



The Standards People

ETSI NGSI-LD specifications and DCAT-AP mapping

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High-Level Design Goals of NGSI-LD



Enable applications to specify **WHAT** information they require (based on the NGSI-LD Information Model) – including *geographic scoping* and temporal interface → **keep application simple!**

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

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 Information Model



NGSI Entity → Physical or virtual object.

- It has (at least one) Entity Type.
- Uniquely identified by an Entity Id (URI)

Entity has zero or more attributes identified by a name (mapped to URI in @context)

- Property --> Static or dynamic characteristic of an entity
 - GeoProperty (geospatial context)
 - TemporalProperty (time context)
- Relationship → Association with another NGSI-LD entity (unidirectional)

Properties have a value

- Can be a single value (Number, String, boolean), or complex (Array, Structured Value)

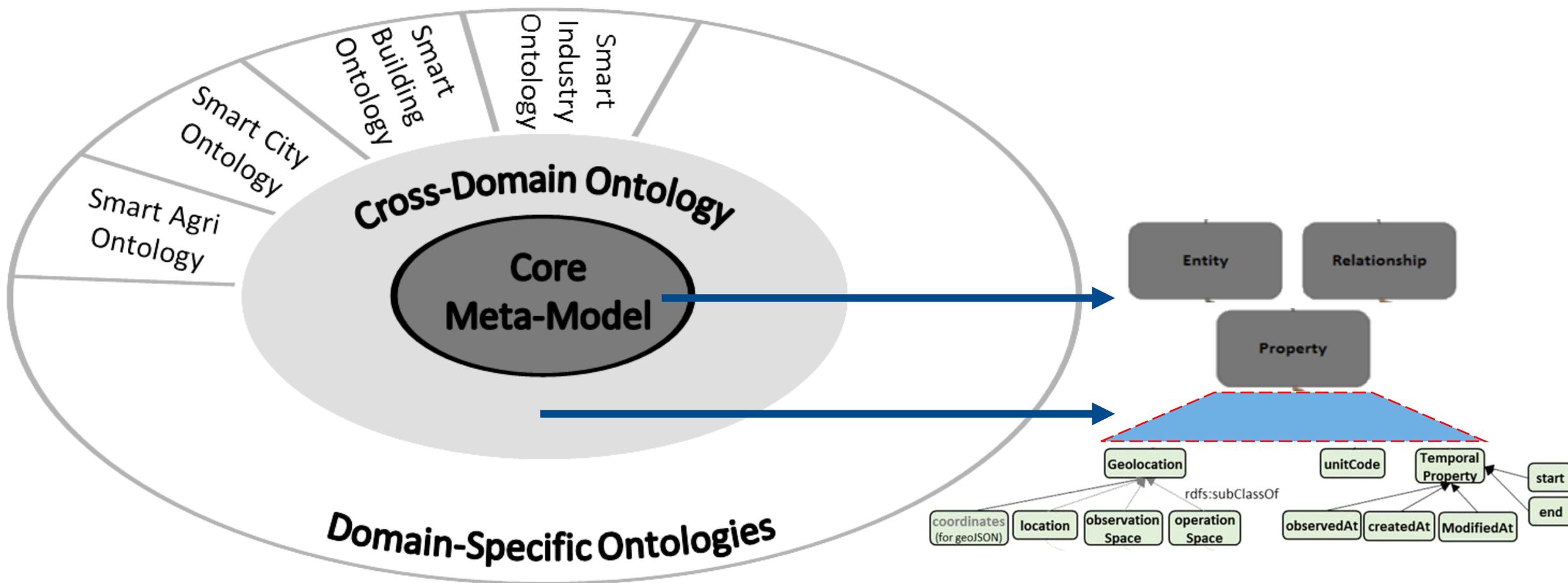
Relationships have an object

- A URI pointing to another entity (target of the relationship). Target can be a collection.

Properties and Relationships can again have properties and relationships (meta information)

NGSI-LD Information Model

Need geospatial and temporal elements to be uniquely defined for interoperability



