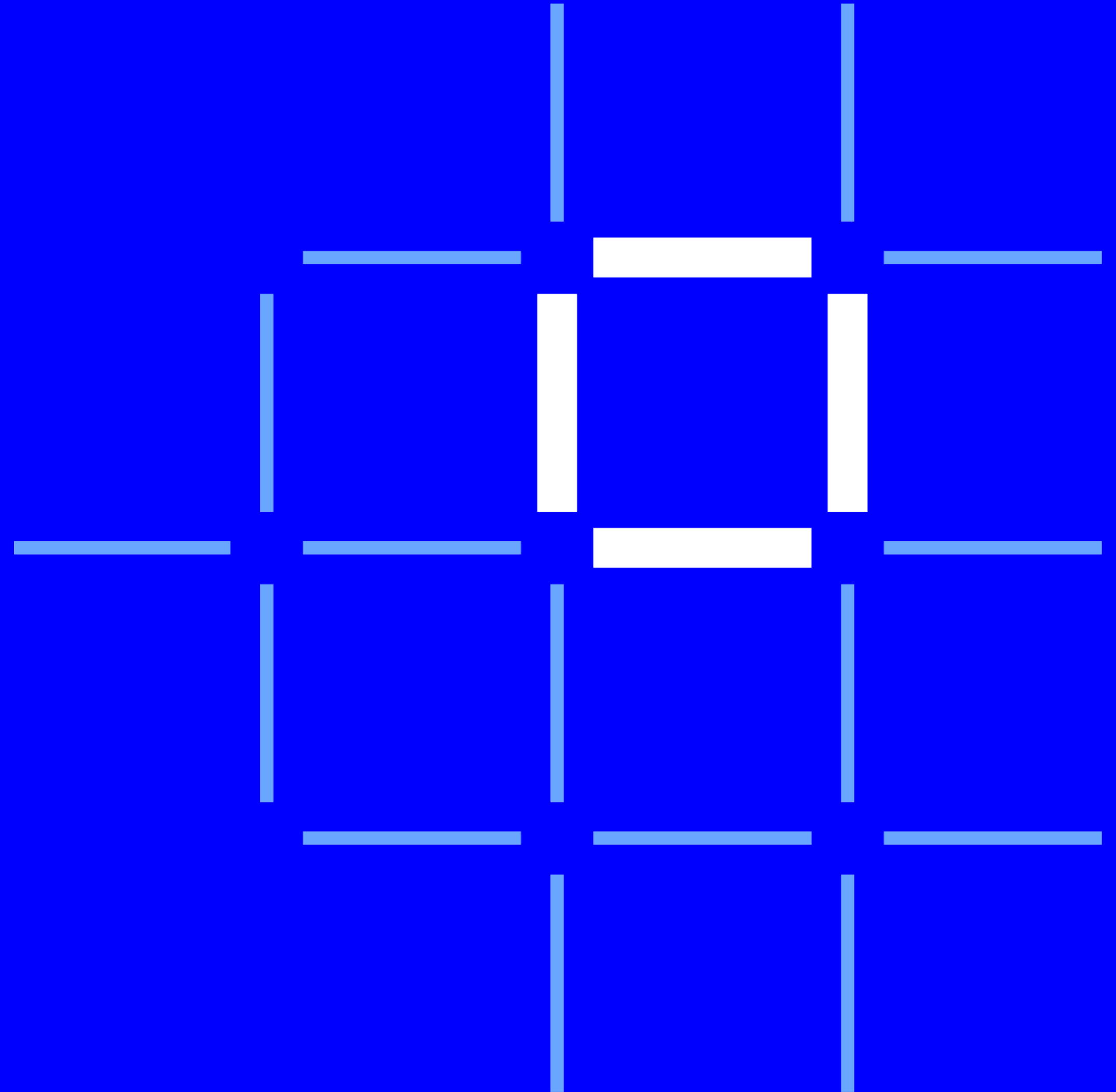


# Trusted Identity And Blockchain

**IBM Blockchain**

**John McLean**

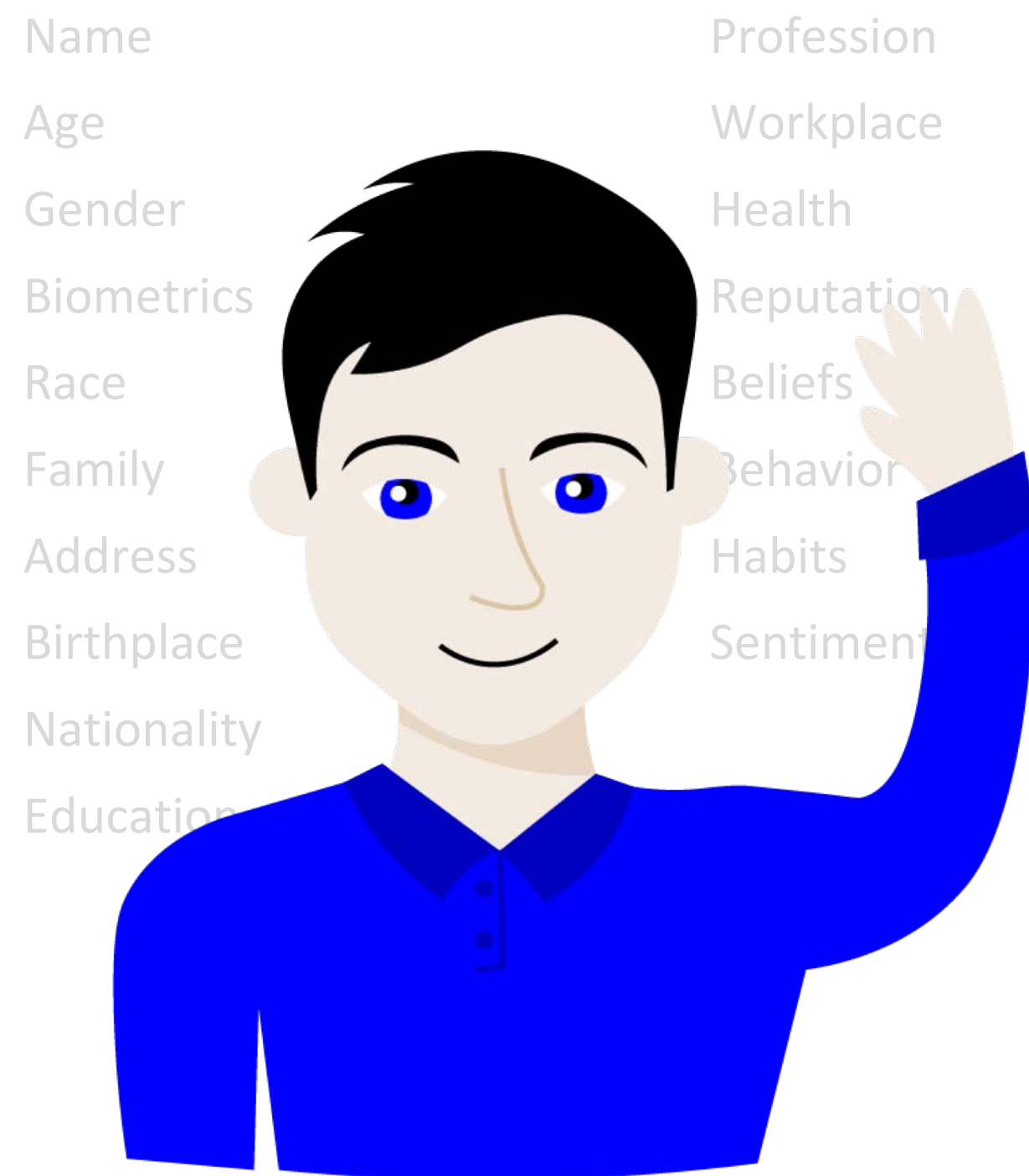
VP Global Blockchain Labs Engagement  
IBM Industry Platform.



