and encrypted** records
3. obtain more accurate AIs through **private learning** from multiple patient data

# OpenHealth Techs



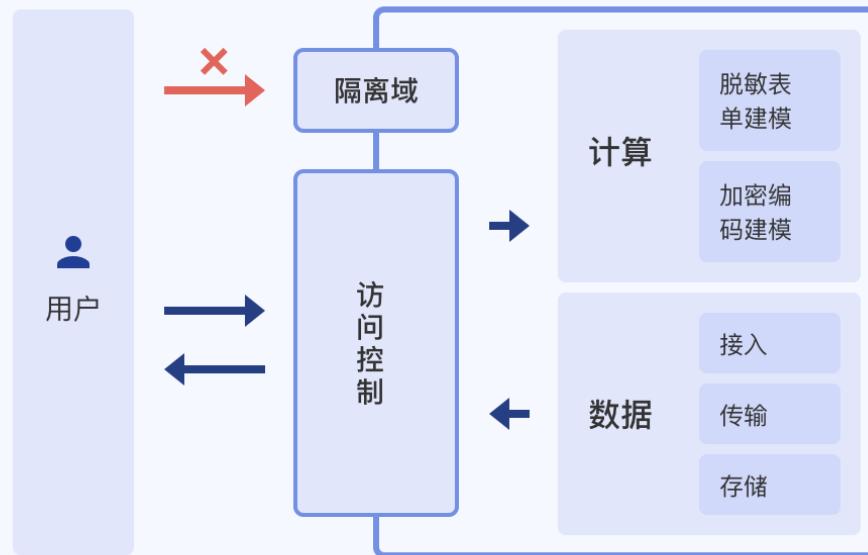
# OpenHealth Overview

## Data life cycle:

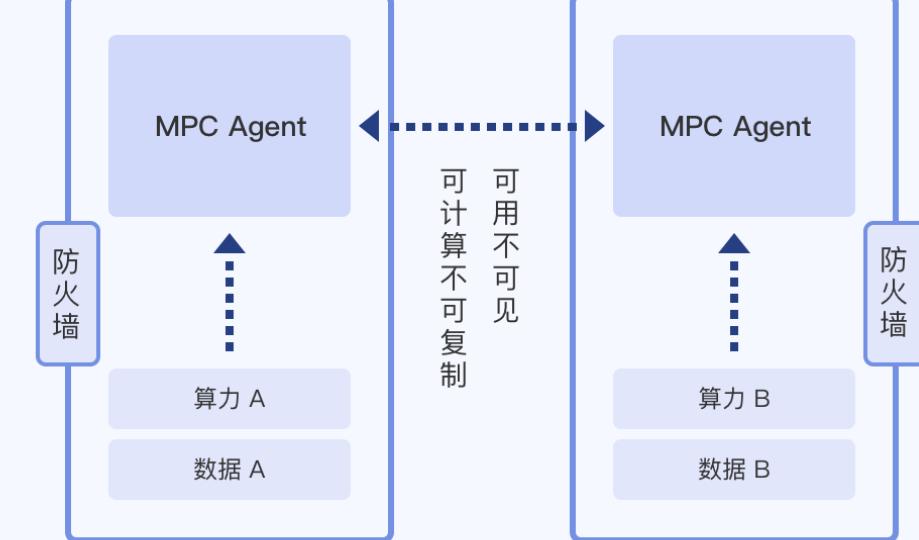


数据云端隔离

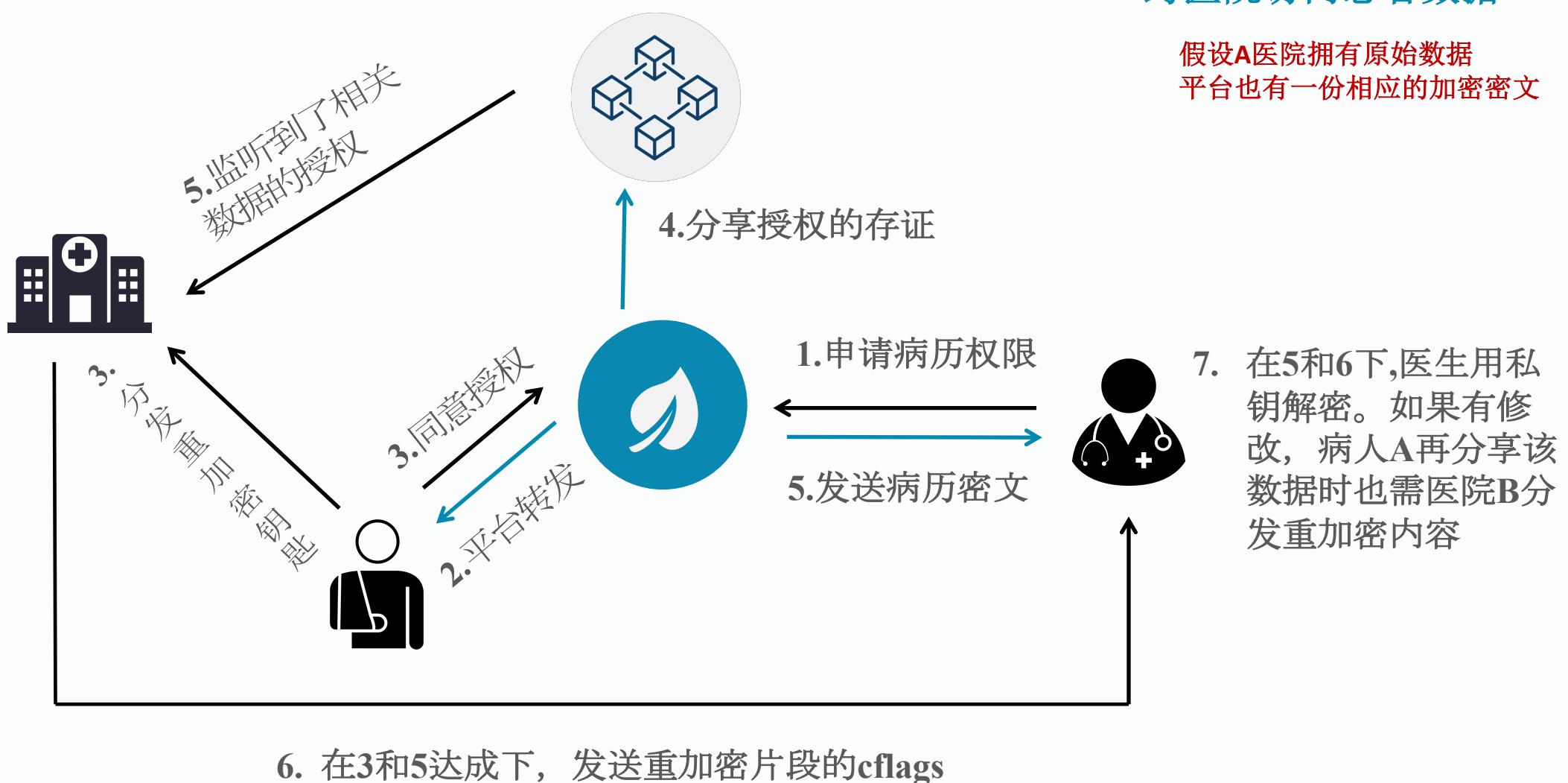
安全方案



数据本地隔离

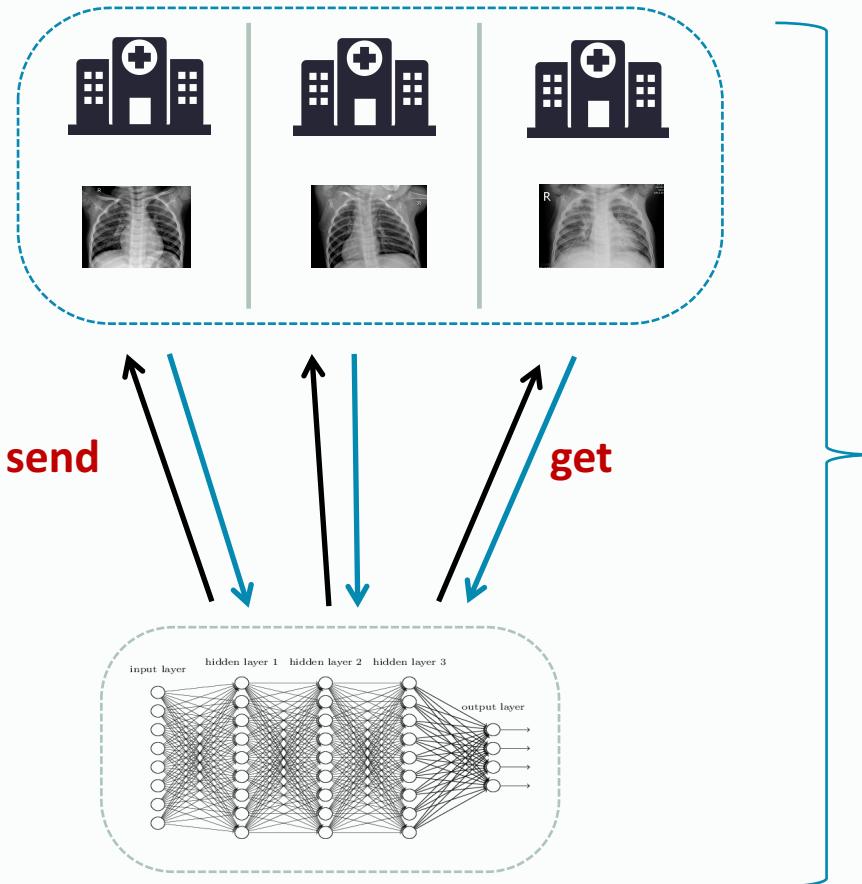


