





DLT Meet-Up Episode #11
DLT Interoperability Onchain X Offchain

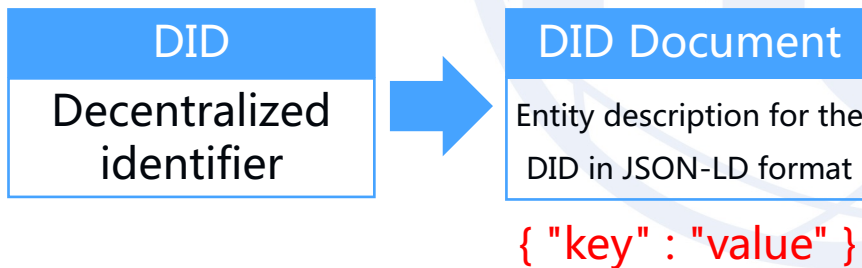
DID based access control framework for Onchain X Offchain interoperation

Ning HU @ Ontology Foundation

Decentralized identifier (DID)

Scheme
did:example:123456789abcdefghijkl
DID Method DID Method Specific String

- Identifier
- Verification methods
 - Can be a set of public keys
 - Can be a wrapper of PKI system
- Verification relationships
- Services



Verifiable Credential (VC)

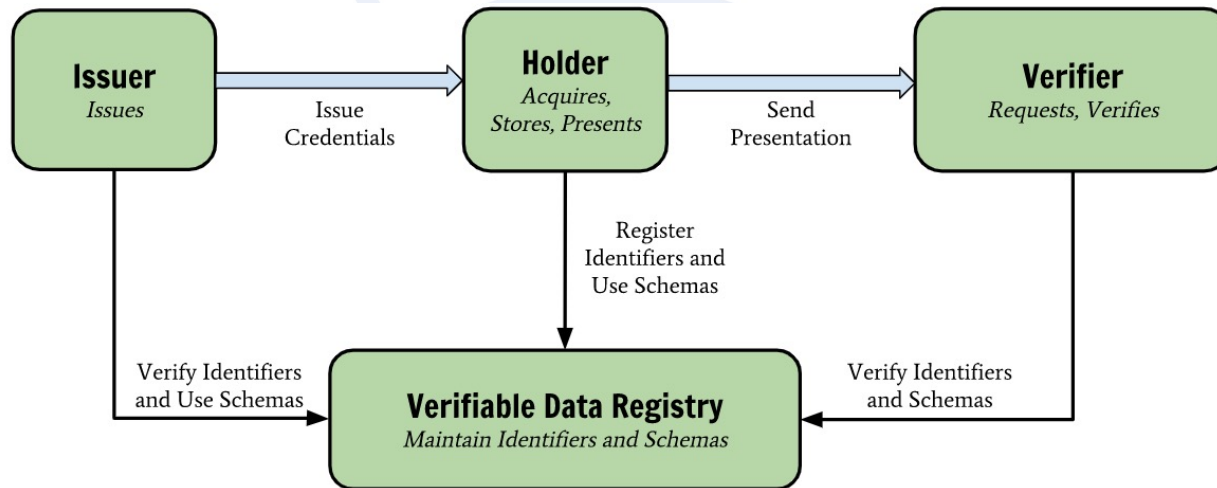
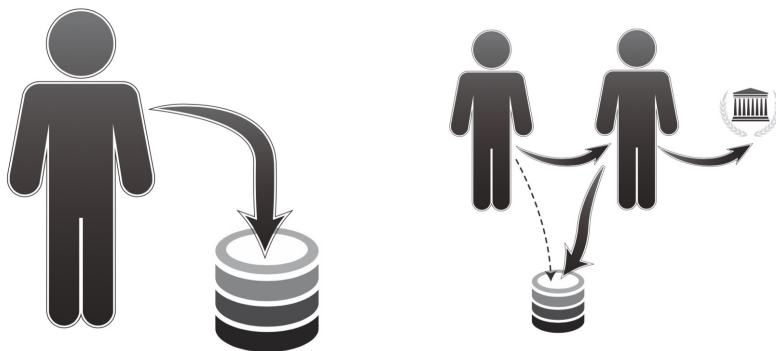


