Empowering Efficient Data Management

Blockchain in IoT and SC&C

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01

Value of Data - Efficient Management

DATA MANAGEMENT LIFE CYCLE

Raw Data from IoT Devices

- Raw data generated by IoT devices
- Raw data initial process
- Formatted data transfer

Unified Data Management

- Data collecting and transferring before data input
- Data aggregating and storing upon input or after processing
- Data transferring and data integrating upon processing

Data for SC&C Applications

- Data should be securely used in applications
- Data should be protected from malicious operations
- User records should be auditable

EFFICIENCY ENHANCES DATA VALUE

DATA IN IoT AND SC&C

Weak-trust IoT environment

Attack from malicious IoT devices

Tampering threat to original data from devices

Redundant interactions between entities

Single-point failure caused by centralized scheme

Access authentication & record audition problem

TRUST BRINGS EFFICIENCY

02

Role of Blockchain - Trust Infrastructure

Blockchain, Bring Trust to IoT and SC&C

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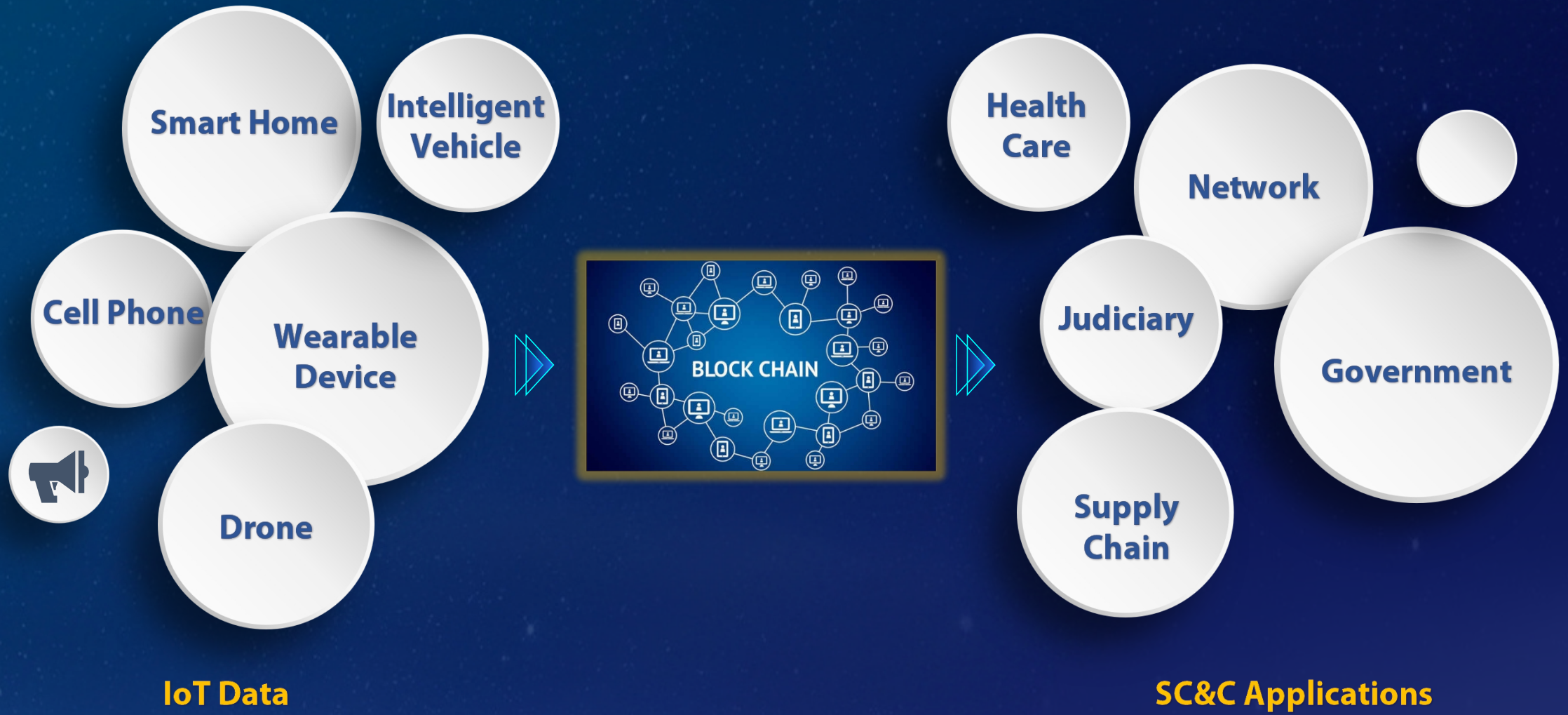

