

A background image showing a row of rowers in a boat, with their arms and oars visible. The image is partially obscured by a green overlay at the bottom.

# Digital Identity POC Phase I (Core Identity)

November, 2016

# Why digital identity will become fundamental to everyone and everything ...

1.5bn people do not have a legal identity and are shut out from meaningful economic activity and legal protection

Ongoing cyberhacks of personal information costs tens of billions posing global threats to everyone

Ongoing cyberhacks of devices can endanger the lives of millions of people

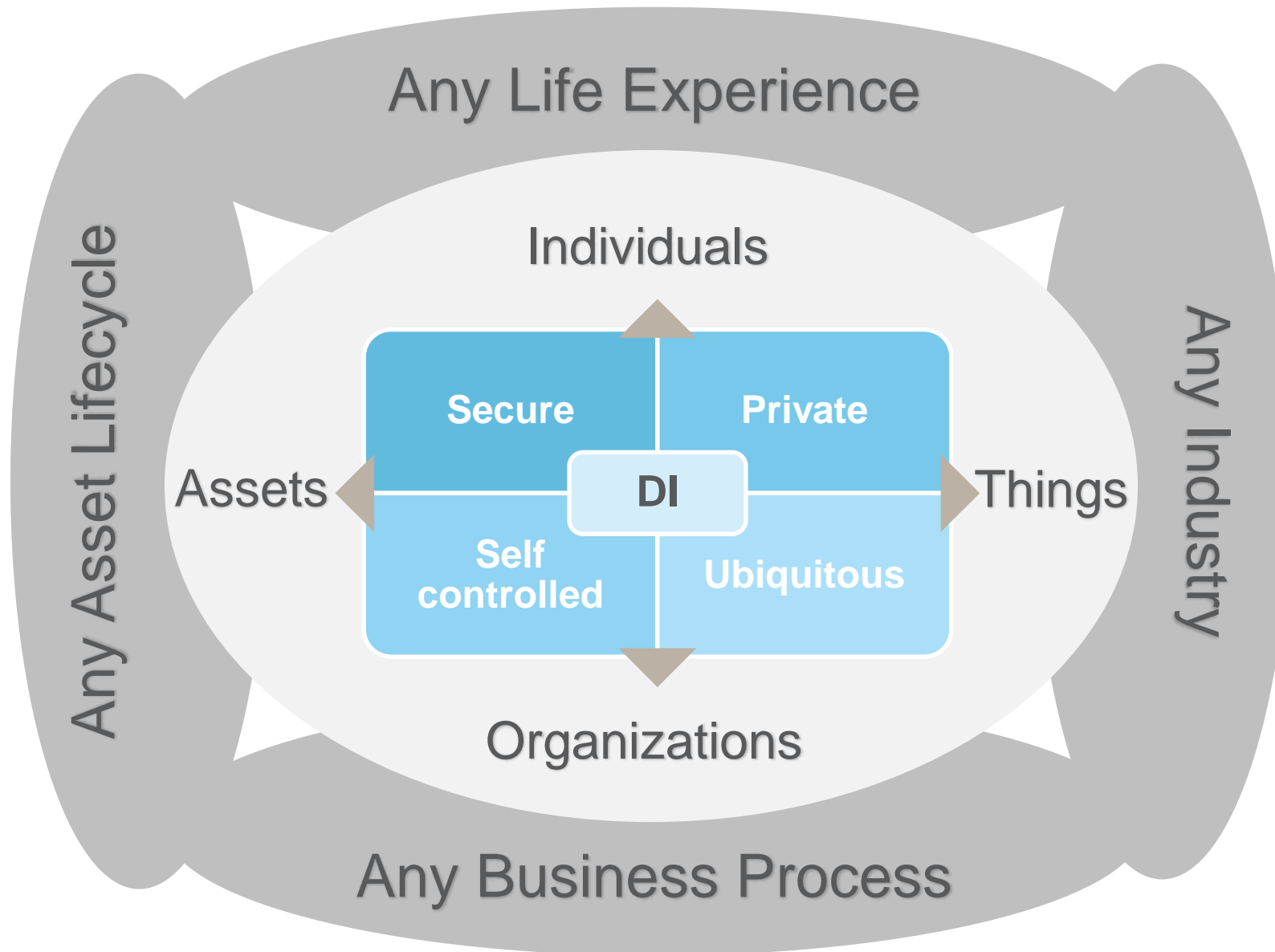
Regulations are rapidly increasing globally to protect an individuals' privacy

Seamless CX requires secure, trusted and real-time authentication of individuals and things