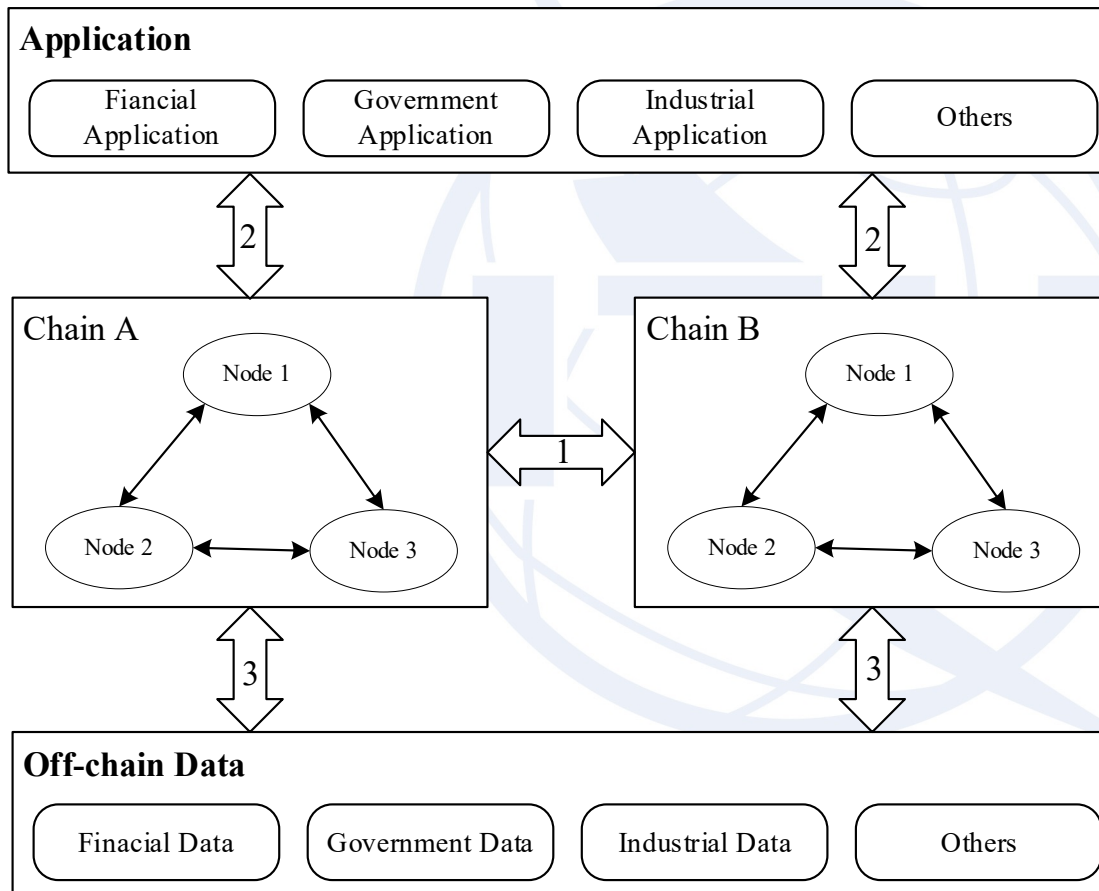
Image credit: Verifiable Credentials Data Model 1.0, w3c.org



- Disintermediation
- Programmable

Image credit: DID Primer, W3C Credentials Community Group; Kaliya Young, Identity Woman