# The Different Dimensions of our identity

## 1. Me as an individual:

**Identity:** Unique traits associated with an individual; the owner of personal identification information.



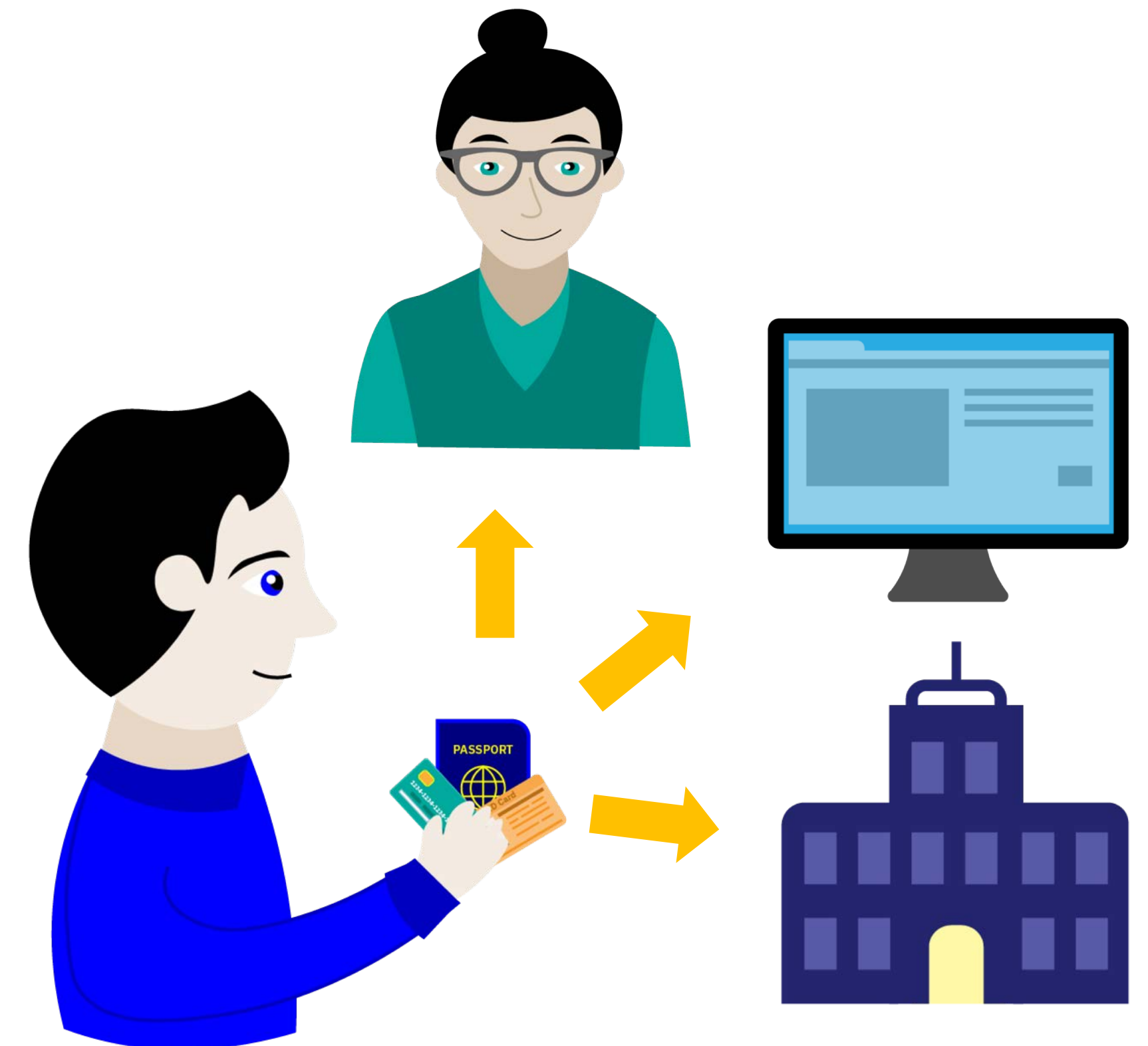
## 2. How I am represented:

**Identity Renderings:** Digital or physical (paper/plastic) instrument as defined by providers.



## 3. How I interact:

**Identity Interactions:** Situational usage such as pay, identify, participate, enter.



# The Facts

Cyber attacks cost businesses as much as **\$400 billion a year.**<sup>2</sup>

Banks spend **\$1 billion** a year on identity management solutions<sup>2</sup>

**1339 breaches** of data stores of individual names, Social Security, drivers license number, medical record, or financial records **in 2017 in the US alone.**<sup>1</sup>