Blockchain for Supply Chain

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LIFE-CYCLE TRACEABILITY

Achieve efficient tracking

TIMELY LOGISTICS

Cost-saving and profit-increasing

Trustworthy Supply Chain

BLOCKCHAIN IN SCM

SECURE EFFICIENT FINANCE

Accelerate fund flow

SMART WAREHOUSE

Facilitate cargo management

Blockchain for Smart Government

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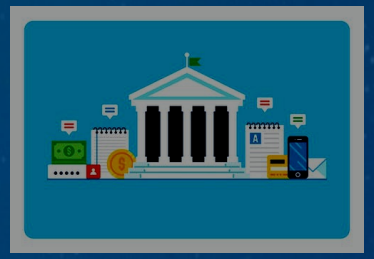

Government data like estate, tax, certification, residence, etc.

Government-related IoT data collected from high definition cameras or drones.

BaaS Platform

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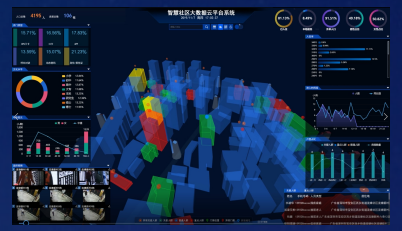
AI/Big Data

Digital Identity

Affairs Coordination

Data Visualization



Smart Government = **Trustworthy Data Source** + **AI/BD Analysis**

BC-based Digital Identity

- Self-control: fully-controlled by owner
- Security: blockchain-enabled tamper-resistant

High Efficient Coordination

- Trust facilitates data exchange and sharing among different government entities
- Efficiency: 3~5 times rising

BaaS + AI/BD = Visualized Government

- Effect: trustworthy data and operations from BaaS leads to more efficient AI/BD analysis, and more accurate visualization

Blockchain + government affairs, enabling the digital transformation of government with trust, and trust will lead to higher efficiency, transparency, security which further enhance smart government.

Blockchain for Network Resource Sharing in 5G

Background: 5G Co-construction between CTCC & CUCC

- Co-construction has saved CTCC & CUCC more than 86 billion yuan since 2019
- Use blockchain to build trust between two parties
- ZTE provides blockchain-based solution for 5G co-construction, which has been under POC and realized pilot program in Zhengzhou, China

Use Cases:

- **Data attestation:** tamper proof, unprecedent trust, available but invisible
- **Co-governance automation:** timely record governance information in blockchain via smart contract
- **Confirmation process:** A new organization management mode - DAO: Decentralized Autonomous Organization

Standard: Blockchain in data management (ITU-T Y.4561)