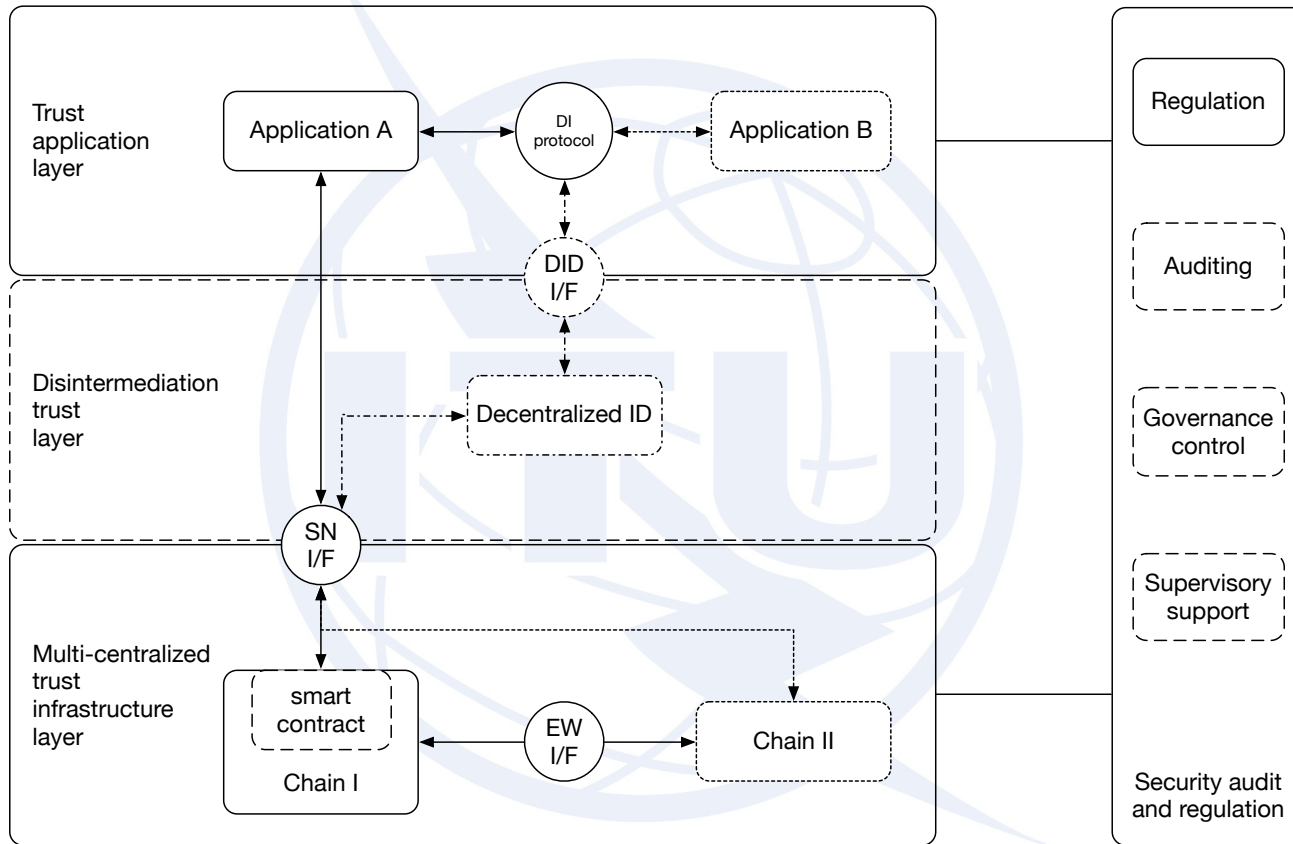
DLT interoperability business framework



1. Inter-chain
2. App-chain*
3. Off-chain*

**Onchain X Offchain*

Conceptual model for DLT based data interoperability cross systems



Common component(s)

Optional component(s)

