

ETSI ISG CIM – Digital Twin Workshop

Introduction to NGSI-LD

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High-Level Design Goals of NGSI-LD

Evolution of OMA/FIWARE NGSI Context Interfaces

Put NGSI-LD Information Model on a solid conceptual grounding

- Property graph model
- Enable semantic concept definitions
- Enable linking to existing information

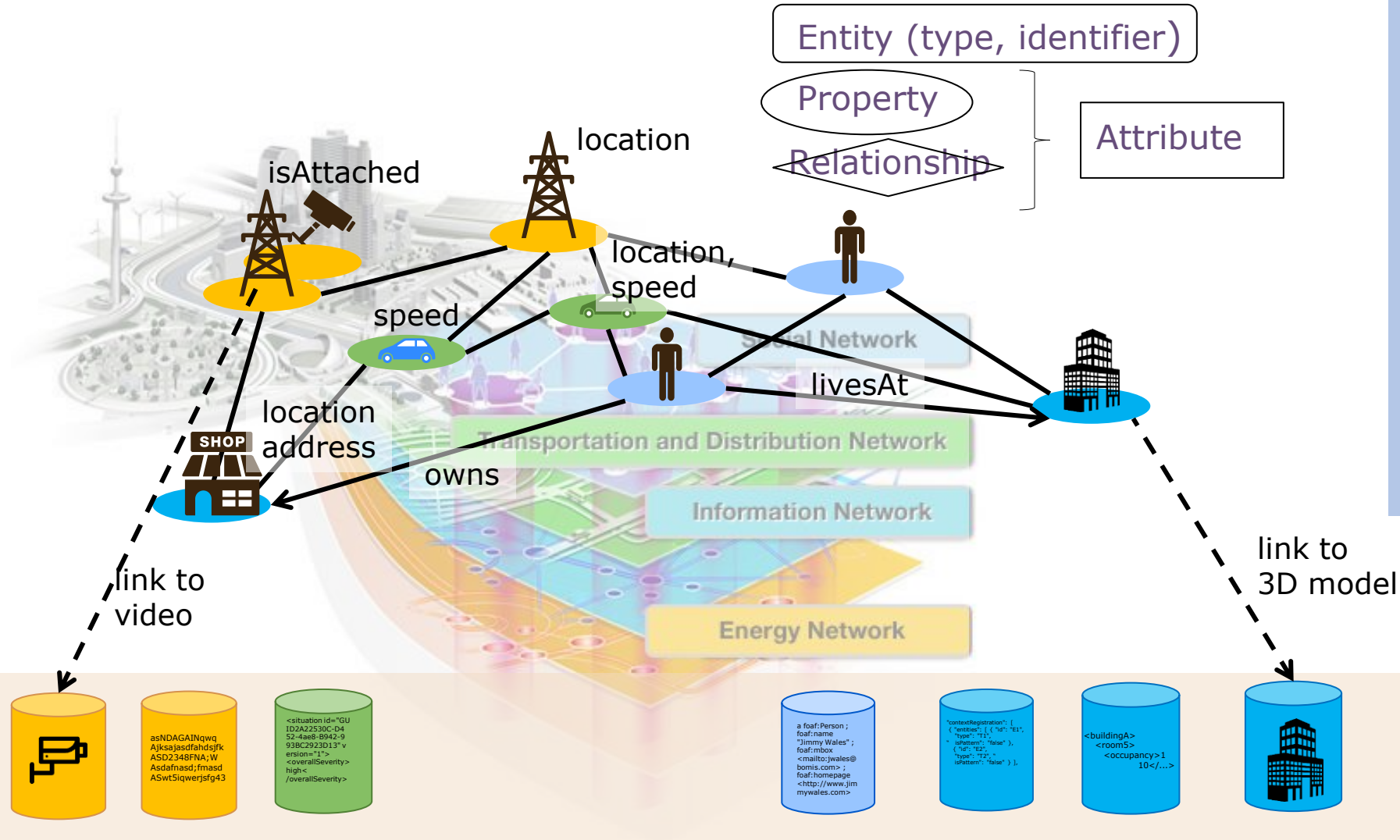
} **Linked Data**

NGSI-LD API: Enable applications to specify WHAT information they require (based on the NGSI-LD Information Model) – including *geographic scoping* and temporal interface

