Mision

Vision

Objectives

Problem Description

Solution Approach

Features

Backends: RDF(S), OWL, Property Graphs, SPARQL, ShEx, SHACL. Native inference (upper ontologies).

Backends introduction: OGM, features (Service Resources).

Quads introduction.

Encoding / Addressing / IDs.

Normalization.

Parsing / Protocols / Messages.

Features in practice. Use Case: "Goals App".

Ontology matching / alignment: Merge domains / backends data, schema and behavior (reified as schema / dataflows).

Message based / Event sourcing driven core (OntResource Dataflow integrations).

Message connectors / translation interfaces (via Service Resources):

Resource oriented REST HATEOAS / HAL Hypermedia facade. Endpoints, encoding, Forms, Flows.

Connectors examples: Apache Metamodel, JBoss Teiid, Apache Any23, R2QL, etc.

JDBC / JCA: Drivers / Resource Adapters.

Declarative Application Stack (Hypermedia example): XML, XSL, XPath, XQuery, XLink, XPointer, XForms, XUL).

Models:

OntResource:

Abstract layer: Alignment APIs. Template methods. Hierarchy key / value reification (alignments). Meta Meta Model.

Role : Occurrence : Object : OntResource;

Meta Resource (DOM): Role.

Service Resource (I/O, etc): i.e.: JDBCOntResource.

OntResource: reactive event driven processor (topics / queues: streams of corresponding signatures (Kinds) according specific OntResource Role subclass.

Meta Models. Facets. APIs (layers templates):

Augmentation:

(Relation, Kind, Statement, Role);

(Relation, Statement, Kind, Resource);

Dataflow:

(Augmentation, Template / Predicate, Mapping, Transform / Resource);

Dimensional:

(Dimension, Unit, Measure, Value);

APIs interact with each other when Roles in different Facets refers to the same OntResource.

Augmentation:

Order.

Activation: Dataflow fires / consumes stream events (Kinds / Roles). Concrete Role hierarchy instances / OntResource templates

Aggregation: Functors. Role layer instances involved in Activation matching.

Alignment: Transforms. Involved matched Functors mapping application streams.

Model Levels: Backend, Domain, Session DOM Roles resources aggregation.

FCA. Lattices:

Meta Model(s) Facets layers as axes of an FCA context (object / attributes). Axes use FCA scaling for grouping of Roles instances. Concepts, attributes, values:

(type / val) x (type / val): (type / val);

Reify contexts SPO as new FCA context axes: aggregate metadata.

Sorting, matching, augmentations, query, browse, ontology completion (inferences).

Learning: ML embeddings encoding scaled (type / val).

TBD: mcls, cls, occur, inst template roles.

TBD: Sets. IDs. Hashing (bitstring), layout rules, set encodings.

TBD: Ontology matching: Triadic FCA Context (object, attribute, condition). Fuzzy / rough sets (papers).

TBD: Protocol: Endpoints SPI / API implementation. Uniform Hypermedia interface. Messaging layer (levels). JDBC / JAF / JMS / JCA Connectors / Adapters.