Common link

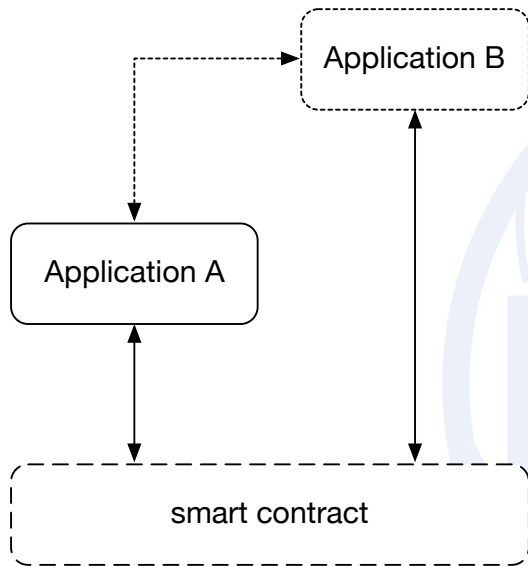
Alternative path

Conceptual link

Ref.1



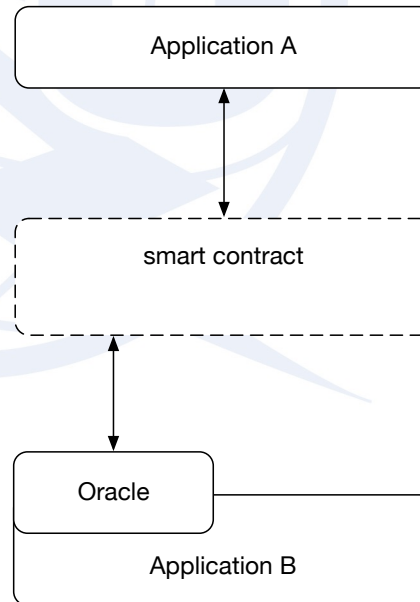
Onchain X offchain interoperation



Applications call DApps

