



ONTology

Data Interoperability in DLT

1 Data Interoperability

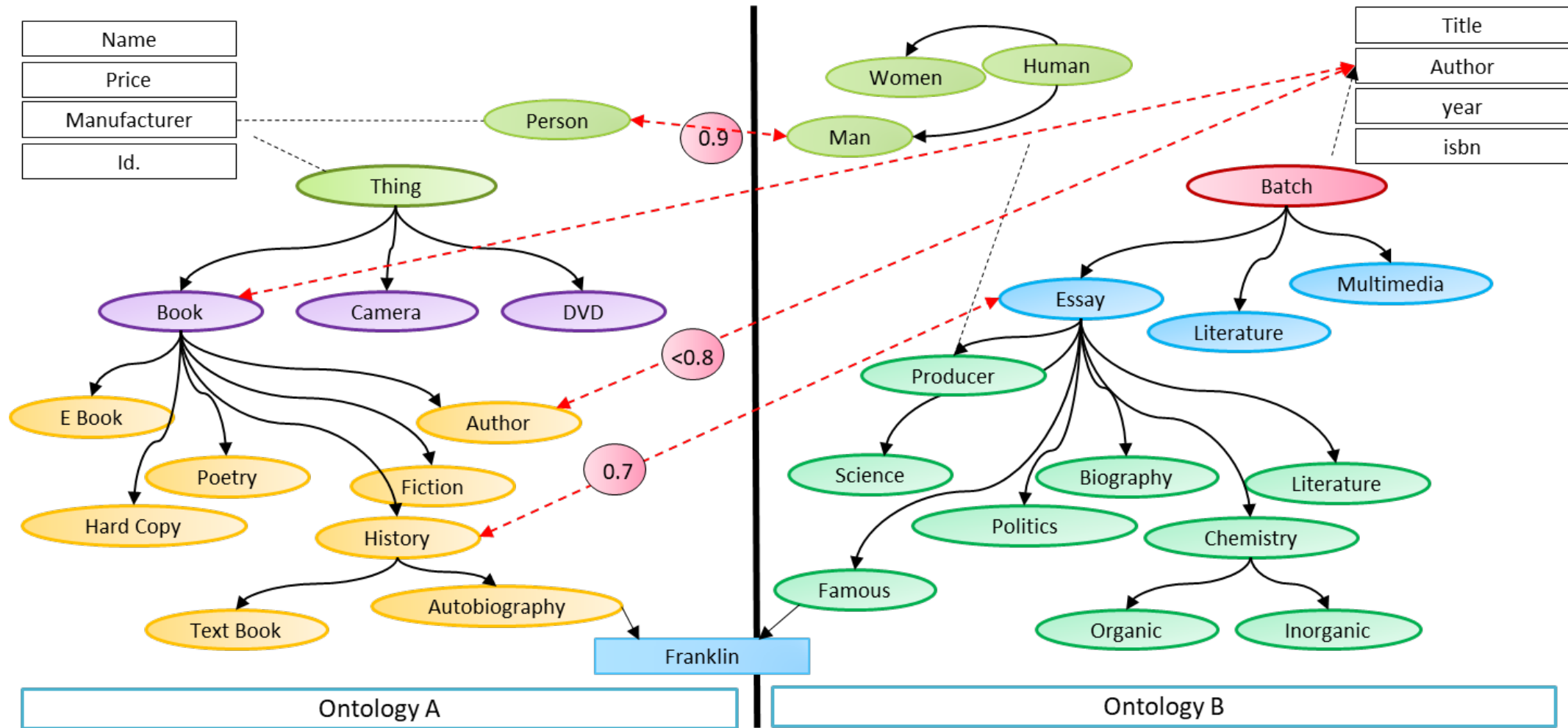
2 Ontology Cross-domain
Solution

3 ONT ID system

4 DDXF

Data Interoperability

Two Ontologies Alignment Example



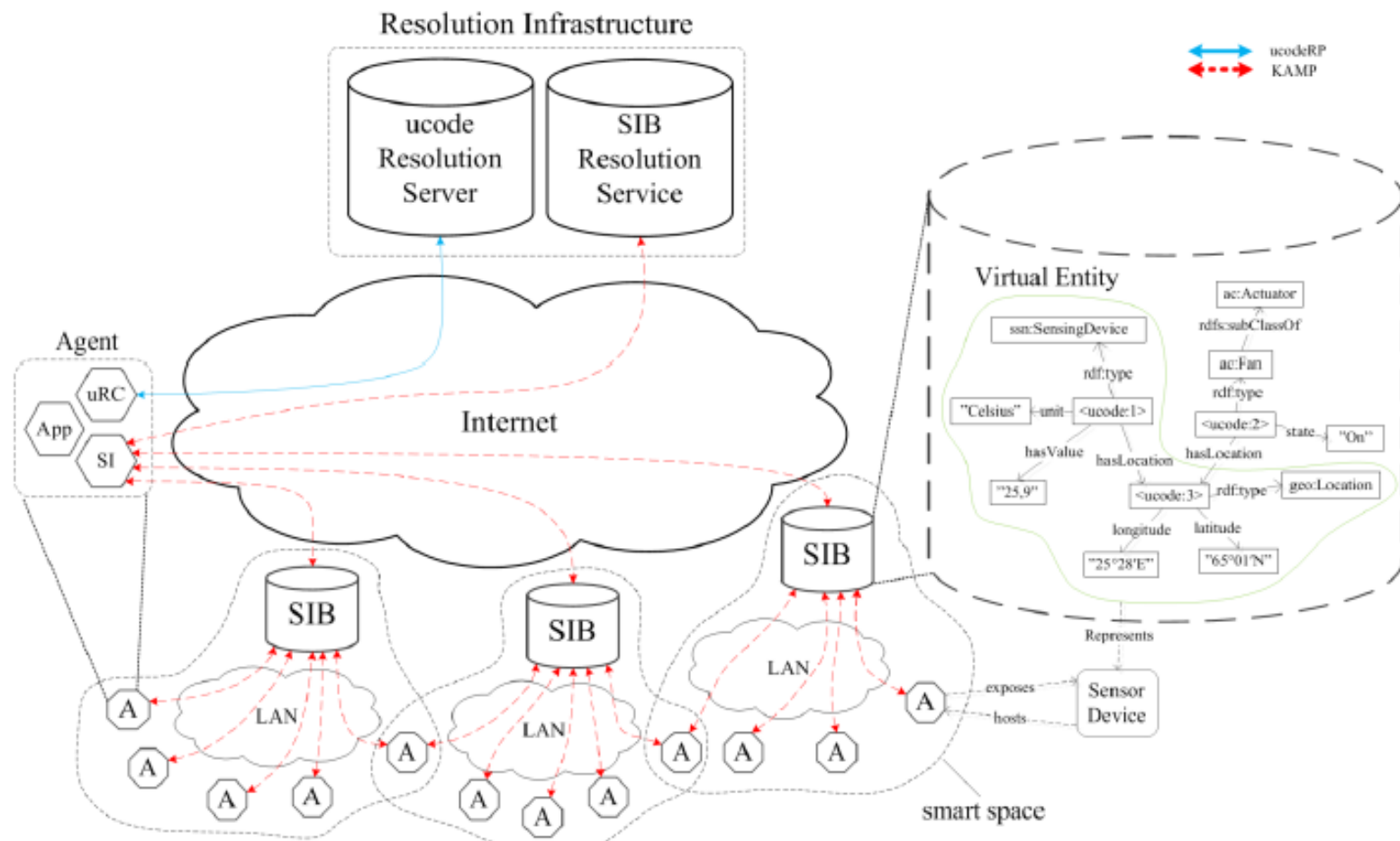