Exponential  
Identity Risks  
&  
Opportunities

*Requires  
coherent global  
Digital Identity  
strategies and  
solutions*

# Secure & Private Digital Identity (DI): An Ubiquitous “Killer App”



**Clients like it ...**

- Impacts any Ecosystem Participant & Value-Exchange
- Cross-industry Impact
- On top of legacy systems

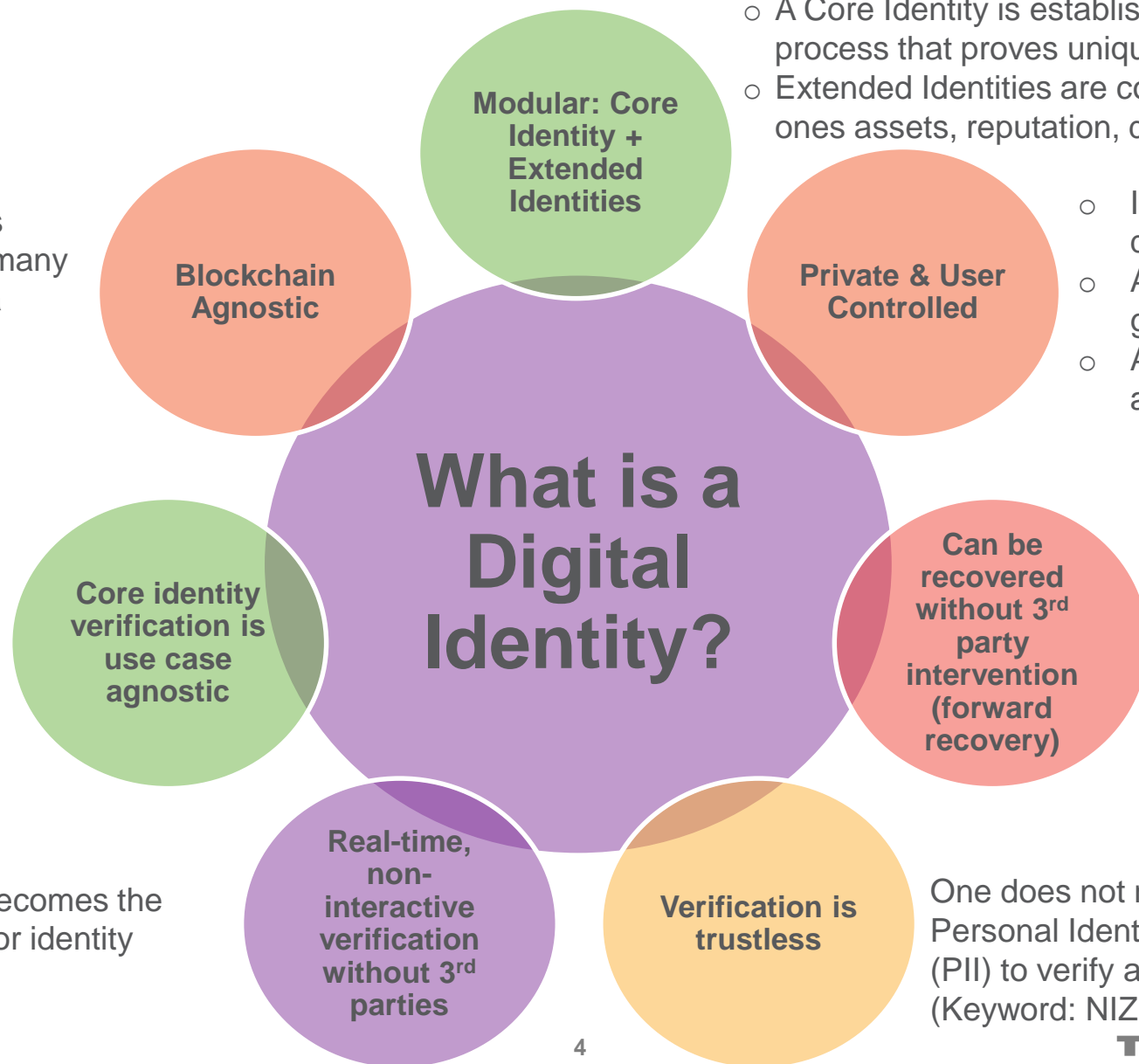


# A vision for a universal, secure and private Digital Identity

It does not matter on which Blockchain a digital identity was created, it can be used across many Blockchains and even without a Blockchain

Does not require a separate identity per use case e.g. identify yourself at a bank as you would entering a country