**175M records breached in 2017** that exposed millions of people's identities<sup>1</sup>

It could've been **your identity.**



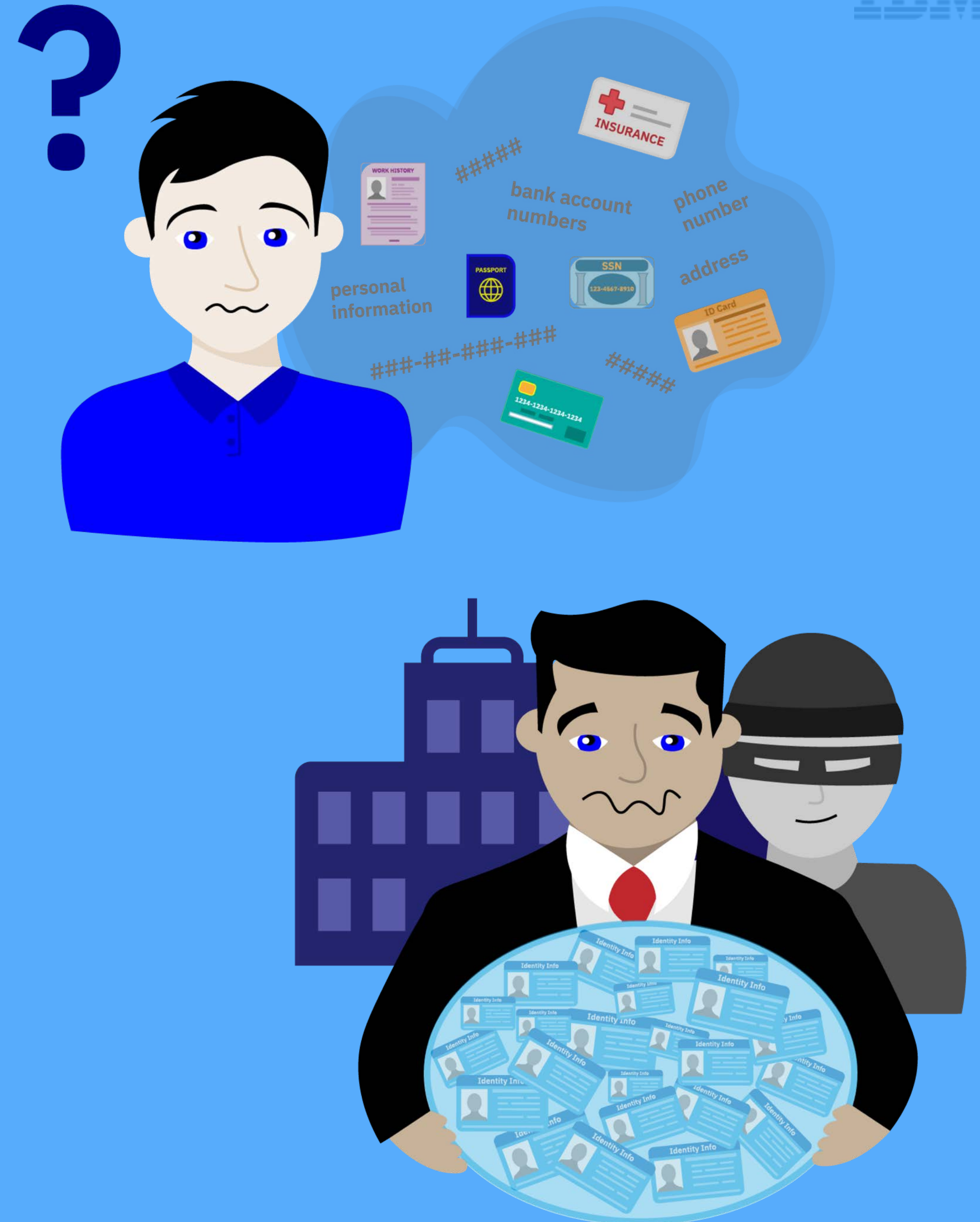
# The Problem

Online identity systems are **broken...**

Today, **individuals and organizations** are not in **control over their identity**. Personal information is often shared without our awareness and is honeypot of personal data for hackers to exploit.

**Enterprises and traditional data aggregators** realize the shift to decentralization

- Costly
- Liability
- Difficult to establish trust



# What clients and the market are saying

We are seeing the fundamental shift in identity paradigms.



“The tides are shifting in the wake of recent data breaches. **Individuals will own their own identities.** I want to get involved now to lead the charge for my customers and ensure I am well-positioned in this world”