Ref., Jerome Euzenat & Pavel Shvaiko. Ontology matching. Springer-Verlag New York, Inc., Secaucus, NJ, USA, 2007.

Semantic level interoperability architecture for IoT

Ref., Kiljander, Jussi, et al.

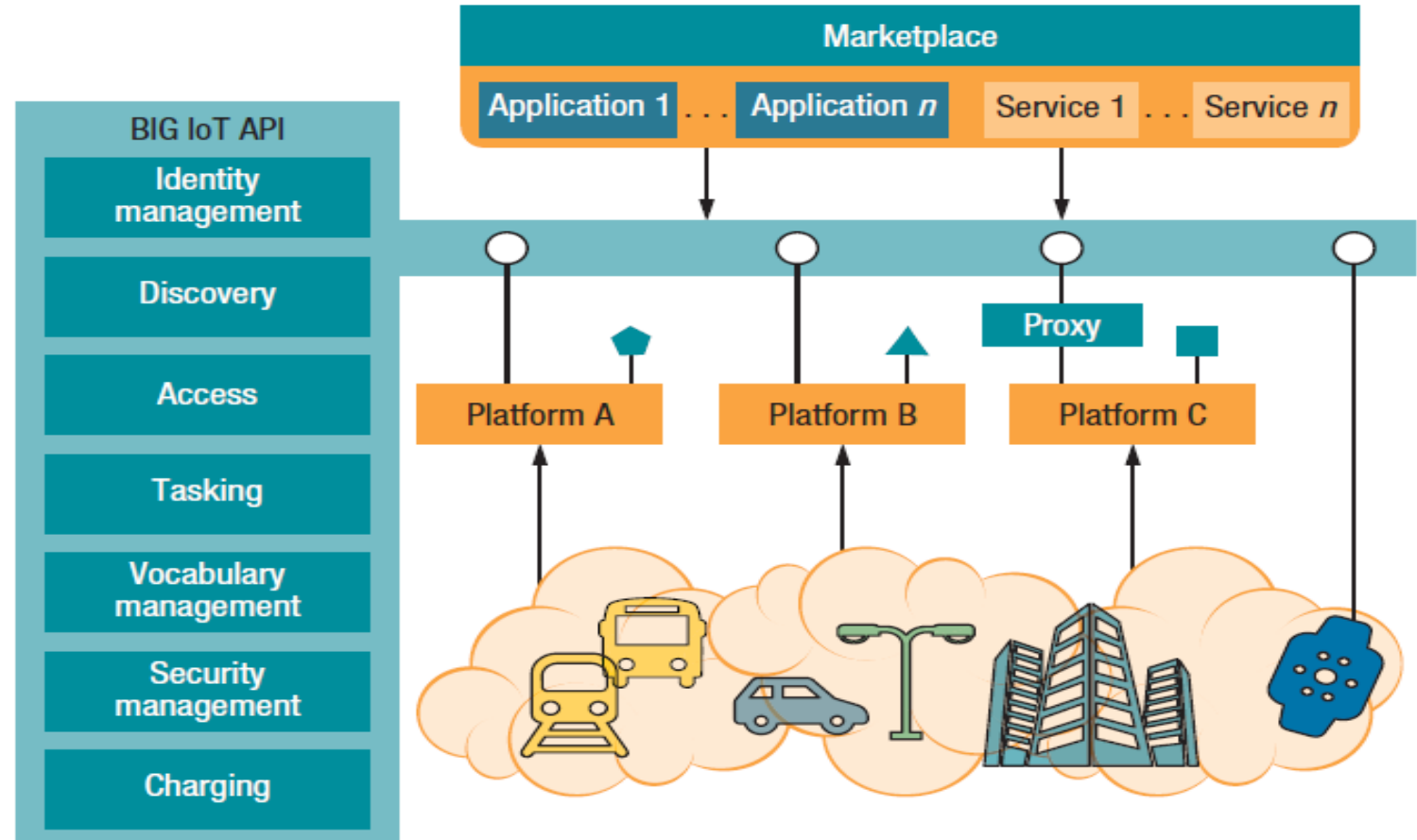
"Semantic interoperability architecture for pervasive computing and internet of things."