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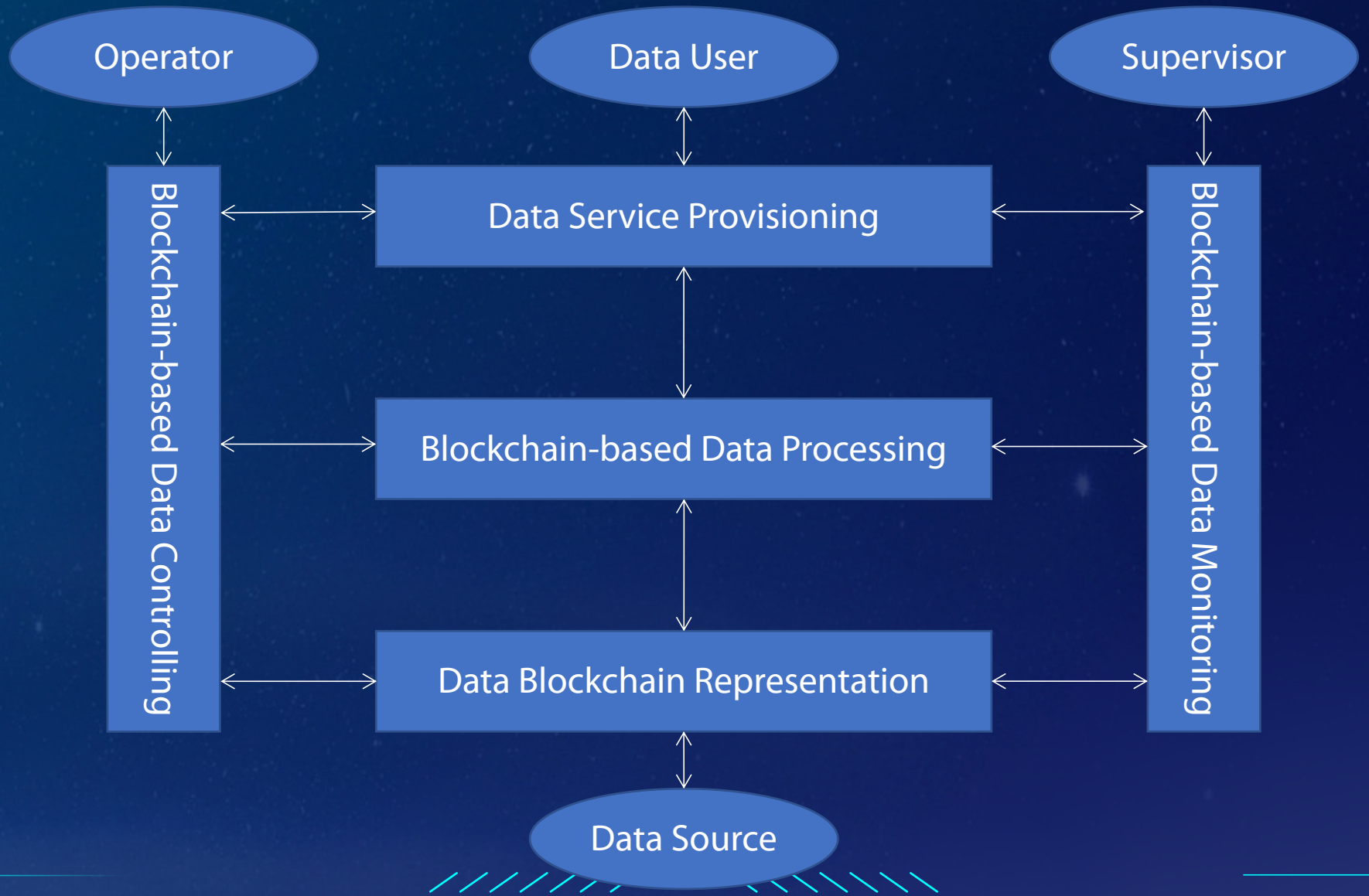
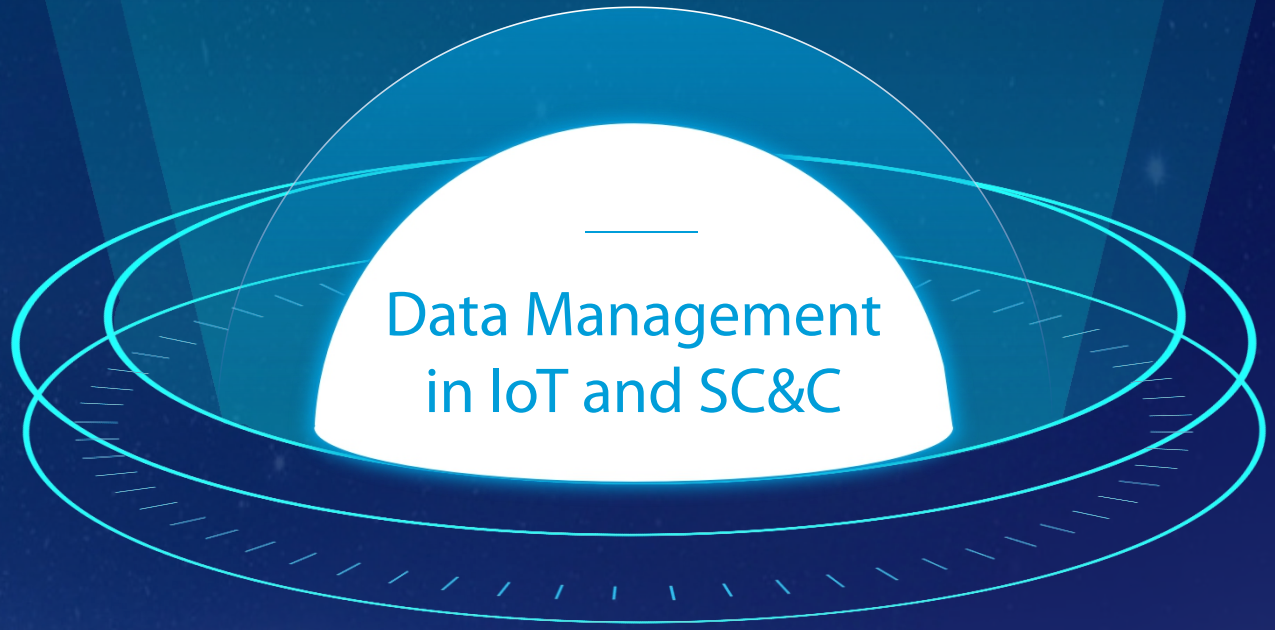