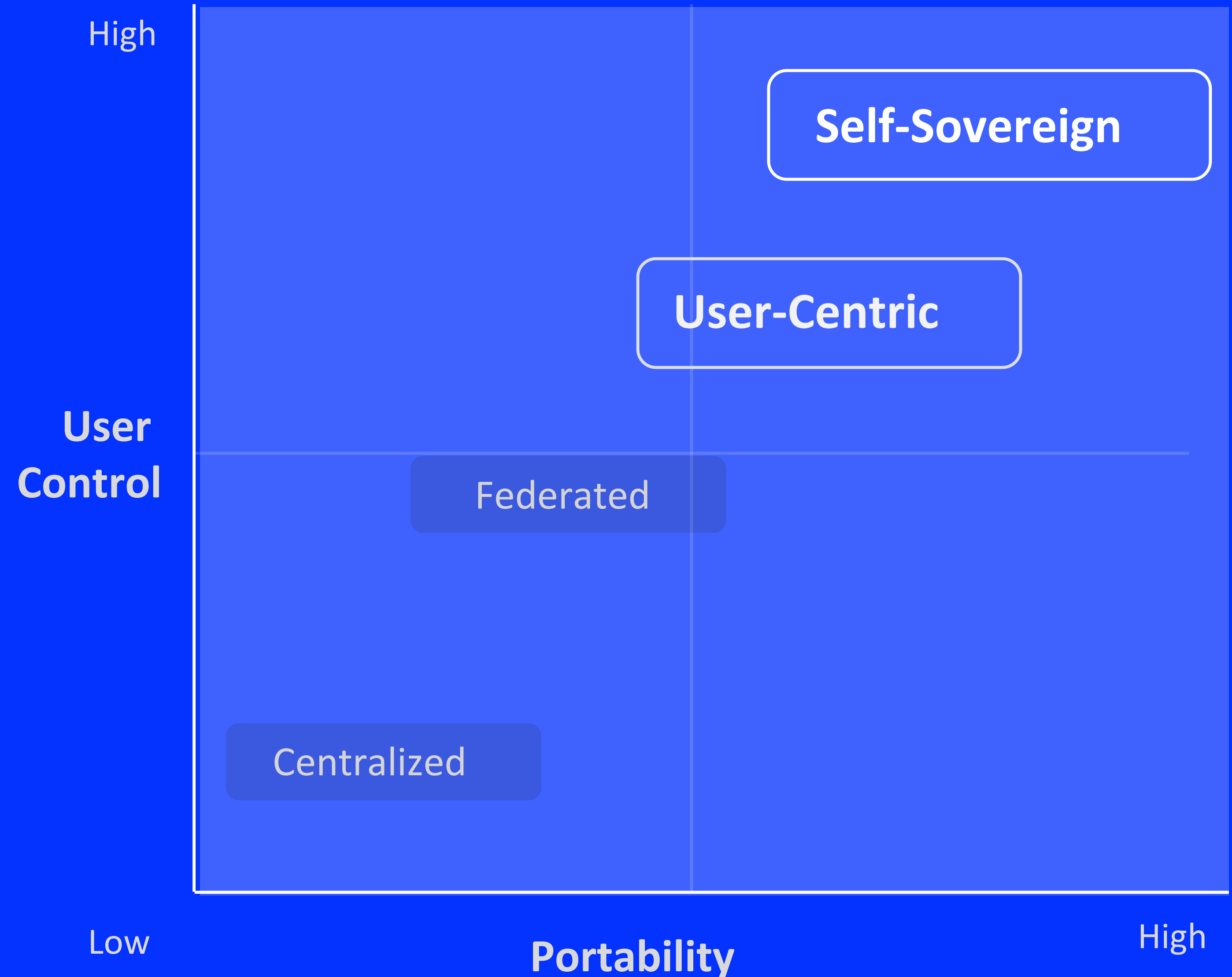
“Giving individuals control over their personal identifiable information will create a truly secure and privacy-preserving flow of information to **promote balance, fairness, diversity and competition in the digital economy.**”

“I need a trusted partner that can help me build and operate a true **decentralized identity strategy** so I can focus on my core business.”



## Because of the identity problem and emergence of blockchain...

*...There is a need to support multiple identity networks to help individuals, organizations, and things onboard and retain control over their identity*





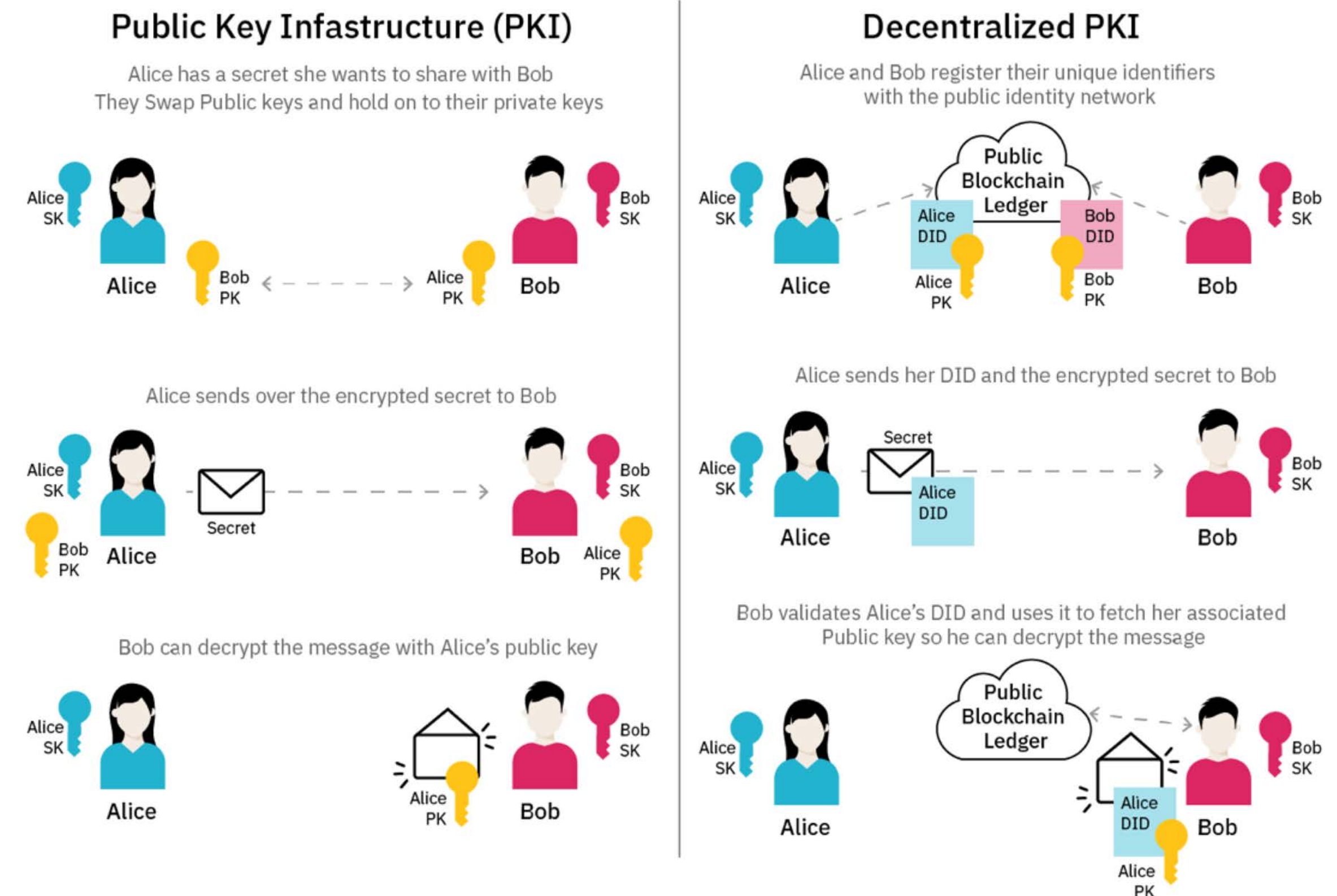
# Blockchain enables Decentralized Identity for **trust & privacy** at scale