IEEE access 2 (2014): 856-873.



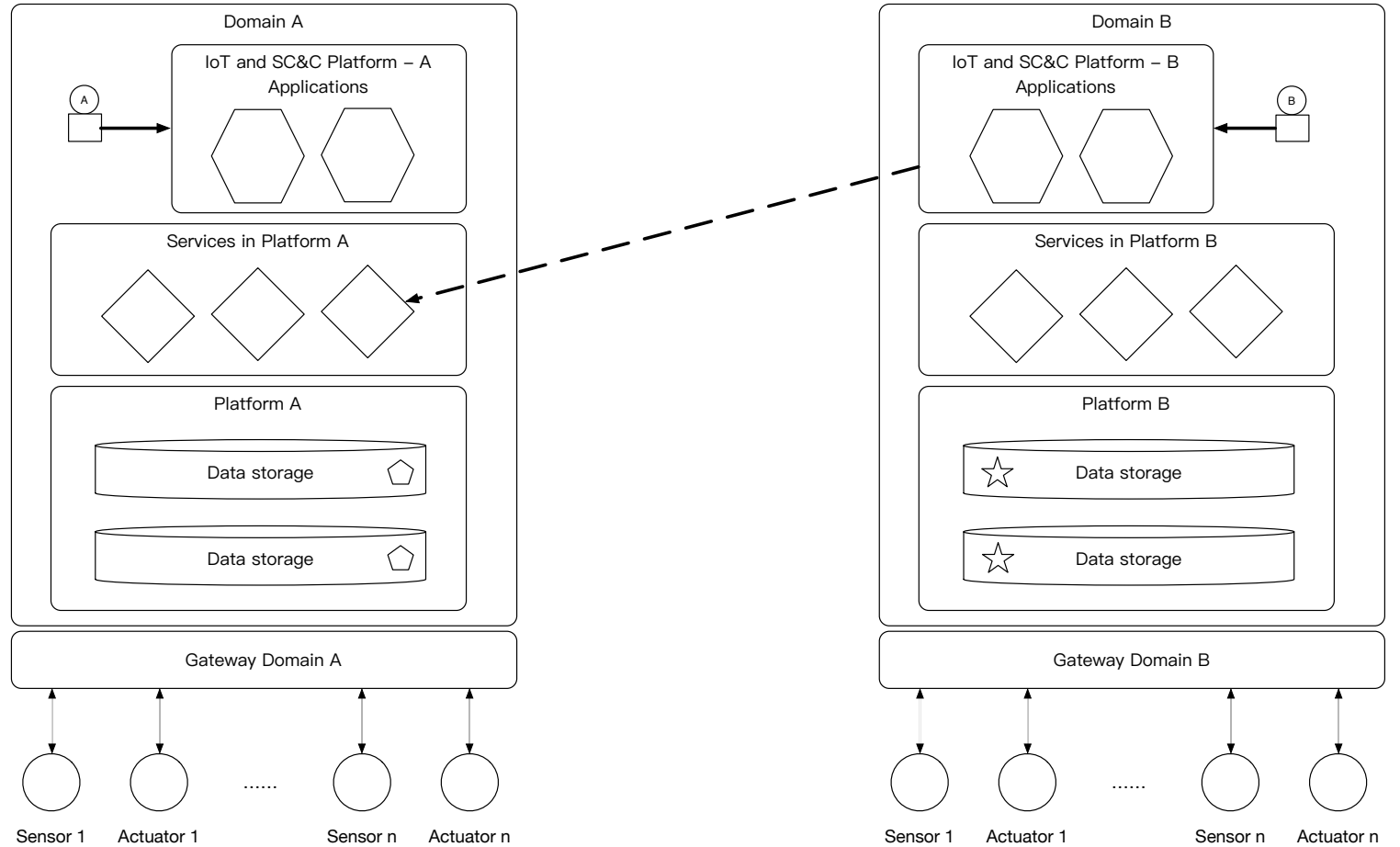
■ A model of the basic ecosystem architecture

Ref., Bröring, Arne, et al.
"Enabling IoT ecosystems through platform interoperability."
IEEE software 34.1 (2017): 54-61.