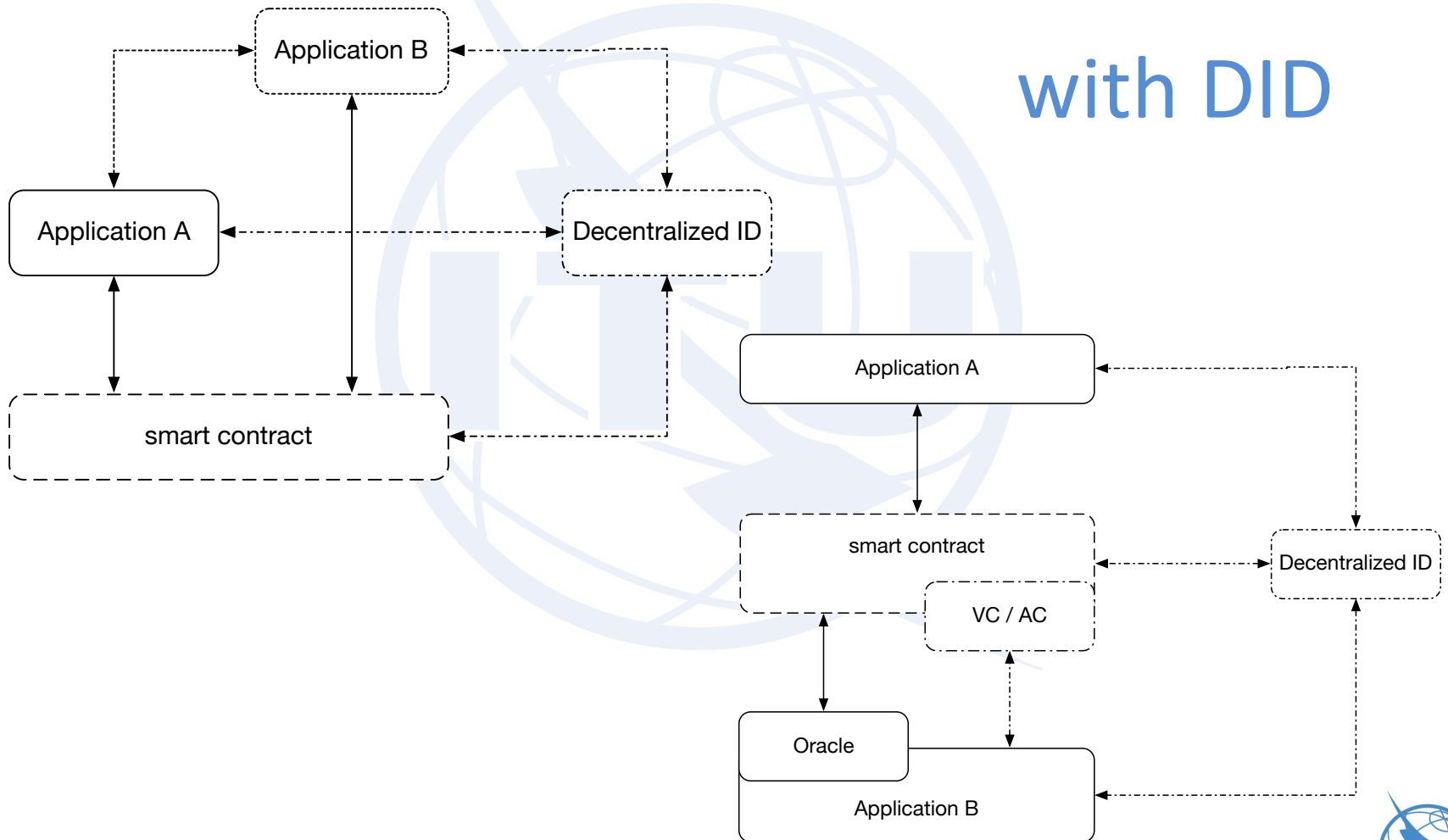
DApps call Oracles

Applications call DApps with Oracle support

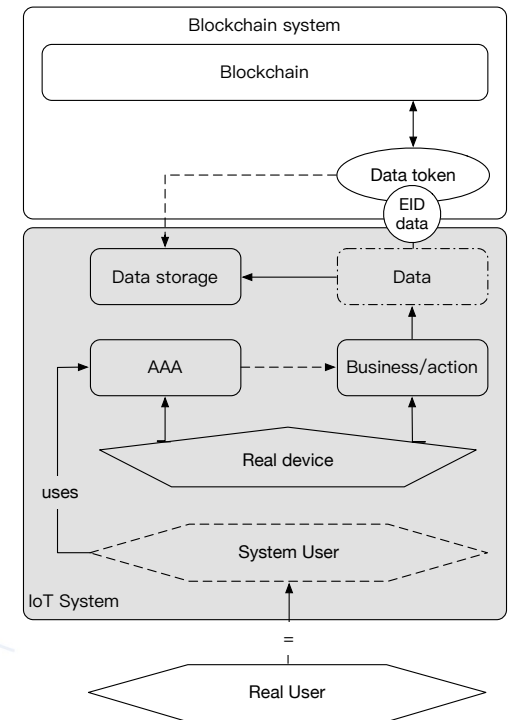
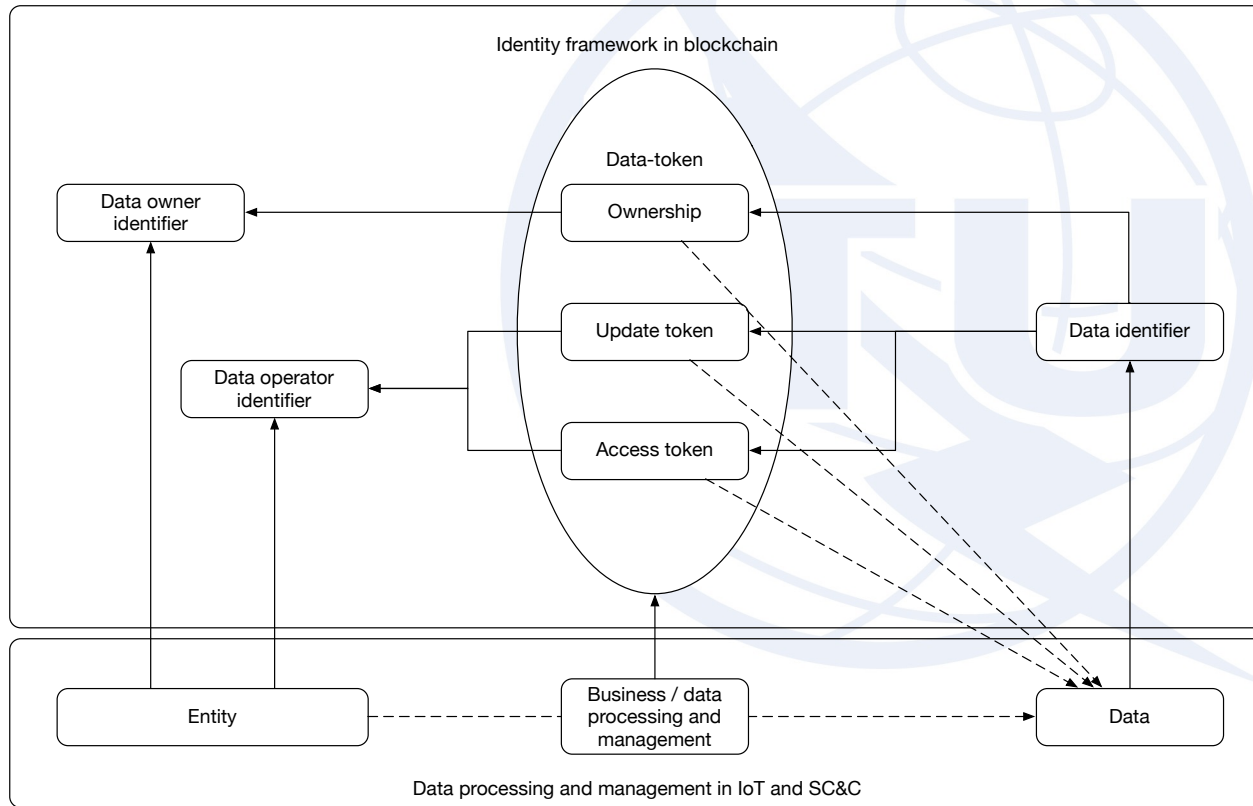