Support central as well as distributed and federated NGSI-LD system architectures with arbitrary information distribution

Provide basis for Digital Twins

NGSI-LD Information Model (Property Graph)

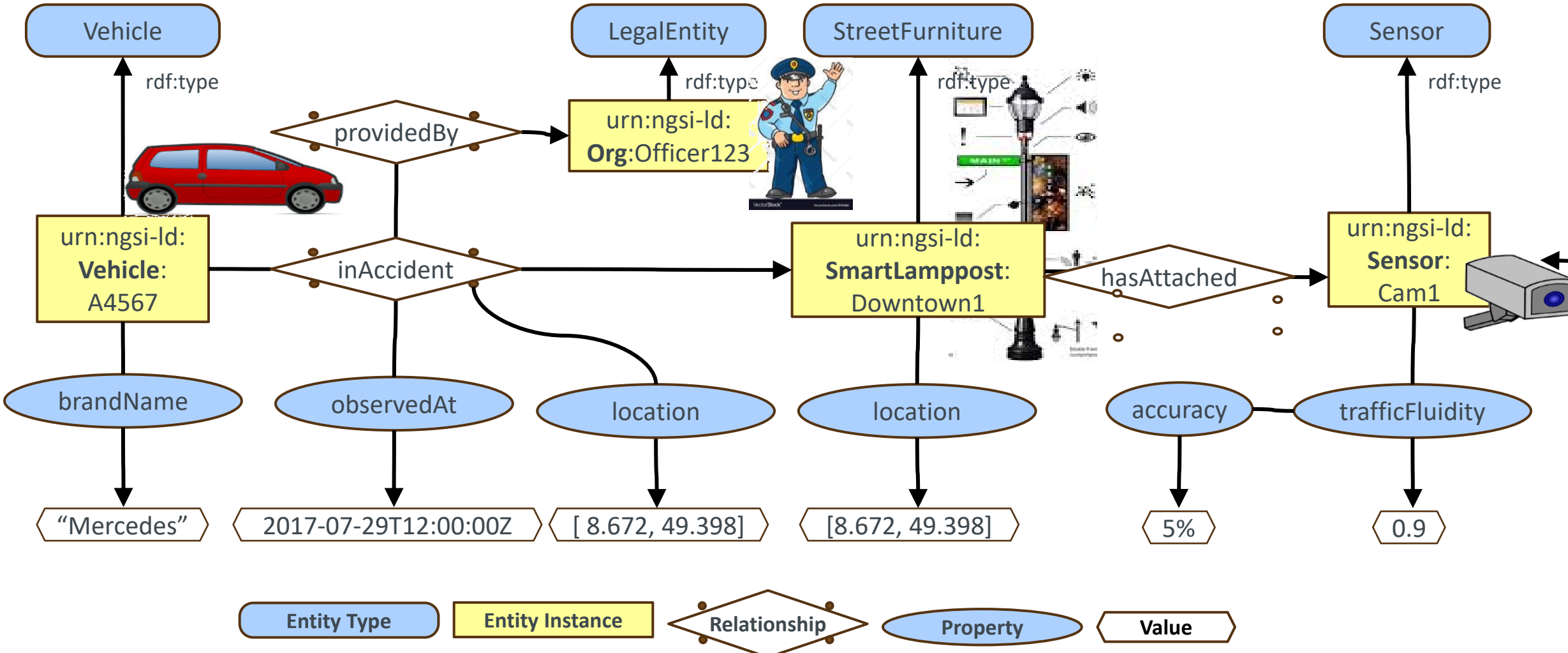


- ### Advantages of NGSI-LD Entity Graph
- = knowledge graph
 - ~ index structure, follow relationships to find relevant entities
 - retrieve relevant subset of entities and use advanced graph tools