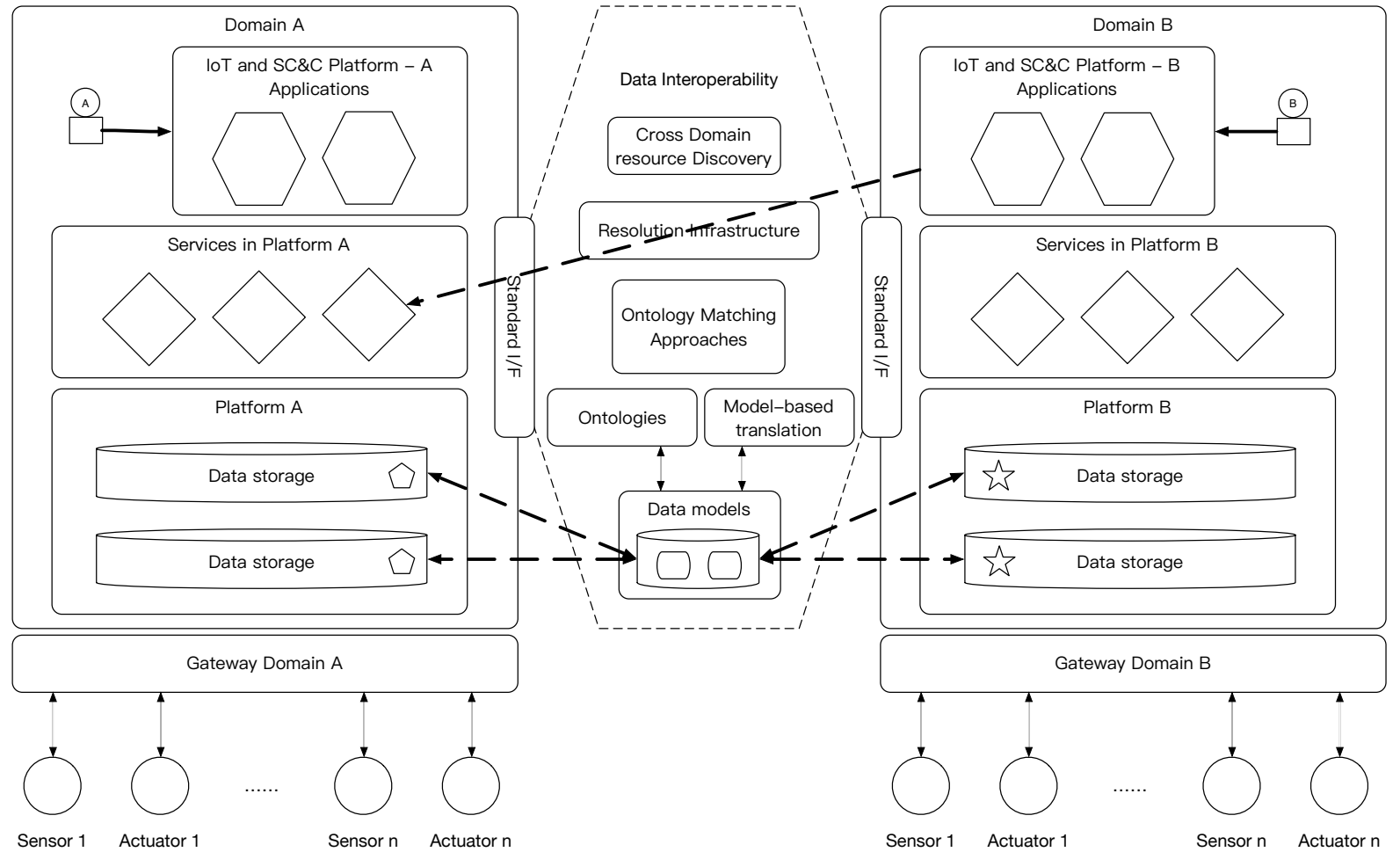


Ontology Cross-domain Solution

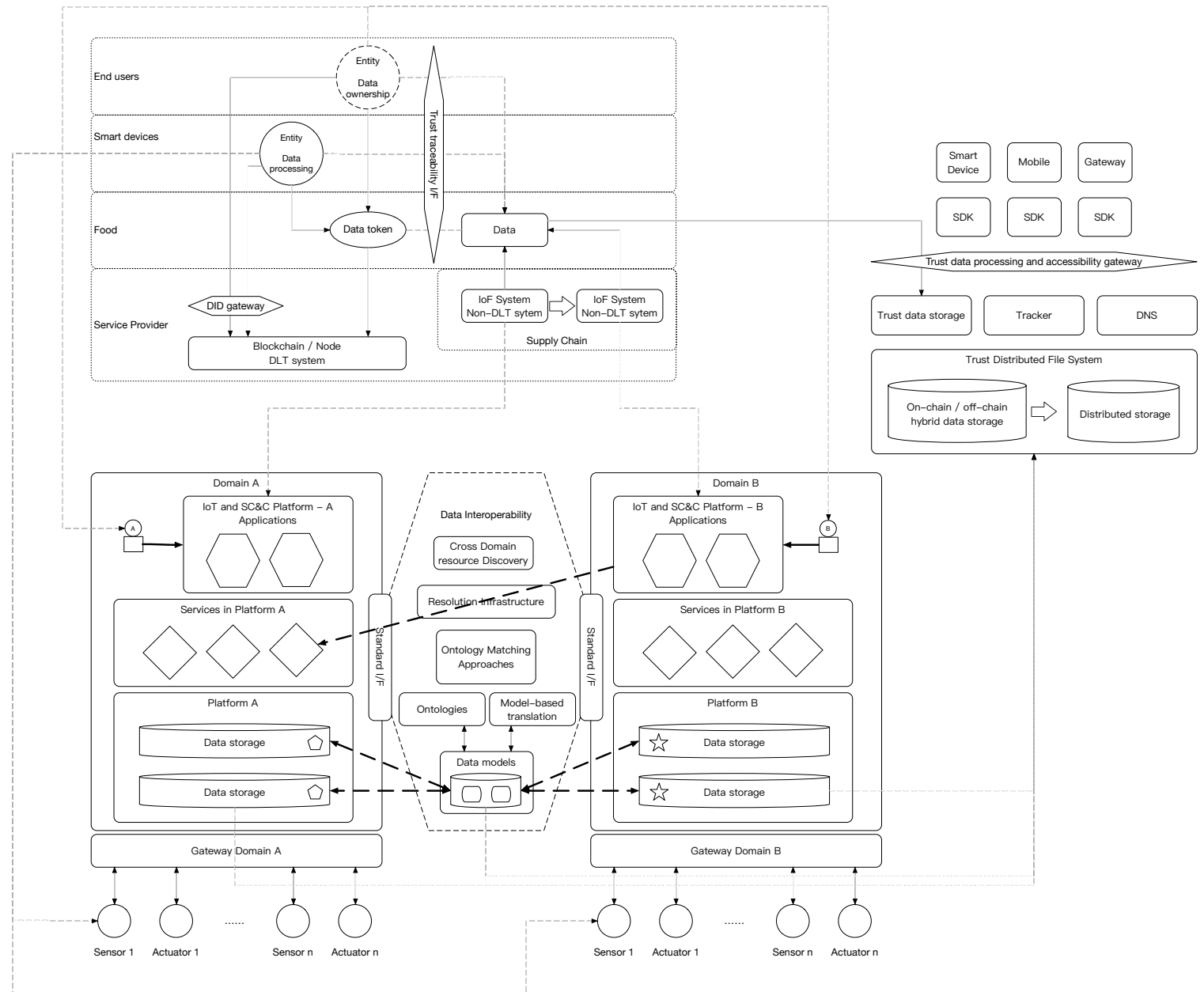
Systems in business cross domains



Data Interoperability
to Support