→ Data Models

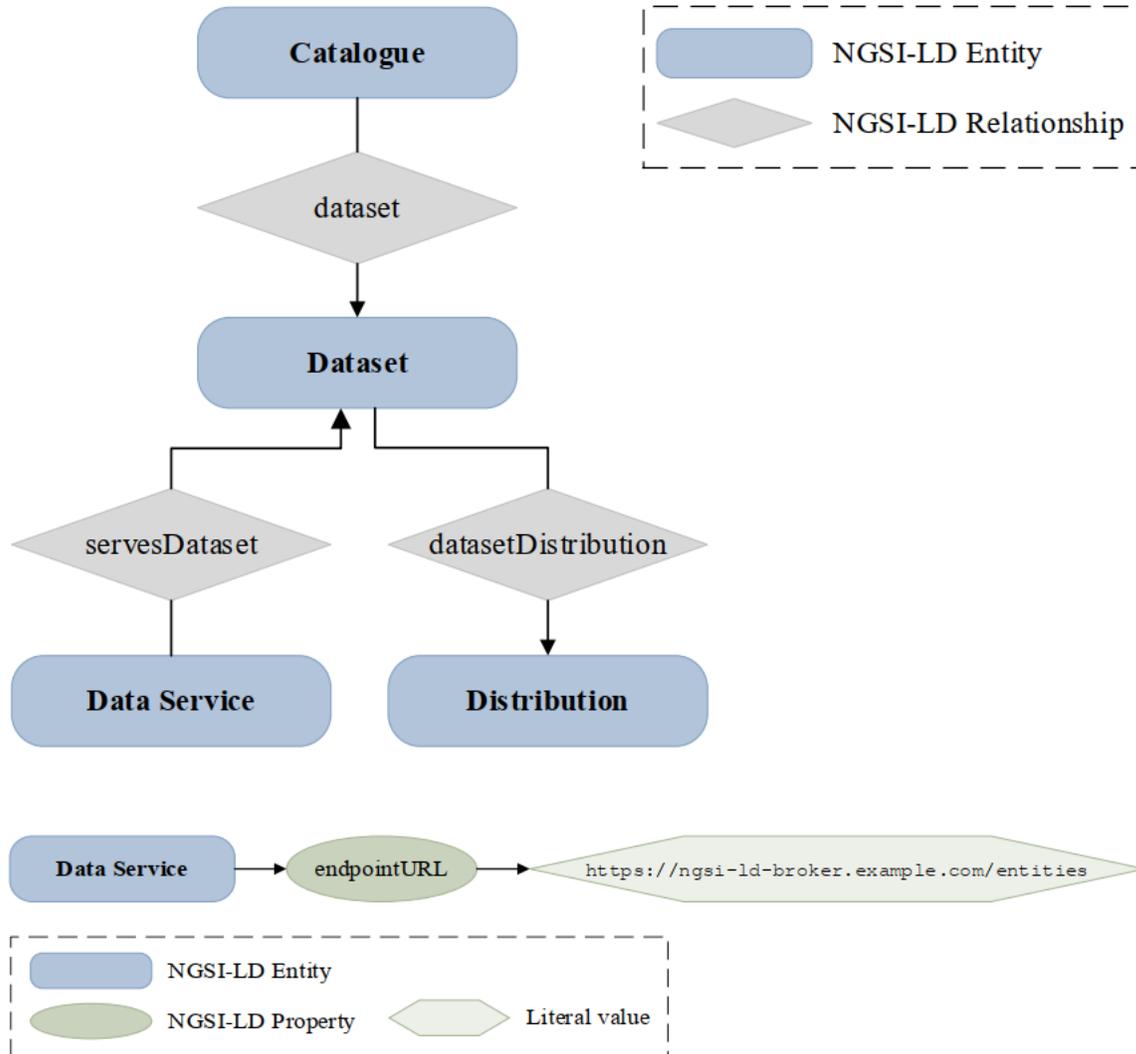
The **DCAT Application Profile for data portals in Europe** (DCAT-AP) is a specification based on W3C's Data Catalogue vocabulary ([DCAT](#)) for describing public sector datasets in Europe. Its basic use case is to enable a cross-data portal search for datasets and make public sector data better searchable across borders and sectors. This can be achieved by the exchange of descriptions of data sets among data portals.

The specification of the [DCAT-AP](#) was a joint initiative of [DG CONNECT](#), the [EU Publications Office](#) and the [Interoperable Europe Programme](#). The specification was elaborated by a multi-disciplinary Working Group with representatives from 16 European Member States, some European Institutions and the US.

The specification is now being on-boarded by dataspace for catalog publication

Source: <https://interoperable-europe.ec.europa.eu/collection/semic-support-centre/solution/dcat-application-profile-data-portals-europe/release/301>

DCAT-AP to NGSI-LD Mapping essentials



- **Catalogue** → meant for describing a repository that hosts the Datasets or Data Services.
- **Dataset** → meant for describing a conceptual entity that represents the information published.
- **Distribution** → meant for describing a physical embodiment of the Dataset in a particular format. Distributions are specific representations of a dataset.
- **Data Service** → meant for describing a collection of operations that provides access to one or more datasets or data processing functions.
- **Dataset Series** → meant for representing a collection of datasets that are published separately, but share some characteristics that group them.