## Blockchain enables trust and scale

- To establish trust and build new connections, users can verify the identity of a person, organization, or thing on the public ledger
- Users will create and manage identities which are cryptographically generated – no central certificate authority
- This removes a failure point of centralized issuers & allows identity to scale at the edges

## Blockchain provides privacy

- Zero knowledge proofs to only disclose the information that is needed to be shared



# IBM's approach underpinned by global open standards

*Joint-effort with IBM Security, IBM Blockchain, and IBM Research*



Transform business process workflow with **industry expertise, blockchain and AI**



Do business in a world of **many networks**



**Participate** in the Sovrin and SecureKey identity networks

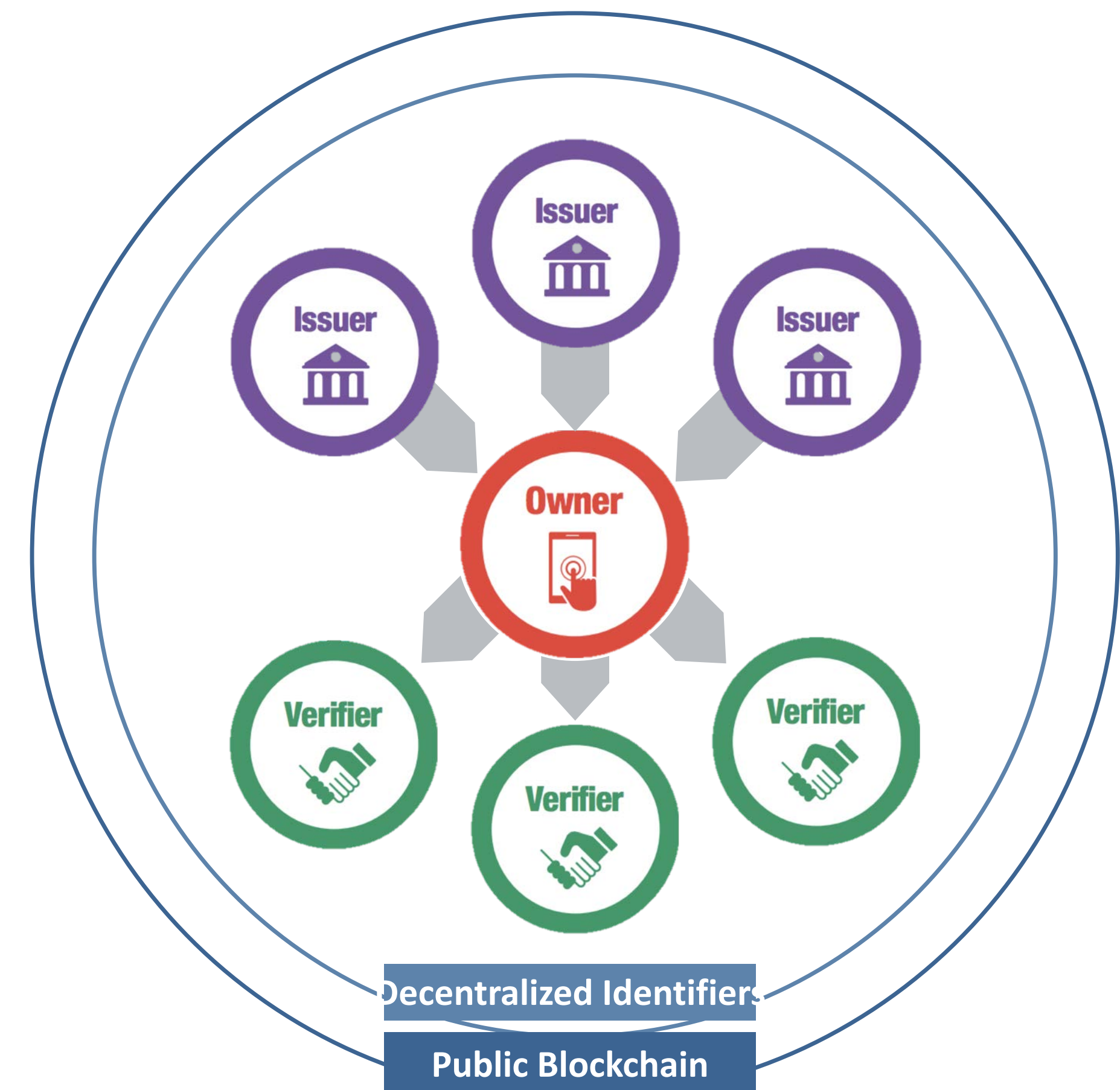


# Sovrin Identity Network

**Sovrin** provides a true self-sovereign, decentralized identity network

## Pushing identity to the edges of the network:

- **Cryptographic, point to point** exchange of identity
- **Every person, organization, and thing** will have a **digital wallet** to **control the flow** of their identity
- A decentralized approach that establishes **trust** and **puts the end user in control**
- Distributed Ledger Technology based off of **Hyperledger Indy**
- Sovrin establishes trust through a **public-permissioned** identity network – **people and code**
- **No PII is stored on the public ledger!**



# Sovrin Identity Concepts

Three concepts that makeup self sovereign identity

## Decentralized Identifier (DIDs)

- User owned and governed
- New type of identifier for verifiable, self sovereign identity
- Fully under the control of person, institution, or thing
- URL to relate an identity for a trusted interaction with a subject
- Standardization for universal identifiers