Supply Chain cross
Systems and Entities



Overall Framework



ONT ID system

Decentralized ID framework

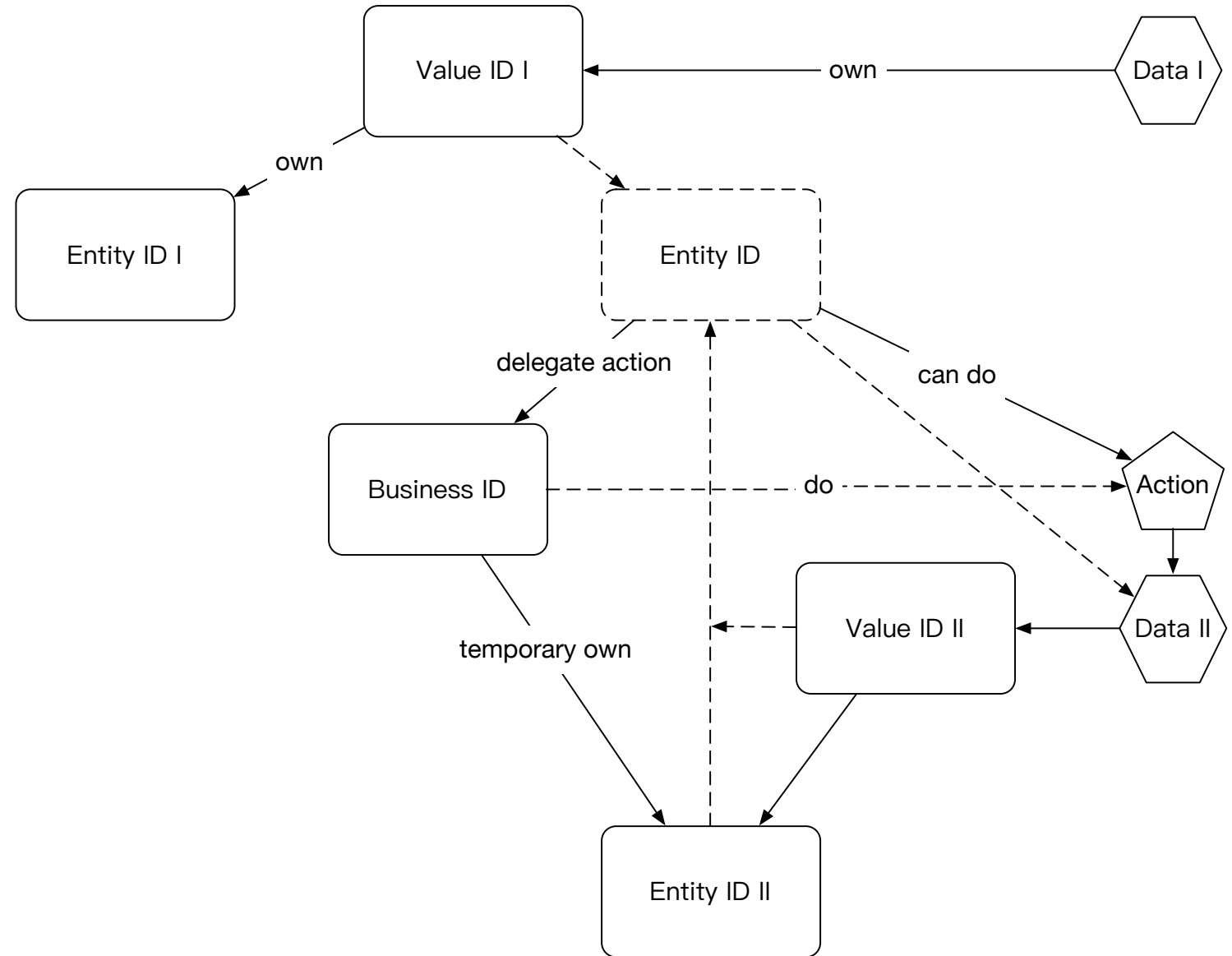
Distributed ID system for

