



MetaData Retrieval: annotating maps with social tags

Rosa Meo¹, Elena Roglia^{1,2}, Enrico Ponassi¹

(1) University of Torino, Italy

(2) ITHACA, Torino, Italy



The Context

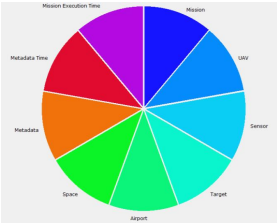
- SMAT-F1: it is the first phase of the SMAT project whose aim is the development of a distributed system for territory monitoring for the environment protection by means of Unmanned Aircraft Vehicles



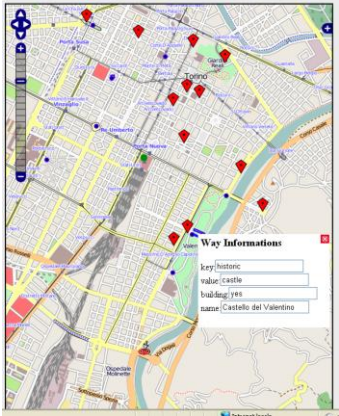
Motivations

- The Unmanned Aircraft Vehicles download images and data regarding the geographical areas
- The operators need to interpret these data by gaining insights into the geographical areas
- The idea is exploiting the annotations on named locations and on the spatial objects provided by the people – the users of the social networks
- Users act like sensors
- The process: Volunteered Geographical Information

Query By Example



GUI



MetaData Retrieval



GeoNames

OpenStreetMap

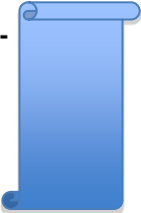


compiler
MetaData Retrieval

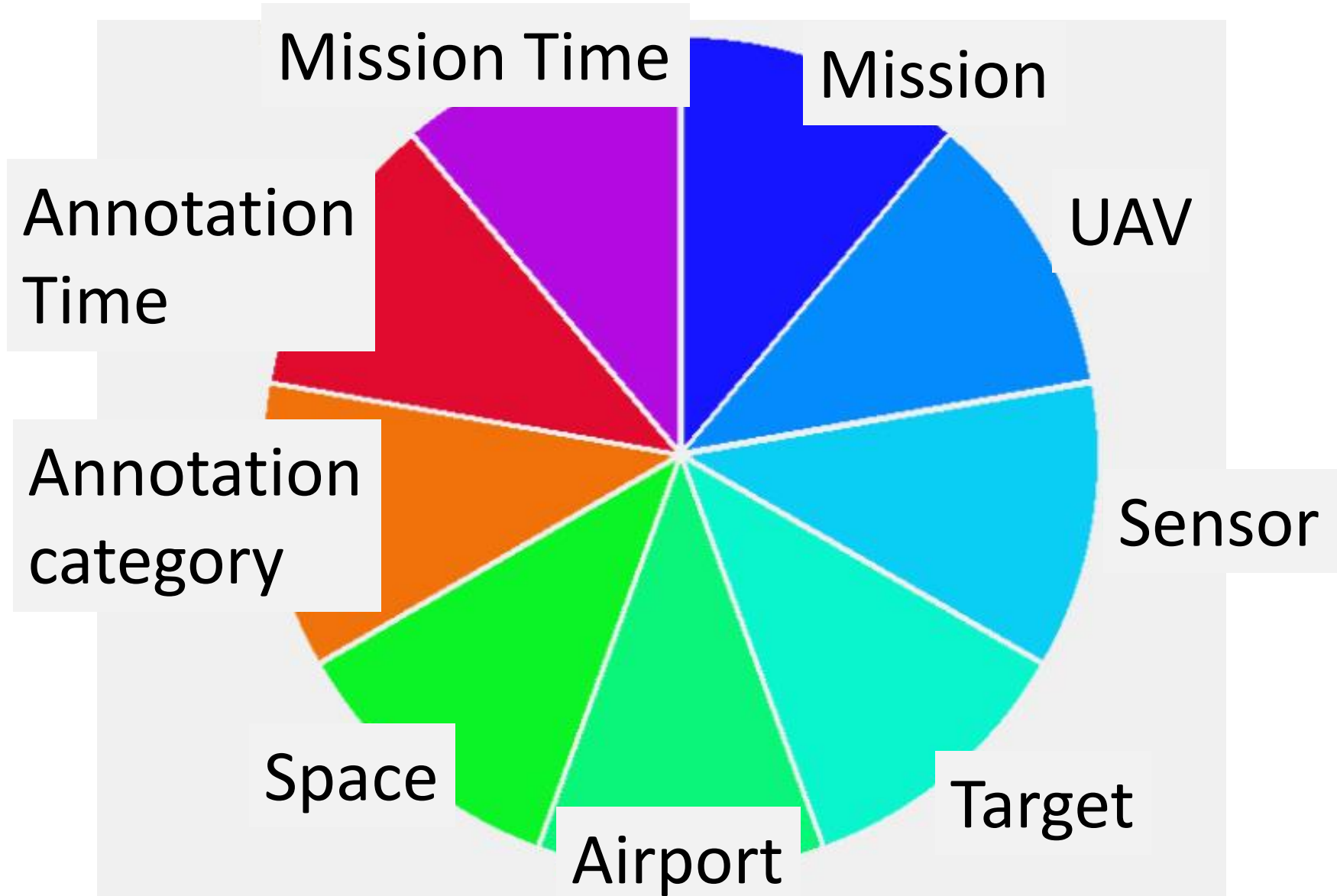
Data Interface Layer (DIL)
 to PostGIS and PostGres