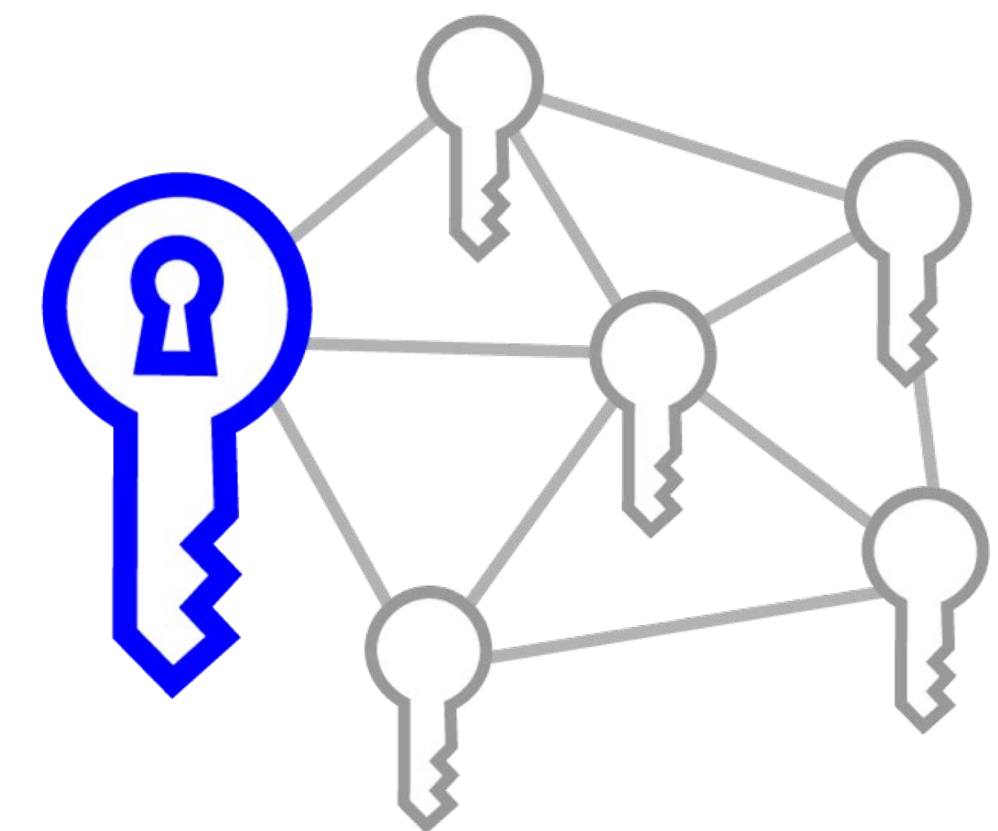
## Verifiable Credentials

- Cryptographically backed statements of truth
- Standard way of defining, exchanging, and verifying digital information
- Ecosystem of issuers, verifiers, and owners

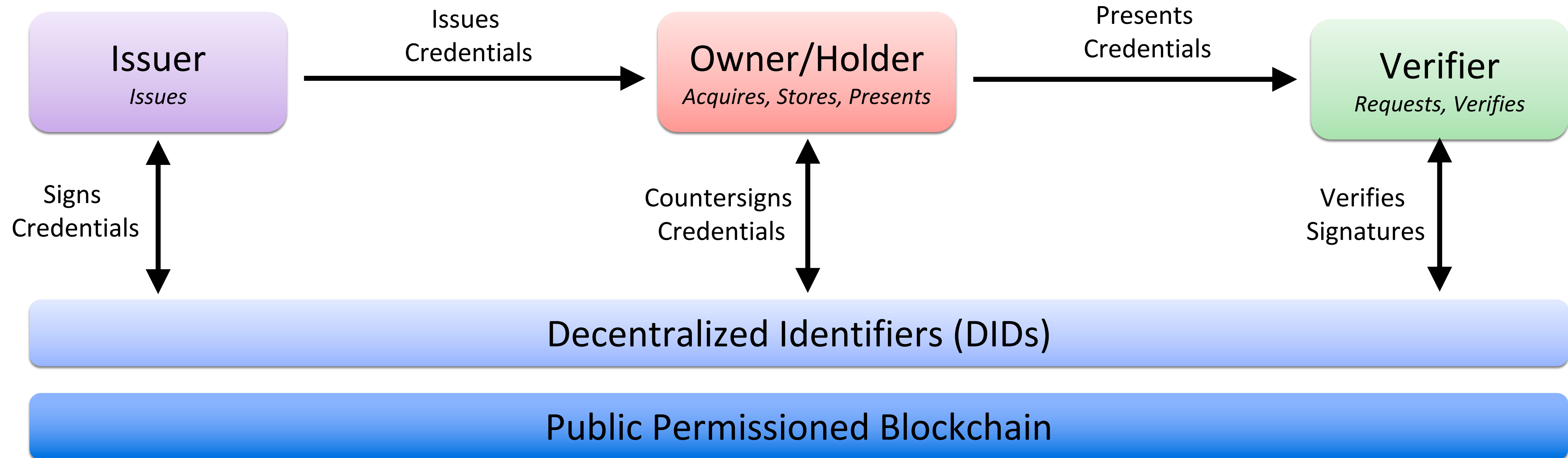


## Decentralized Key Management

- User permissioning
- Entities own their own keys and have a “public key” ring for those they interact with
- “Public key” rings are used to resolve and verify interactions through DIDs