Onchain X offchain interoperation

with DID



General model of identity framework in blockchain



Data interoperability cross systems

Semantic Interoperability

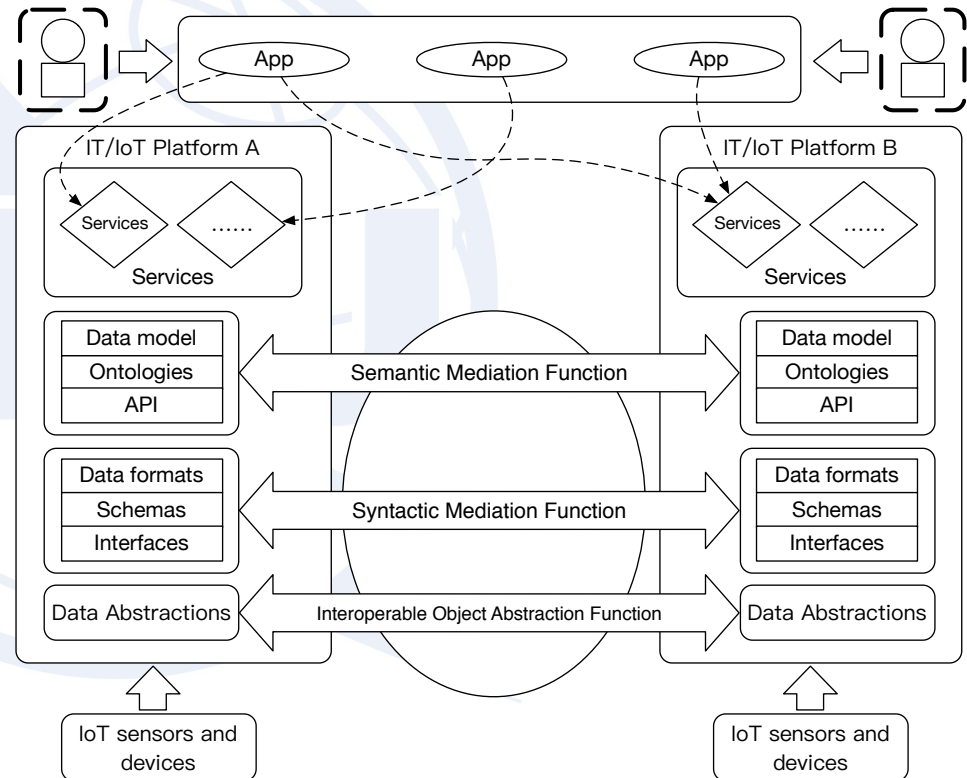
- the meaning of data
- defines the true meaning of the contents that are generated by systems and mutually agreed by a different system that use these contents.
- enable different stakeholders to access and understand data unambiguously.