Blockchain becomes the trust broker for identity



# Definition of a Digital Identity and its Attestation

A **Digital Identity** is defined through

- A **Core Identity (COID)** – Representing uniqueness and ownership and control over an identity. This is what we implemented in this first POC (see next slide)
- One or more **Identity Dimensions** relating to different aspects of an individuals or a things history and data such as financial, social, education etc. – under development
- An **Identity Graph** specifying all cascading owner- and control relationships an individual or a thing has – under development

**There are two principal ways for Identity Attestation**

*Earning trusted status through reputation alone without a 3<sup>rd</sup> party attestation process*



**Anyone can start on building their trusted digital identity** through verifiable behavior



**Does not guarantee the uniqueness of a digital identity**, even if biometric data is included

*Using a 3<sup>rd</sup> party trust providers such as a governments or banks to attest to uniqueness of an identity*



**Higher uniqueness guarantees**, if validated by sufficient number of identity verification providers such as an **Identity Federation** as we employ to add more security



**Is not 100% self-sovereign** and requires external 3<sup>rd</sup> party trust providers

# A Core Identity has four important aspects that give it utility

## **Uniqueness:**

**Unique ID** – unique identifier of a person or thing

**Unique ID attributes** – Attributes that do not change often such as biometric information or national ID numbers

## **Self-Recovery of an Identity:**

**List of Identity Recovery IDs** which are identifiers of trusted digital identities that can vouch for the compromised identity

**Recovery Condition** – m-of-n multi-sig condition for the self-recovery of an identity

## **Ownership:**

**Ownership ID** – unique identifier of ownership

**List of Owner IDs** --unique, secure identifiers of digital identity owners

**Ownership Token ID** – unique identifier of tokens

**Ownership Token Attribute** – e.g. Alice's Tokens

**Ownership Token Quantity** -- tokens held by each owner

## **Control:**

**Control ID** – unique identifier of ownership

**List of Controller IDs** --unique, secure identifiers of digital identity controllers e.g. parents

**Controller Token ID** – unique identifier of tokens

**Control Token Attribute** – e.g. Alice's Tokens

**Control Token Quantity** -- tokens held by each controller allowing access to identity other than controllers

# Digital Identity Phase I (Core Identity) Demo

Digital Identity Phase I (Core Identity) Demo shows the following concepts

**Universal  
Core Identity**

**Use Case  
independent  
attestation**

**Private & User  
Controlled  
Identity**

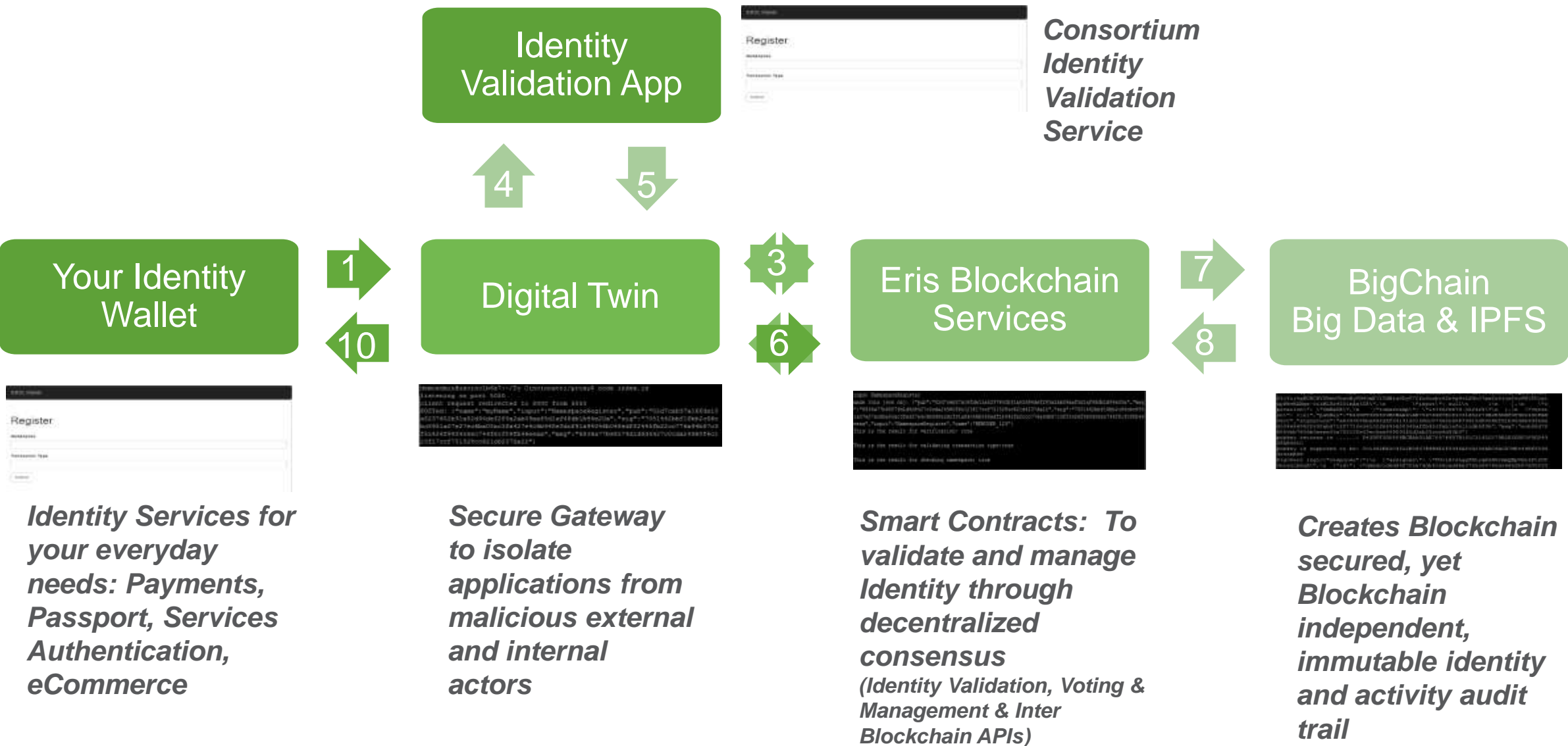
**Identity  
Verification is  
trustless**