- Entity (people, asset, object, action event)
- Data Ownership (Value)
- Action Operator (Business)

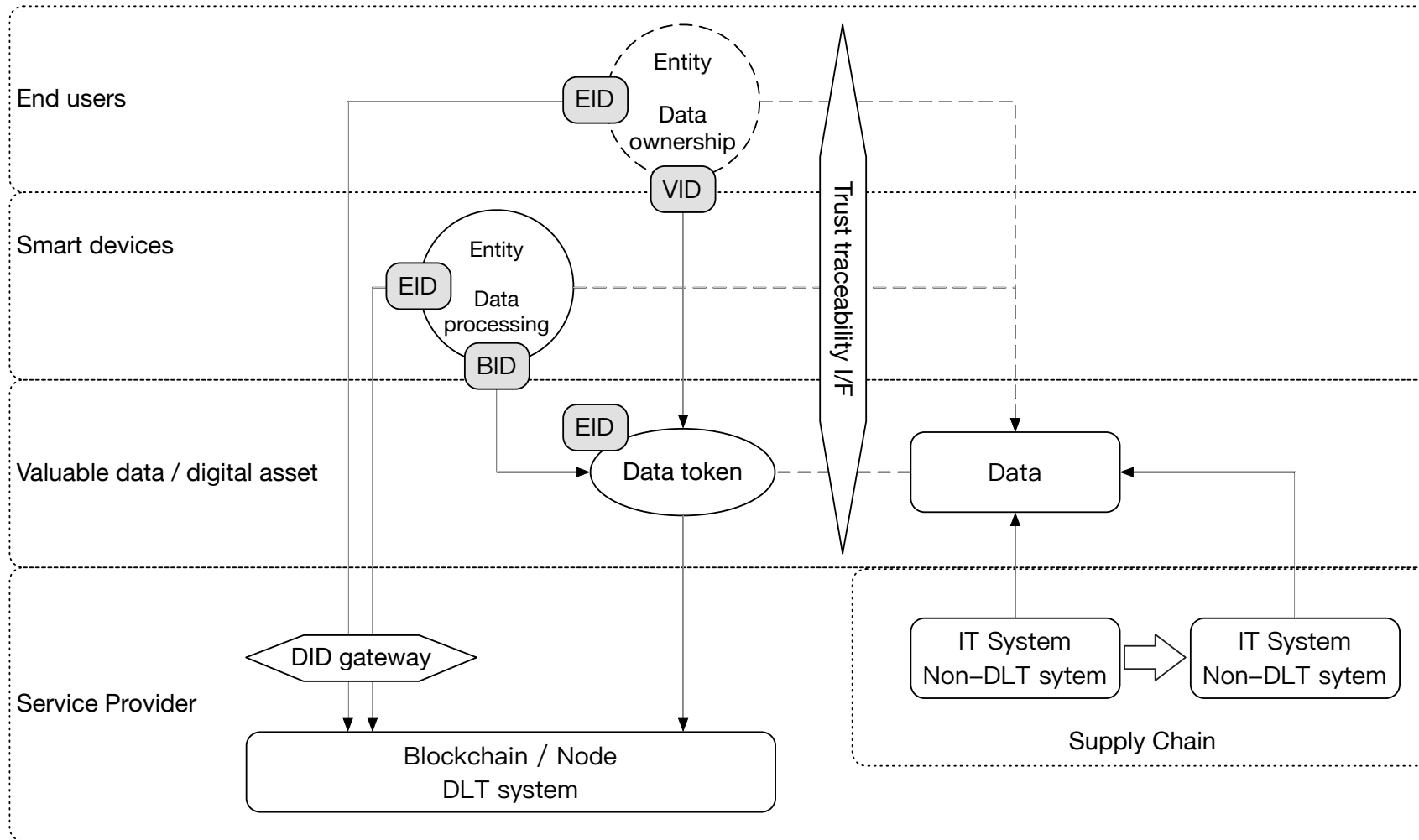
Decoupling of data interoperation and ownership