Syntactical Interoperability

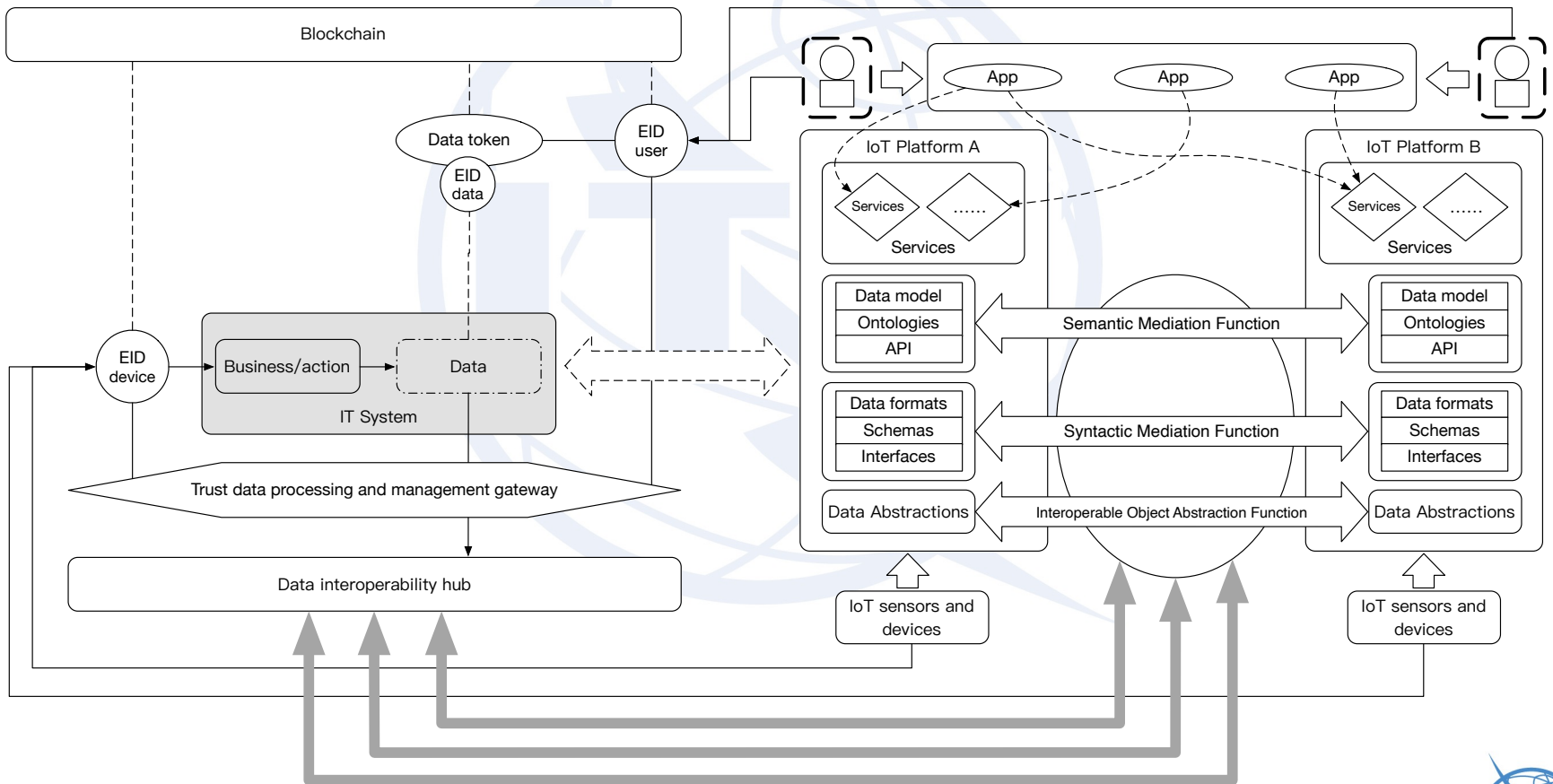
- the data formats, syntax and coding methods
- heterogeneous systems generate data that are stored and used in different formats.
- protocols of standard syntax for communication of data.

