

# ontology-driven applications in the context of the e-commerce vertical

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## Unister

- e-commerce service provider
- B2C context
- large scale web portals
- verticals: travel, comparison, ...

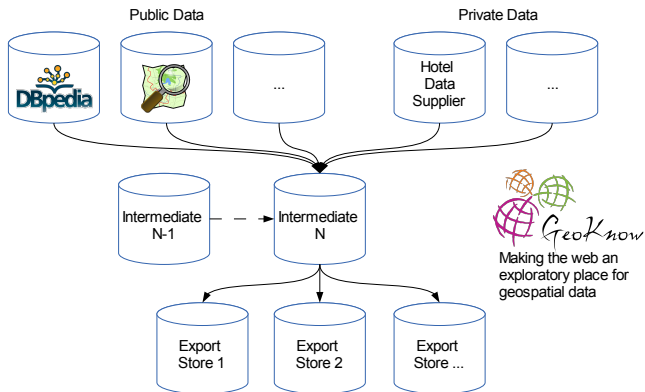
## Why interested into Linked Data?

- major flaw: currently web portals mostly just provide product access
- users search for environment information

## Challenges

1. Data Integration
2. Semantic Search

## Data Integration: Overview



## Data Integration: Requirements

- private data: short interval update
- request for high quality data
- co-evolution of data
  
- data validations (tests)
- deliver a sound set of relevant changes within the ontology to the QA
- statistics analyses (aggregation queries)

## Example: Statistics Analyses

uncover integration problems

- distribution of hotel stars per region
- clustering of hotel features
- discover outliers
- ...

## Challenges

1. Data Integration
2. **Semantic Search**

## Search-driven Web Applications

### ontology-driven auto completion

- suggestions based on ontology
- SPARQL based implementation is slow
- functional lack: string evaluation (labels)

### search suggestions

- compute similar resources based on attributes
- weighted evaluation (ranking)
- performance lack: on the fly computations



## Search-driven Web Applications

### common semantic search patterns

A: Concept<sub>1</sub> Relation<sub>1</sub> Instance<sub>1</sub>. Concept<sub>1</sub> Relation<sub>2</sub> Instance<sub>2</sub>.

- Hotel located\_in "London". Hotel has\_feature "WiFi".
- Hotel nearby "River Rhine". Hotel suiteable\_for "Families".

B: Concept<sub>1</sub> Relation<sub>1</sub> Concept<sub>2</sub>. Concept<sub>1</sub> Relation<sub>2</sub> Instance.

- Hotel close\_to Beach. Hotel in "Spain".

C: Concept<sub>1</sub> Relation<sub>1</sub> Instance<sub>1</sub>. Concept<sub>1</sub> Relation<sub>2</sub> Concept<sub>2</sub>. Concept<sub>2</sub> Relation<sub>3</sub> Instance<sub>3</sub>.

- Hotel located\_in "Italy". Hotel close\_to City. City has "Culture".

## Search-driven Web Applications

### search with social aspects

- fetch data of the user's social graph
- integrate social graph into search query
- problem: on the fly integration and computation

## Conclusion: Benchmark Requirements

- compute statistics insights
  - e.g., distributions of features depending on attributes
- geospatial searches using polygons
  - e.g., rivers
- appending and evaluating graph on the fly for querying
  - e.g., social aspects
- performance of set-oriented queries
  - e.g., `Hotel located_in "London". Hotel has_feature "WiFi".`
- traffic peaks on live web application
  - cache effect possible on application level (less important)



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