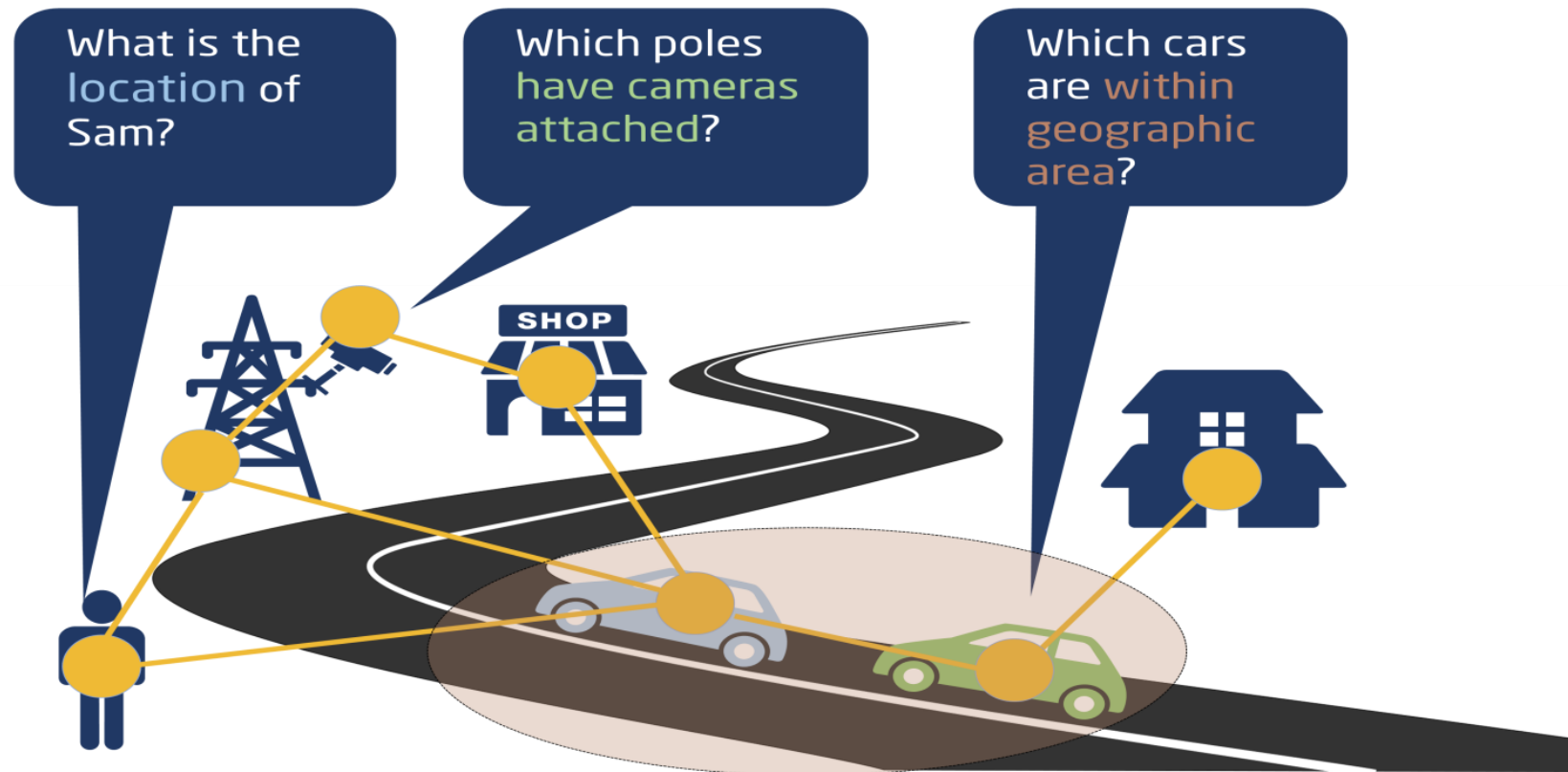
Data Lake with silos of heterogeneous data