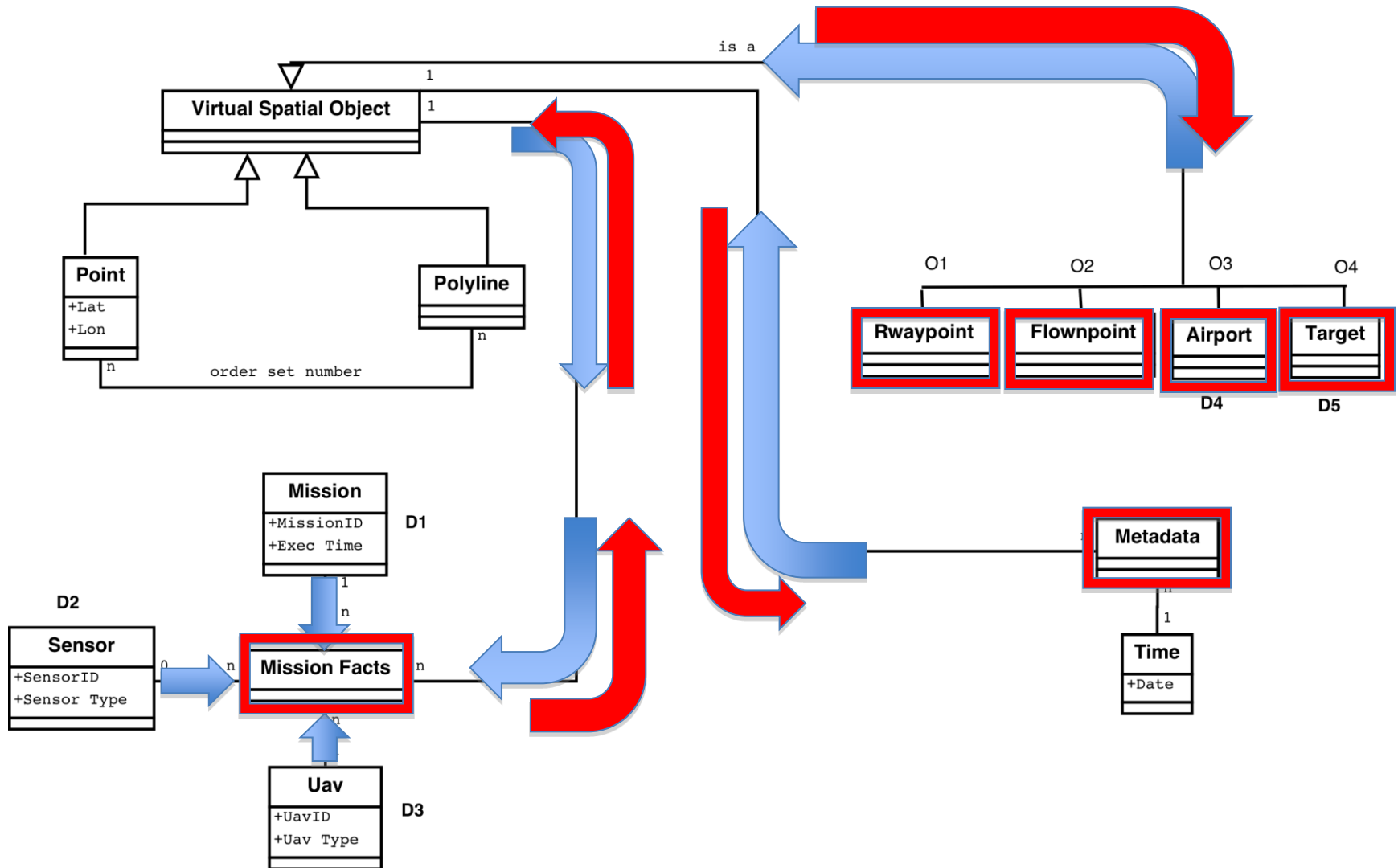
PostgreSQL



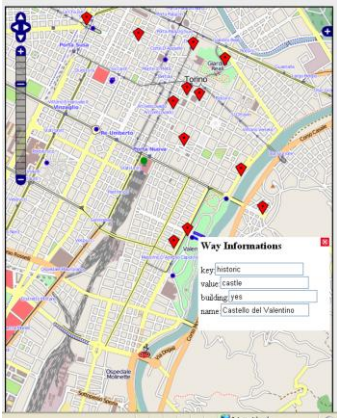
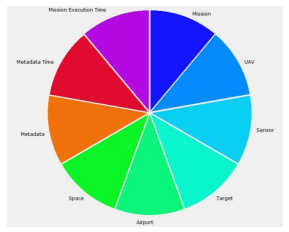
Query By Example