Object Abstraction Interoperability

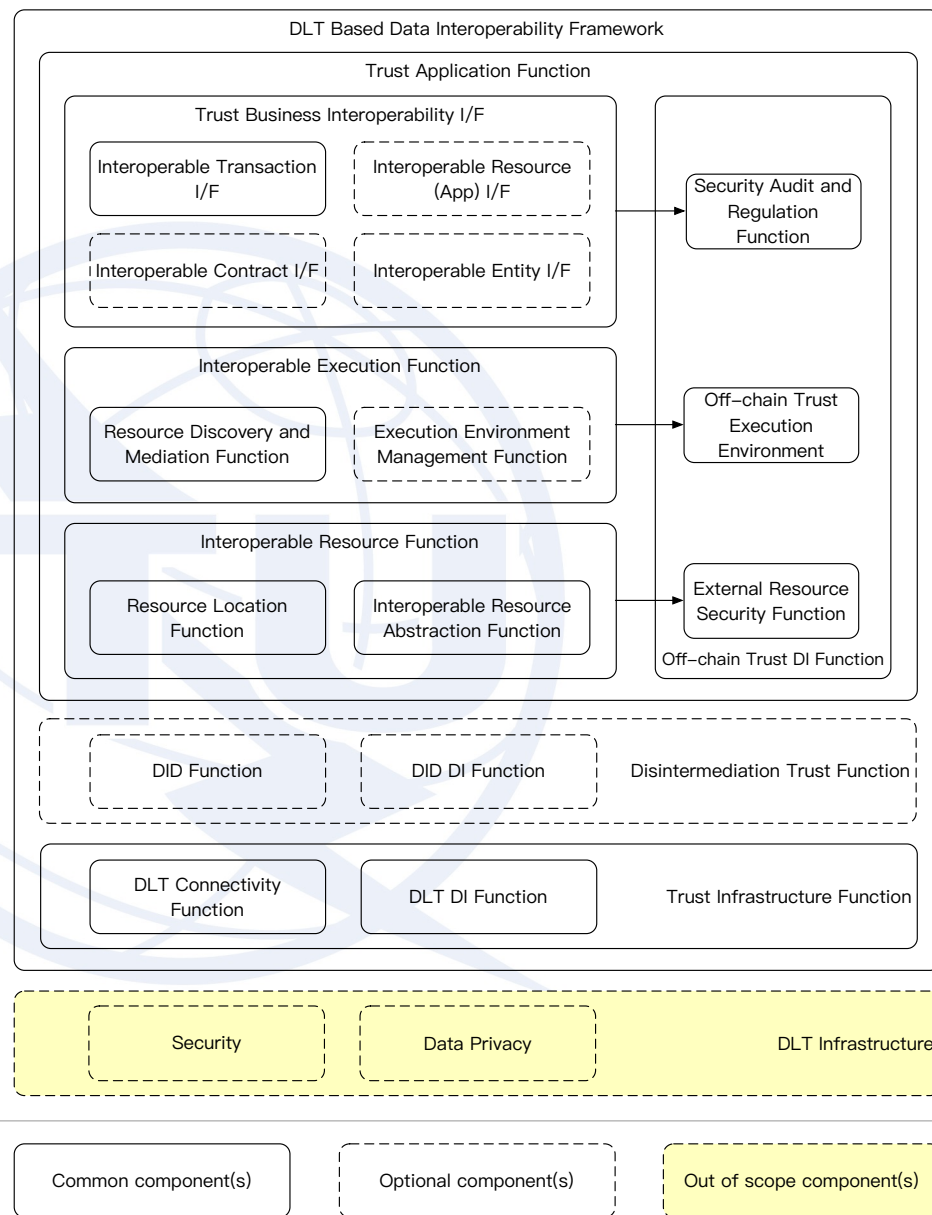
- support diverse object abstractions in terms of semantic and syntactic data, the representation, metadata description and coding.



Blockchain DID framework to support data interoperability cross systems



Technical framework for DLT based data interoperability cross systems



Reference

1. [F.DLT-GTI DLT governance and technical interoperability framework](#)
 2. [H.DLT-TFI Technical Framework for DLT Interoperability](#)
 3. [Technical Specification D3.8](#)
[Identity framework in blockchain to support DPM for IoT and SC&C](#)
- Ext.,
 - [Technical Report D3.5](#)
[Overview of blockchain for supporting IoT and SC&C in DPM aspects](#)
 - [Technical Specification D3.6](#)
[Blockchain-based data exchange and sharing for supporting IoT and SC&C](#)
 - [Technical Specification D3.7](#)
[Blockchain-based data management for supporting IoT and SC&C](#)



Thanks

Q&A

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