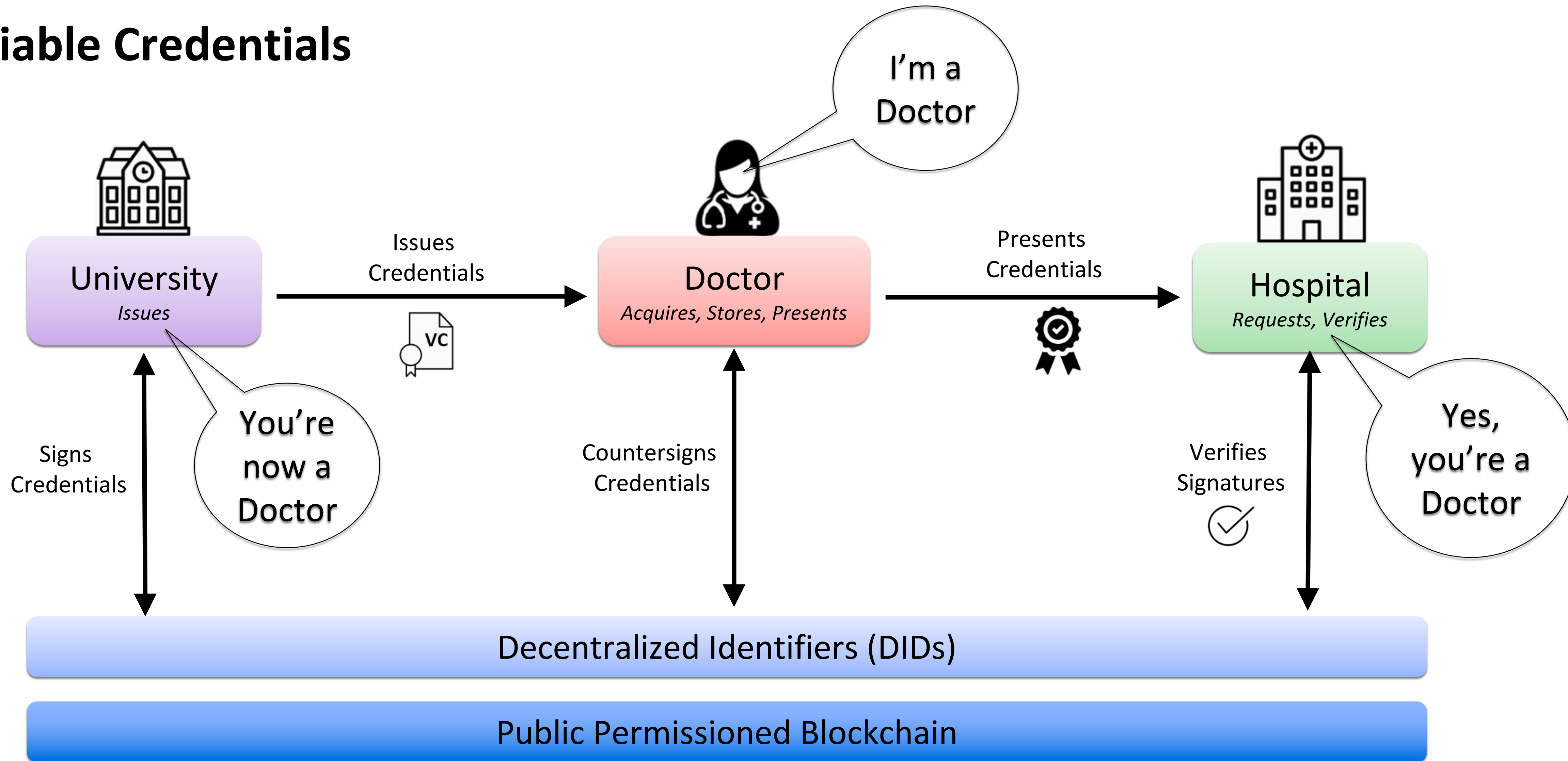


# Decentralized Identity



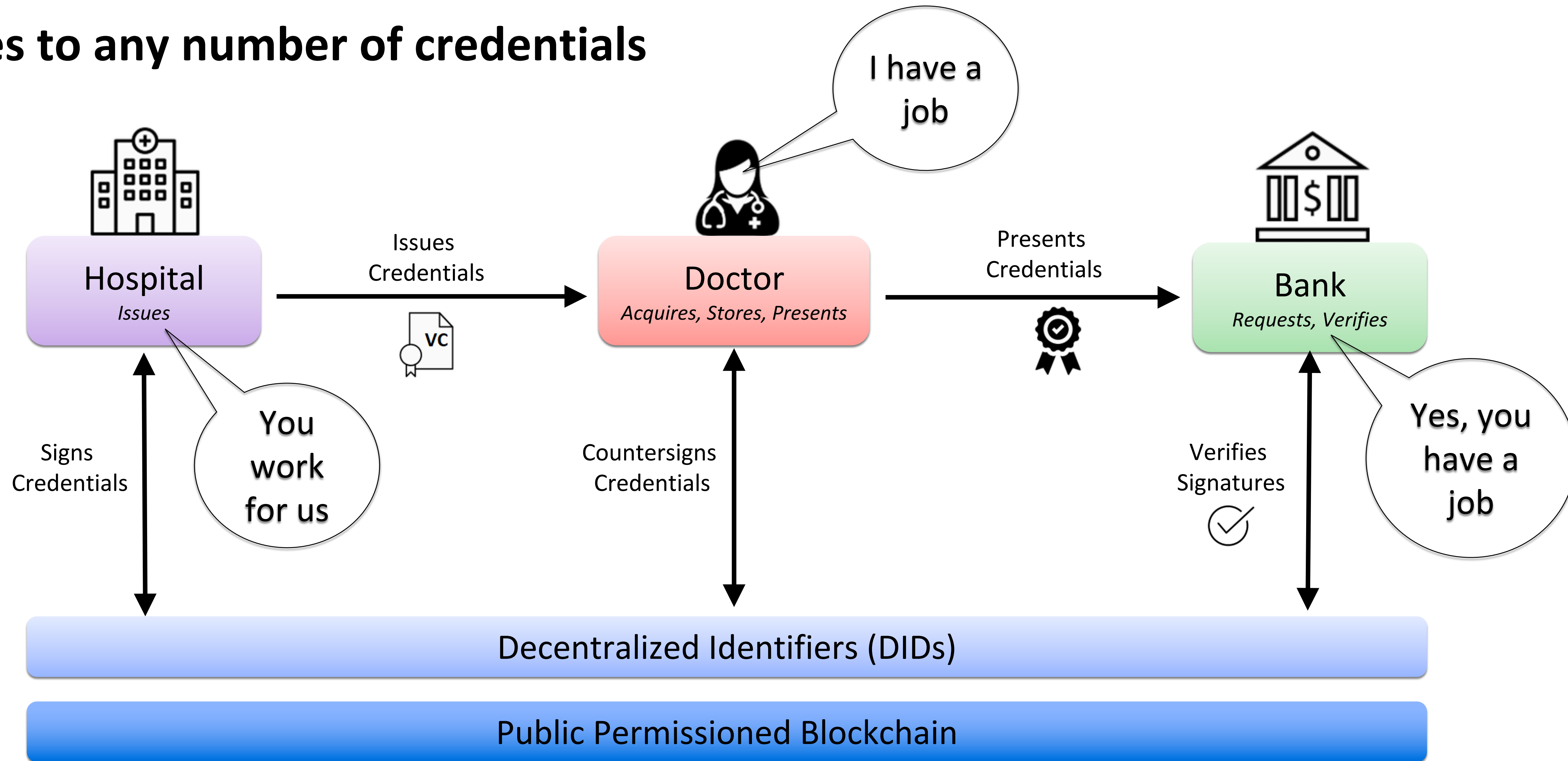
- All interactions between entities are point to point
- The public ledger serves as the distributed root of trust instead of CAs
- Credentials are accumulated over time through every peer to peer relationship