03

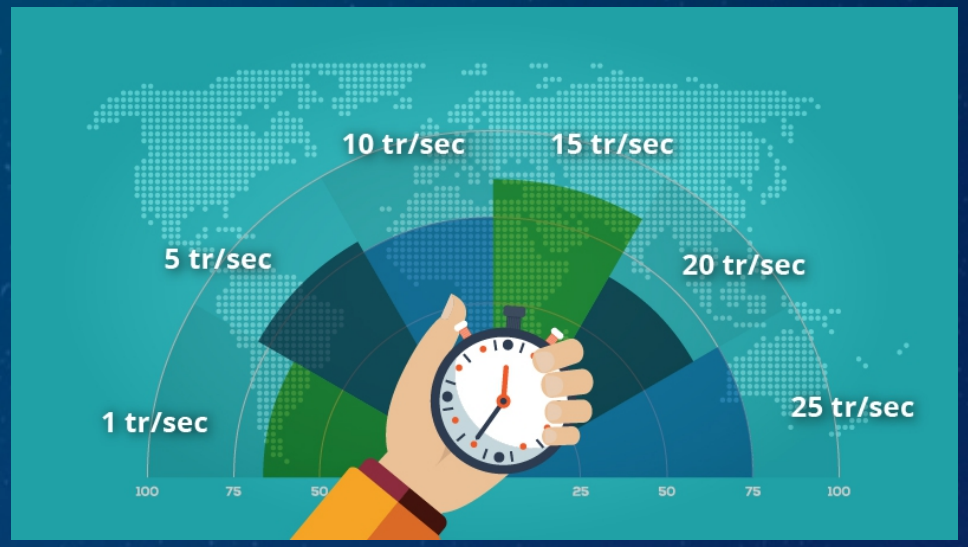
Future Trend - Blockchain ? + ?

Future Requirements

- Higher Performance
- Feasible Interoperability
- Flexible Scalability
- Privacy Preserving
- Technical Compatibility