**Digital Twin as  
a secure  
router or  
firewall for  
things**

**Immutable  
Audit Trails**

**Secure Tiered,  
Integrated  
Blockchain(s)  
Architecture**

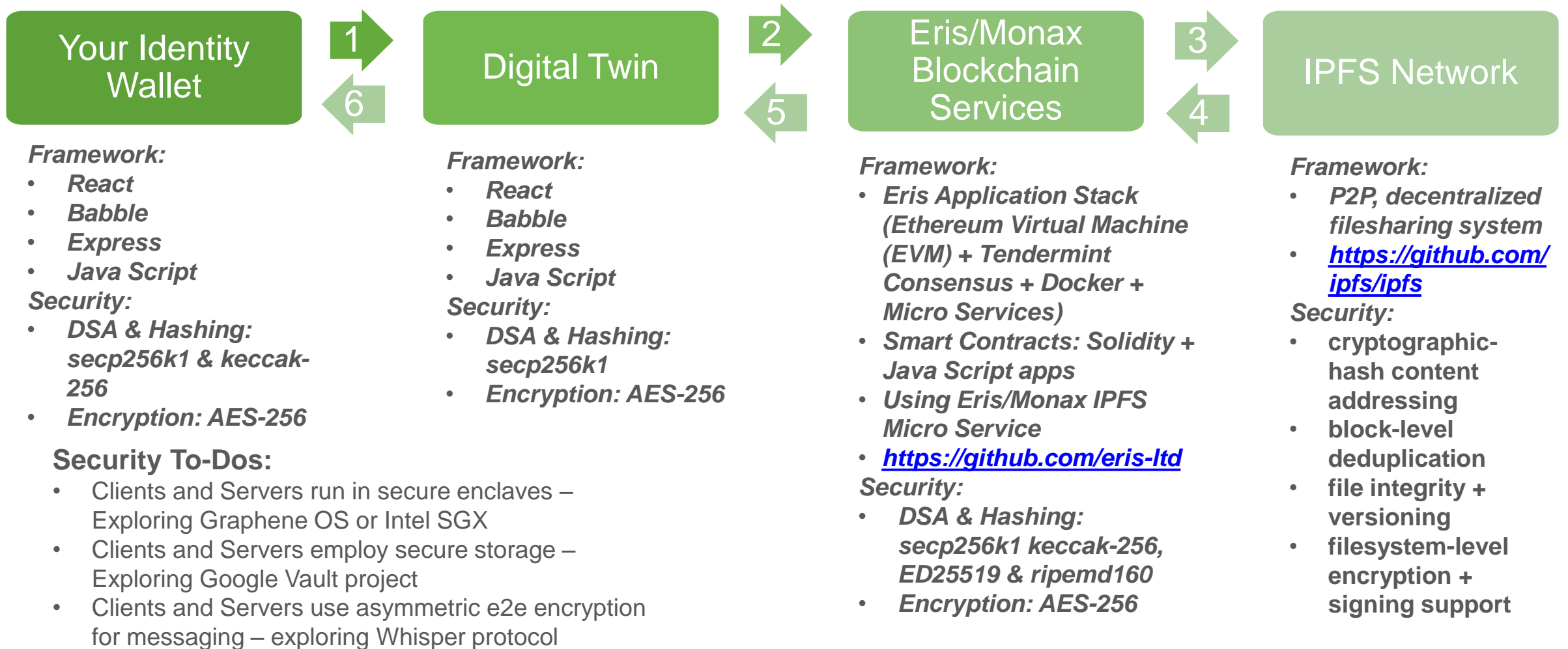
# Digital Identity Phase I (Core Identity) Demo Flow