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Detailed NGSI-LD Example



Source: ETSI ISG CIM



NGSI-LD Features

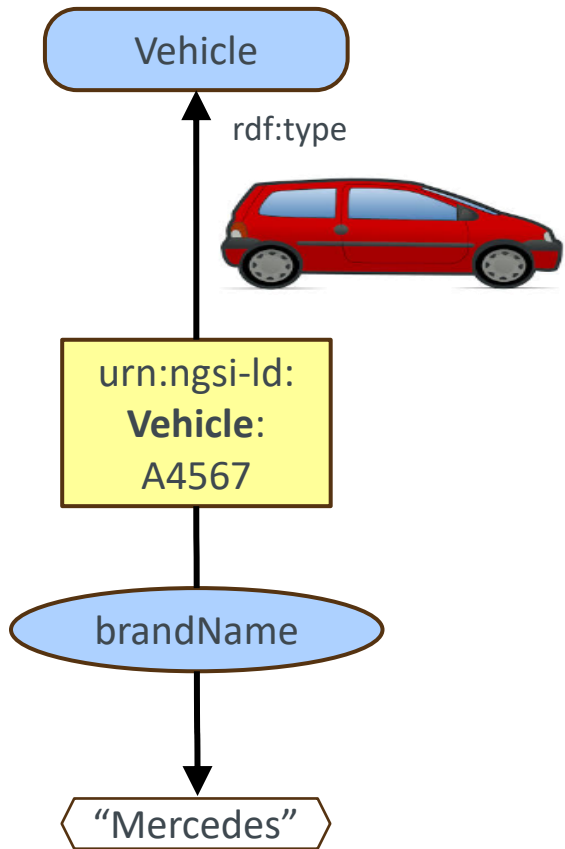
- **Knowledge graph:** Entities have Properties and Relationships
- Annotated Properties and Relationships
- Synchronous query and asynchronous subscription/notification interaction
- Filtering & paging
- **Geographic scoping**
- Temporal queries
- Support for centralized, distributed and federated architectures

Key aspects of NGSI-LD

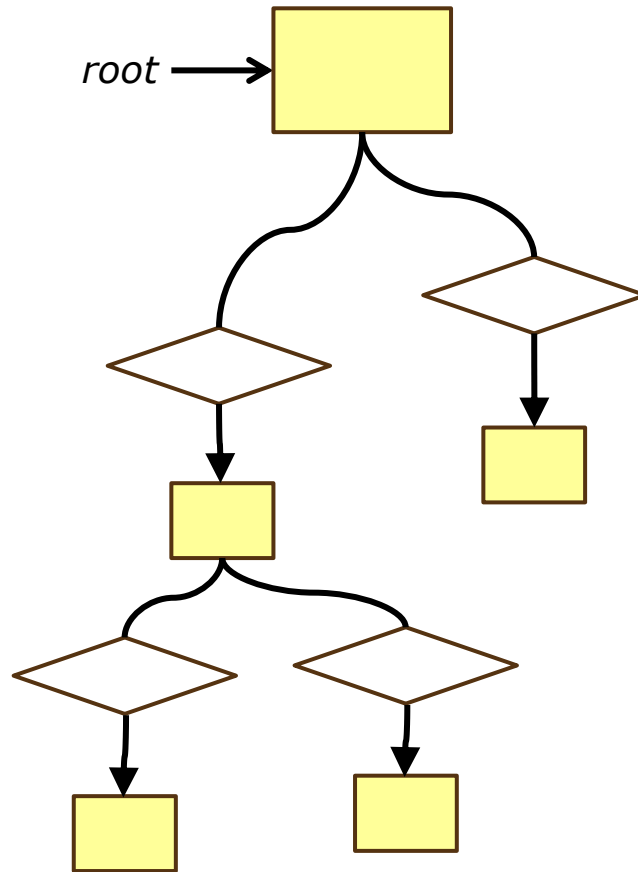
- NGSI-LD has a *knowledge graph* as its information model
- NGSI-LD provides an API for retrieving and managing information
- NGSI-LD supports different *architectural models* (central, distributed, federated)

NGSI-LD for Digital Twins

Atomic Twin



System Twin



Systems of Systems Twins