Data security:

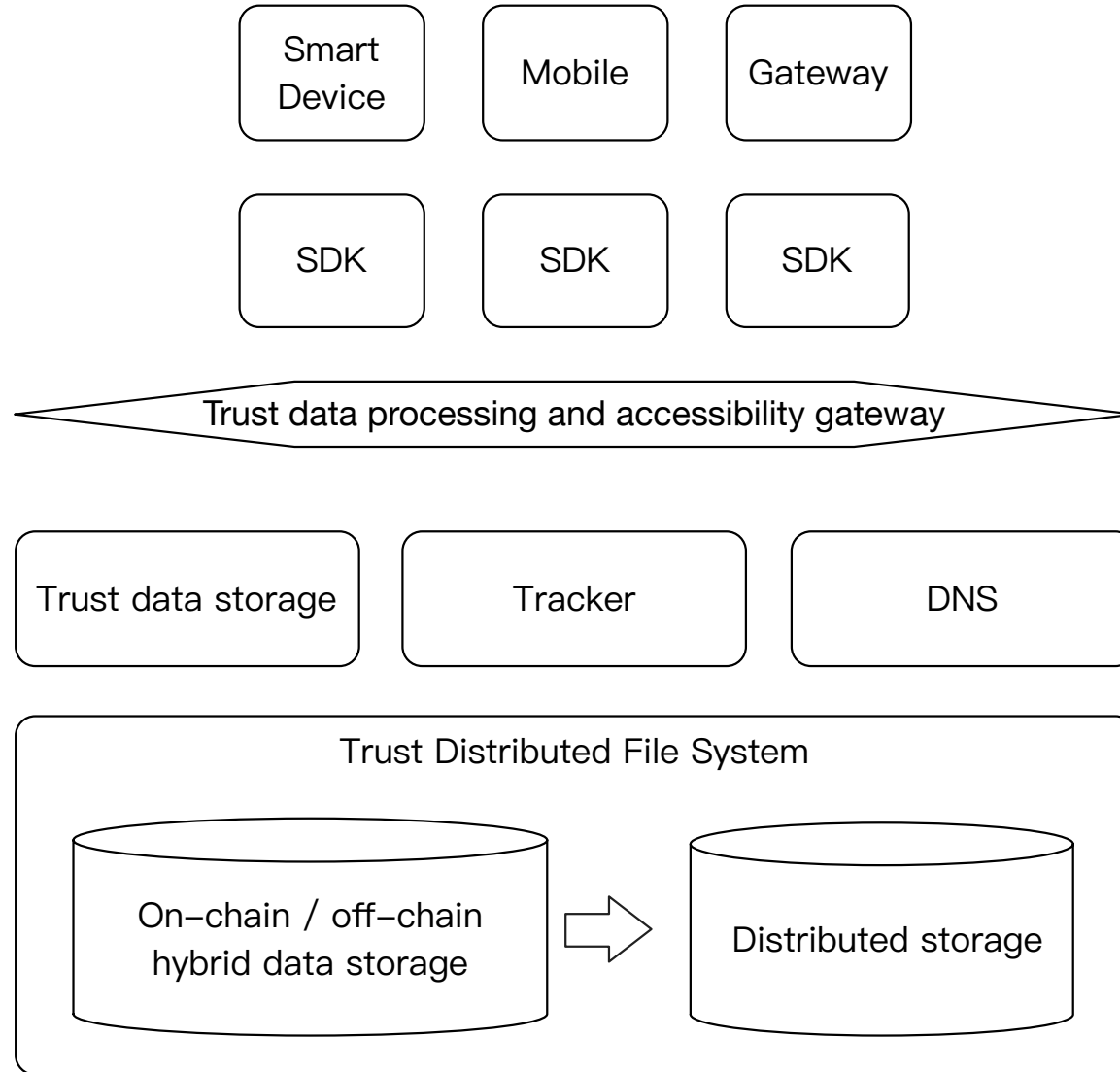
- Impenetrable End-to-End data encryption
- Supports UMA (User-Managed Access) protocol giving users complete control over their own data