Evolving Blockchain

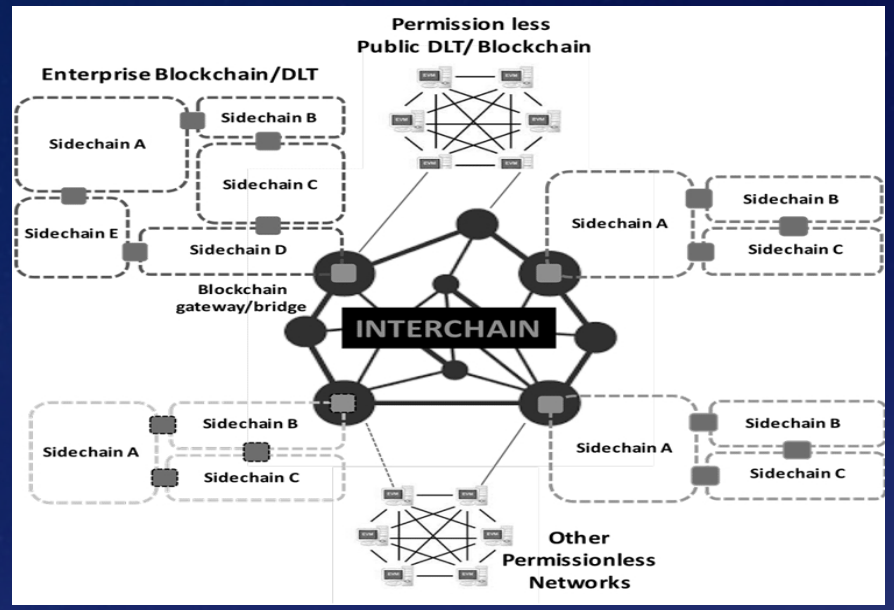


Scalability & Performance Requirements -> Higher Throughput

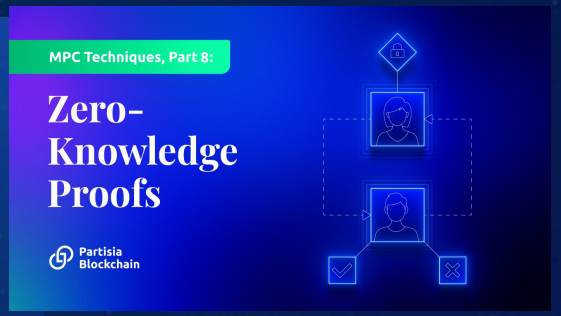
- Higher digitalization level -> Higher traffic & throughput
- Throughput is one main limitation that restricts the application of blockchain
- Raising throughput has already been an important topic in blockchain research

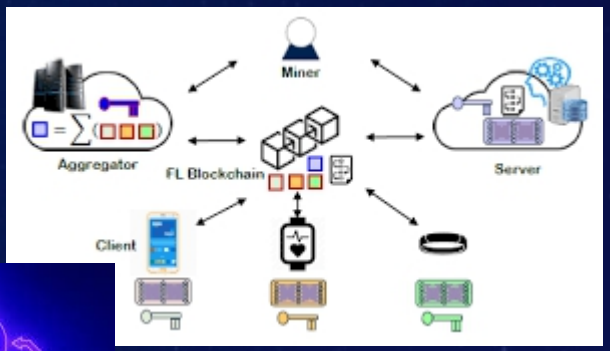
Interoperability： Common requirement for both sides

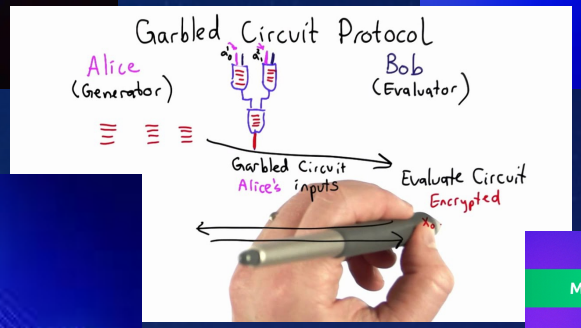
- Higher SC&C efficiency requirements -> break barriers between departments
- Trust circulation -> interoperability among chains
- Natural compatibility between two requirements



Privacy Preserving: Data available but invisible







COMPATIBILITY -- BLOCKCHAIN + ?

Preliminary Blockchain

- Testifying the feasibility of blockchain
- Extremely limited compatibility with other techniques
- Lack of application scenario (mostly in virtual finance)

Blockchain as a Service

- Easier development with pre-defined API and SDK
- Compatible with various techniques via uniform BaaS platform
- Suitable for numerous scenarios

Blockchain-Native

- Inherent blockchain support for more intelligent and distributed future techniques
- Requiring further progress on blockchain technology
- Potential step for creating brand-new scenarios

Thank You!