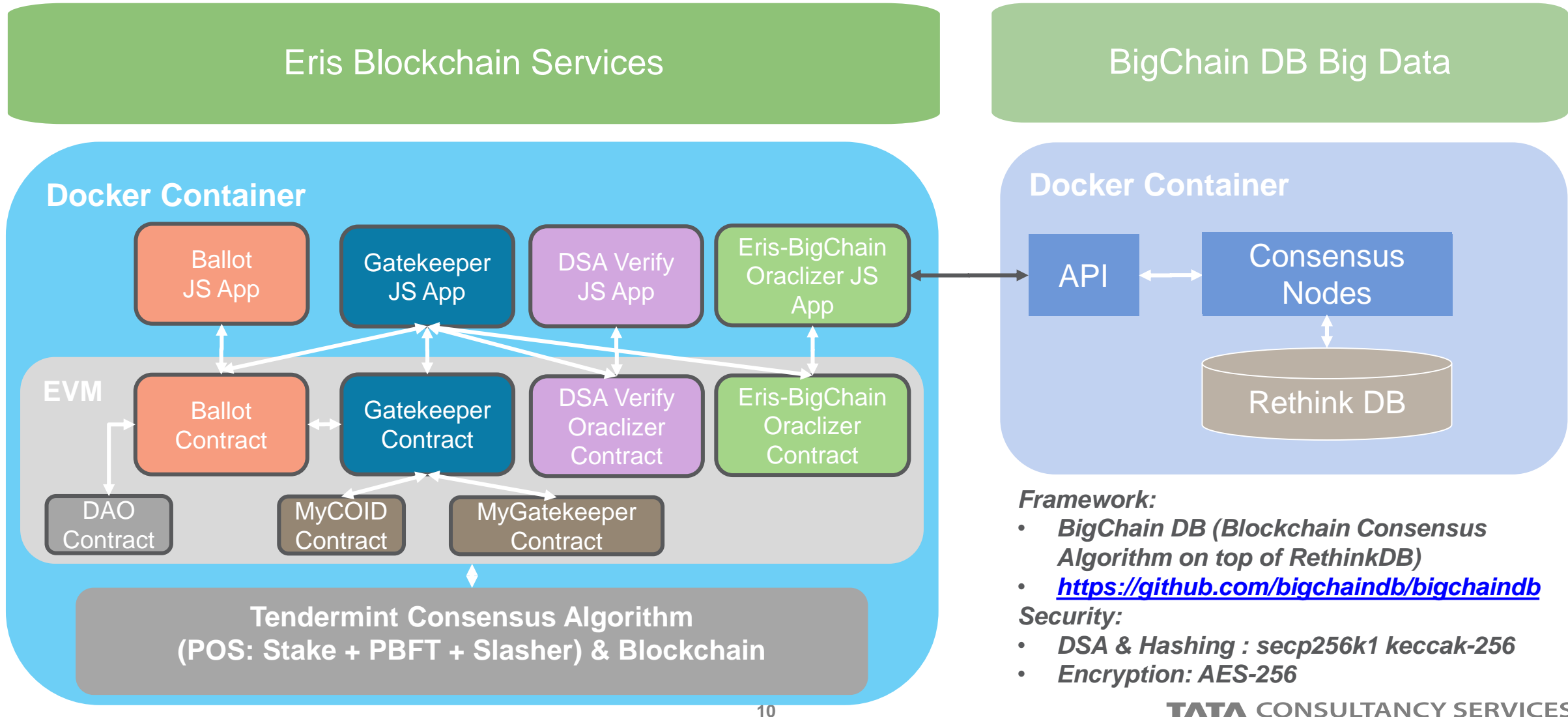
# Digital Identity Phase I (Core Identity) High-Level Architecture (I)

## Uploading a File to IPFS for Identity Attestation Process



# Digital Identity Phase I (Core Identity) High-Level Architecture (II)

## Digital Identity Attestation Process (Identity Wallet and Digital Twin omitted for simplicity)





Thank You