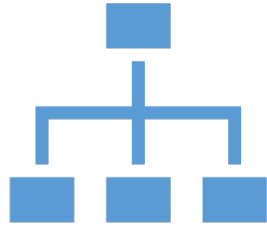
■ ID system in DLT



- On-chain & off-chain storage
- Multi-client supporting
- Access control with action traceability



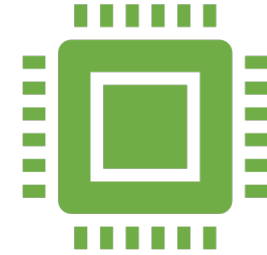
ID system in DLT



Capability to resolve integration cross
DLT/Non-DLT system



Three dimensions in ID system to decouple
the identifier of people, value assessment,
thing and event



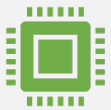
Token to resolve the traceability of ownership
transmission and data processing



Dual binding of data and data-token



To support data traceability along with data processing



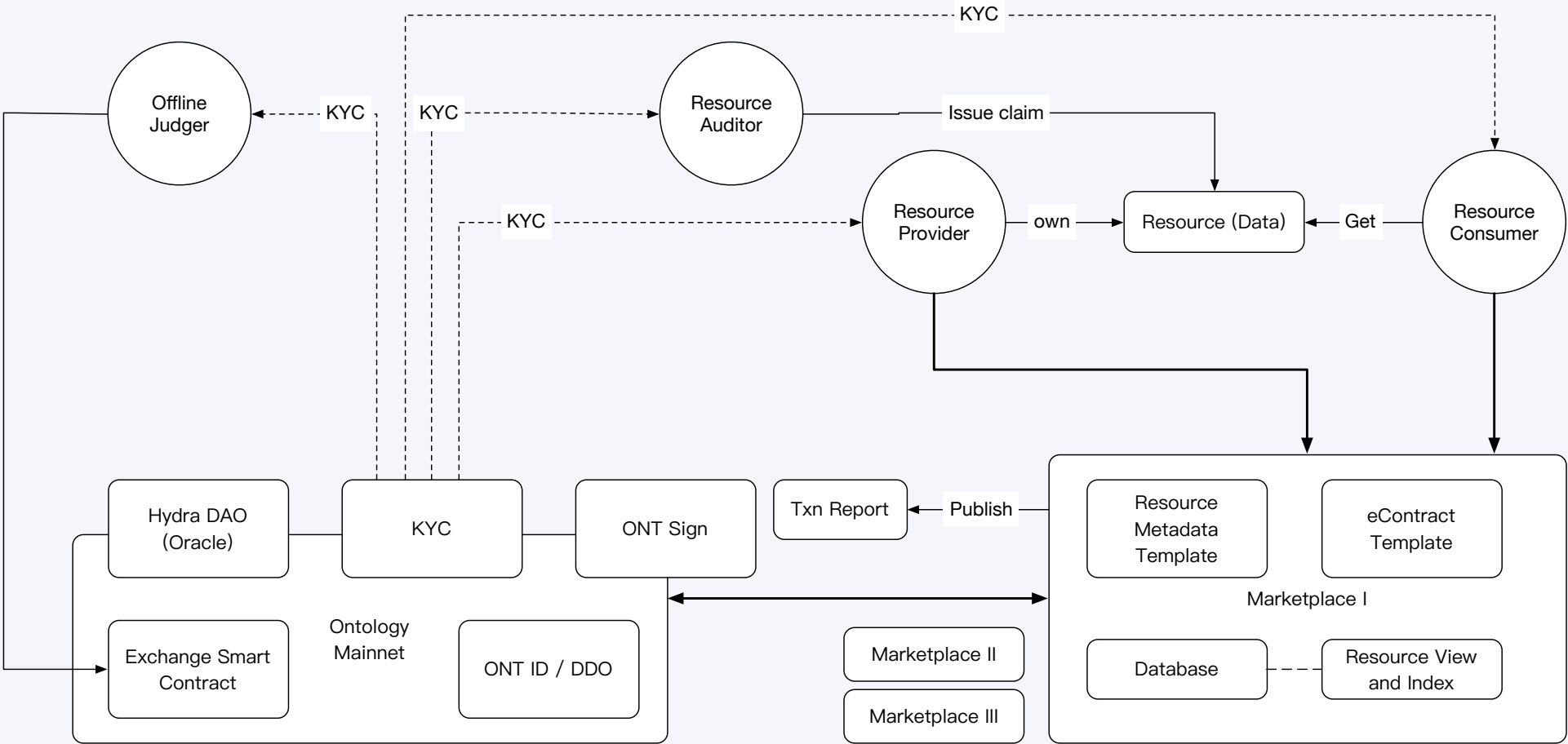
To trace data processing with UTXO and balance model in DLT/blockchain system

DDXF

Distributed Data eXchange Framework

DDXF

Marketplaces with distributed data exchange





ONTology