# Encrypted Storage Sharing



# Health Data & AI Marketplace

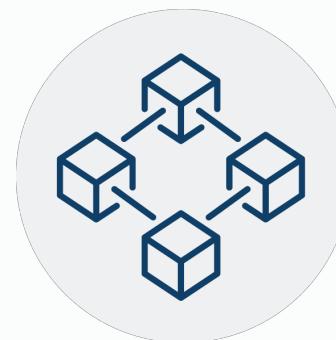
## Federated workers



## Model client

## Federated Learning + Blockchain

*distribute model and reward to data places!*

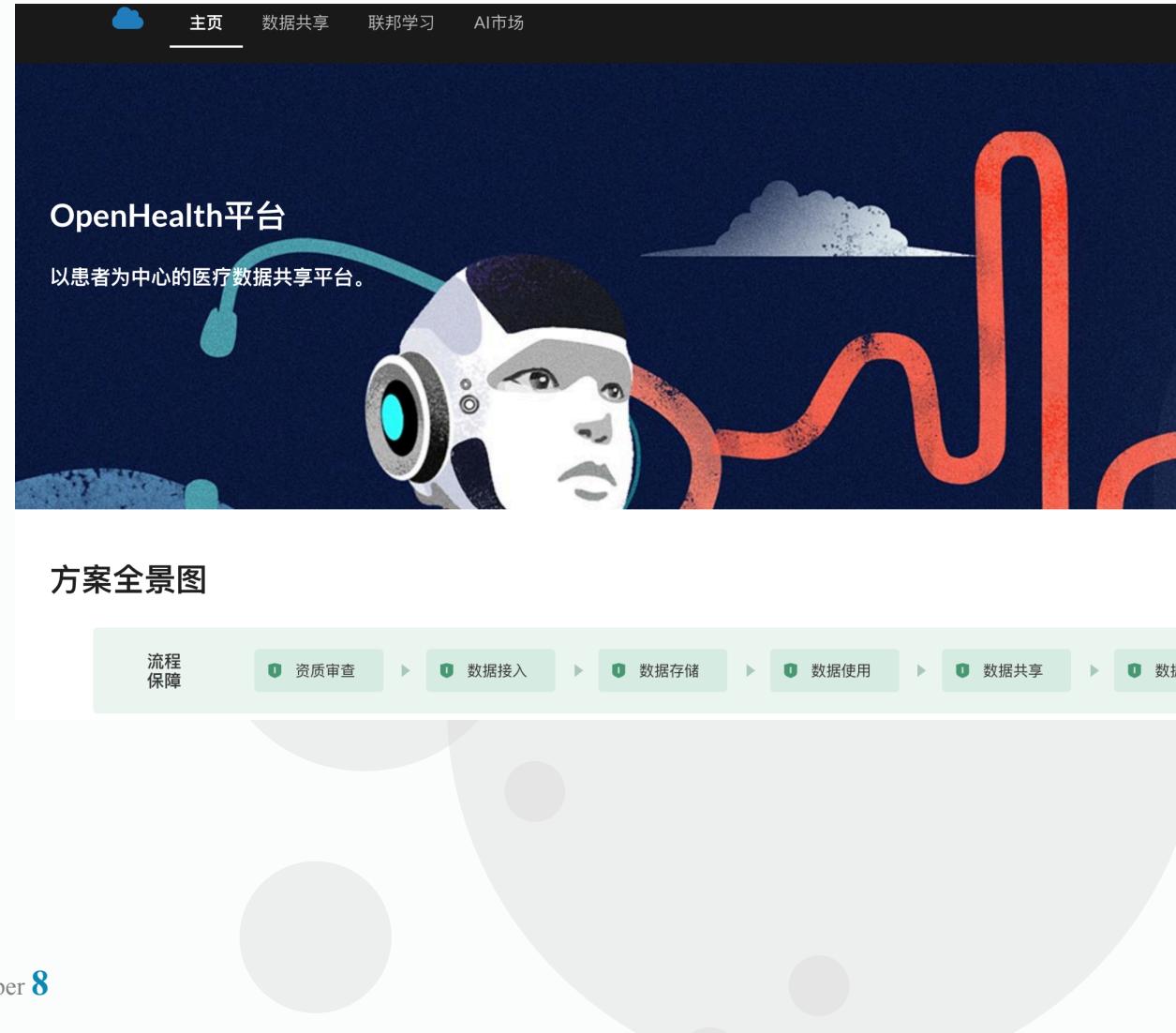


- On-chain market matching for joint AI modeling
- Off-chain routing & Training auditability
- ↳ Reward distribution