# Verifiable Credentials

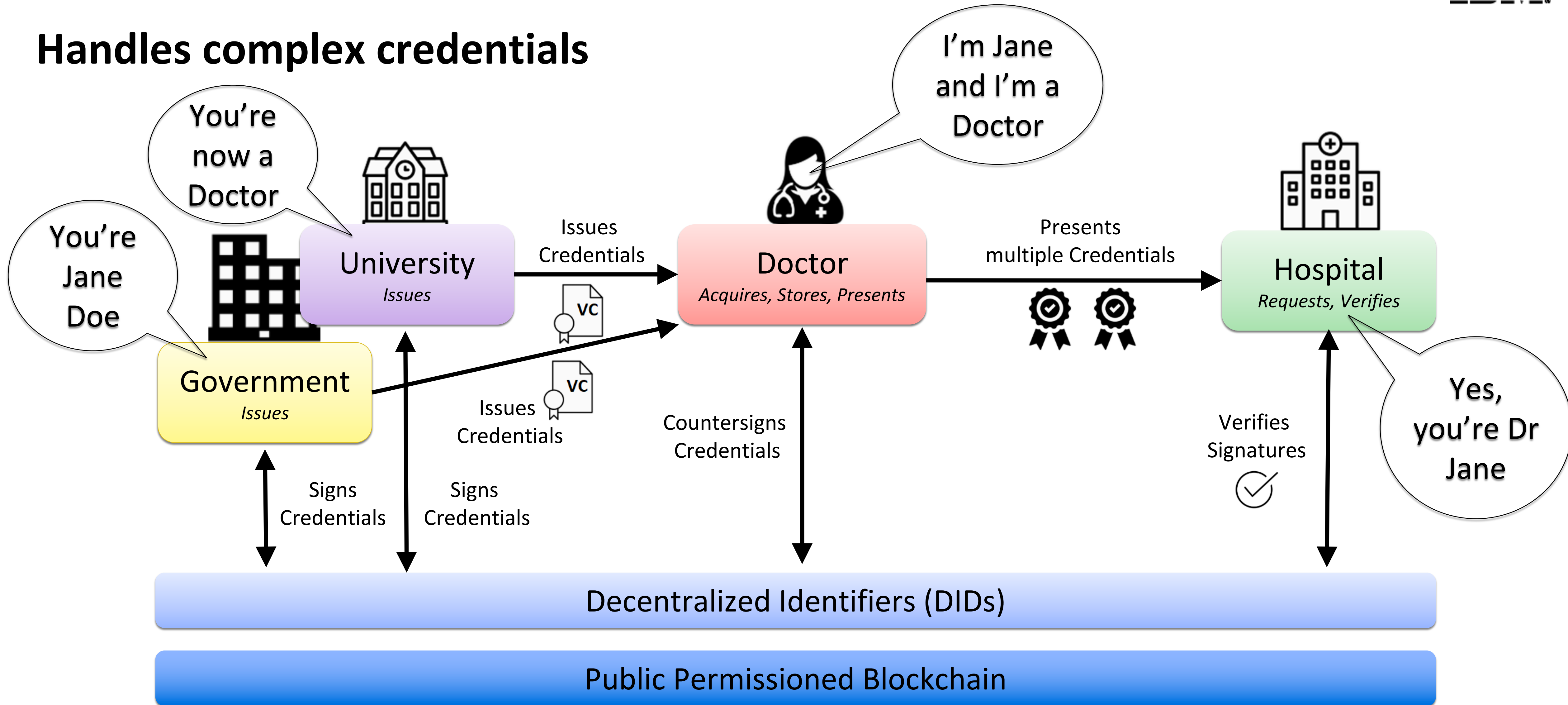




# Scales to any number of credentials



# Handles complex credentials



# Foundational Building blocks: Interoperability and Standards



- Foundation of self-sovereign identity providers – building the missing identity layer (protocol)
- Focus on identity registration, identity hubs, and resolving of identifiers
- Community driven, community supported (Sovrin, Uport, Microsoft, etc)
- **IBM is a member**



- Non-profit foundation governing network to achieve self-sovereign identity
- **Member of DIF**
- **Contributor of Indy codebase**
- **IBM is a member**



**HYPERLEDGER**

- Open Source Blockchain Project for Fabric and Indy
- Indy is code base for **Sovrin Trust Framework**
- Designed for scale and optimized for identity solutions
- Ecosystem, Community, Accelerant for our platform
- **IBM is a member**



- Standards specification of verifying and exchanging credentials
- Standardizing schemas and operations for Decentralized Identifiers (DIDs)
- **IBM is an Observer/Contributor**



- Standardizing protocols for communication between encrypted systems
- Decentralized Key Management System
- **IBM is an Observer**

# How can IBM Help

## Powered by Hyperledger and IBM Blockchain

### Sovrin

- Participate in global self-sovereign identity ecosystems
- Interoperability and standards: Hyperledger Indy, Decentralized Identity Foundation (DIF), W3C Verifiable Claims, and Decentralized Identities (DIDs)

### Engage today

- IBM Cloud Garage
- IBM Services
- Learn more at <https://www.ibm.com/blockchain/identity/>

## Industry expertise and AI

### IBM Garage, IBM Services, and Promontory

- Expertise to help with not just the technology, but help with business, privacy, and regulatory aspects
- Build an identity network powered by IBM Blockchain Platform

### Transform business process workflow

- Transform your KYC/AML processes, healthcare, government services and more!
- Innovate with business process workflow and AI:
  - **FSS**: KYC and AML
  - **Healthcare**: Universal Medical Records, Prior Auth'
  - **Gov't**: Border Control
  - **Retail**: Secure Payments
  - **Telco**: Content Management



# Thank You.