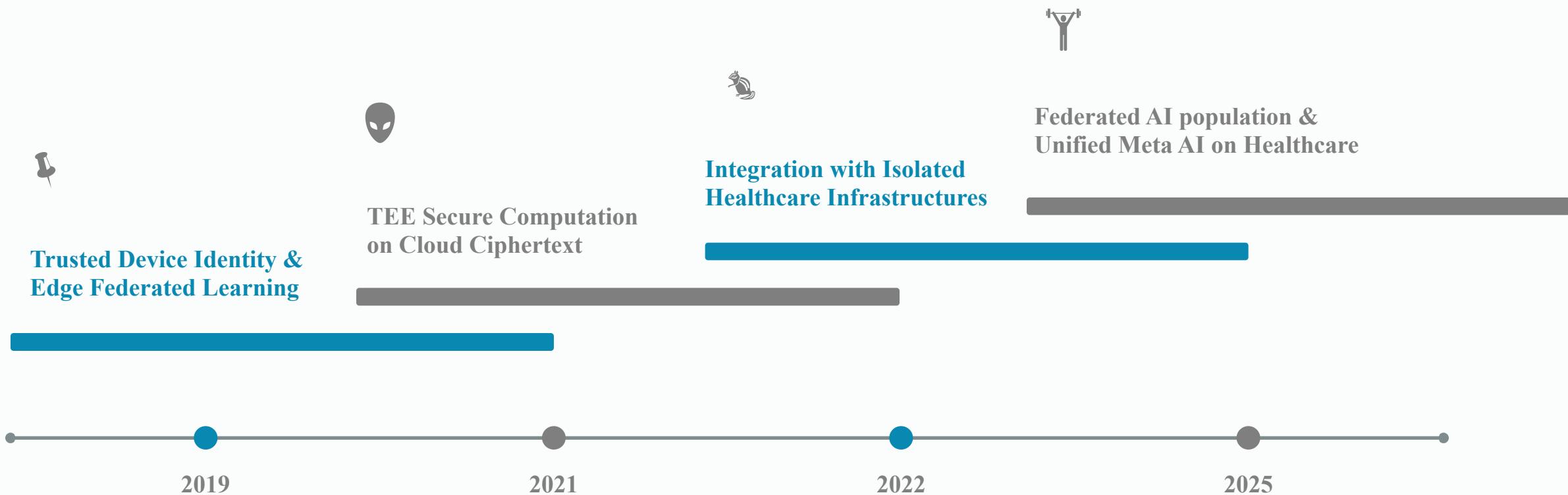
# Demo Project

## OpenHealth

1. Patient-controlled HER data platform, maintaining **shared, global and encrypted** records;
2. Federated data marketplace for private learning, jointly modeling three remote X-ray datasets of three hospitals;
3. Decentralized AI service marketplace, including three AIs now, pneumonia detection AI, reading comprehensive AI from EHR



# Technical Roadmap



# Awesome Team Work

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Reserch direction: RL, MAS,  
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Part-time interest:  
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Decentralized AIs



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# OpenHealth

Thank you Good Luck