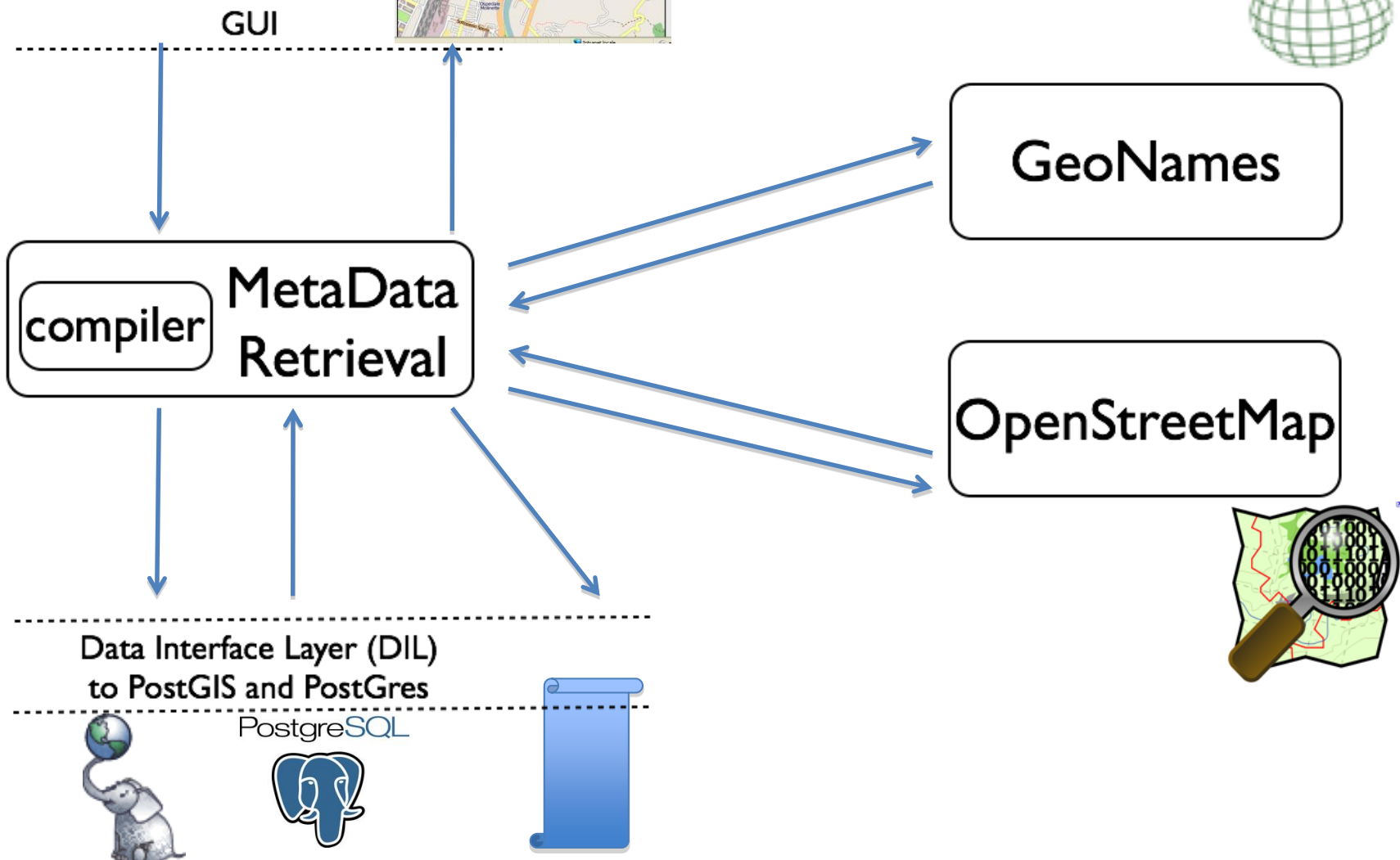
Star schema of the multi-dimensional model



Query By Example

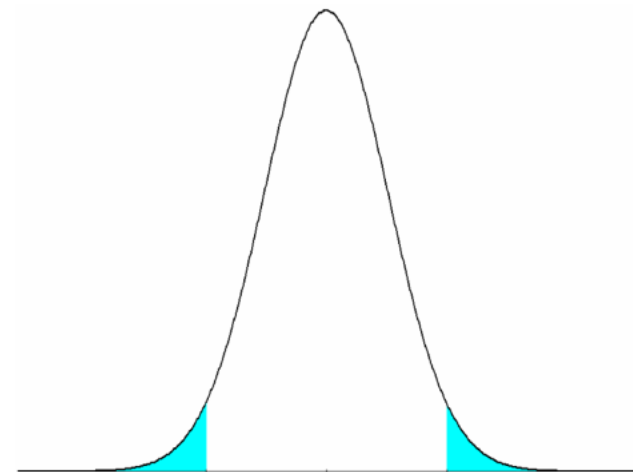
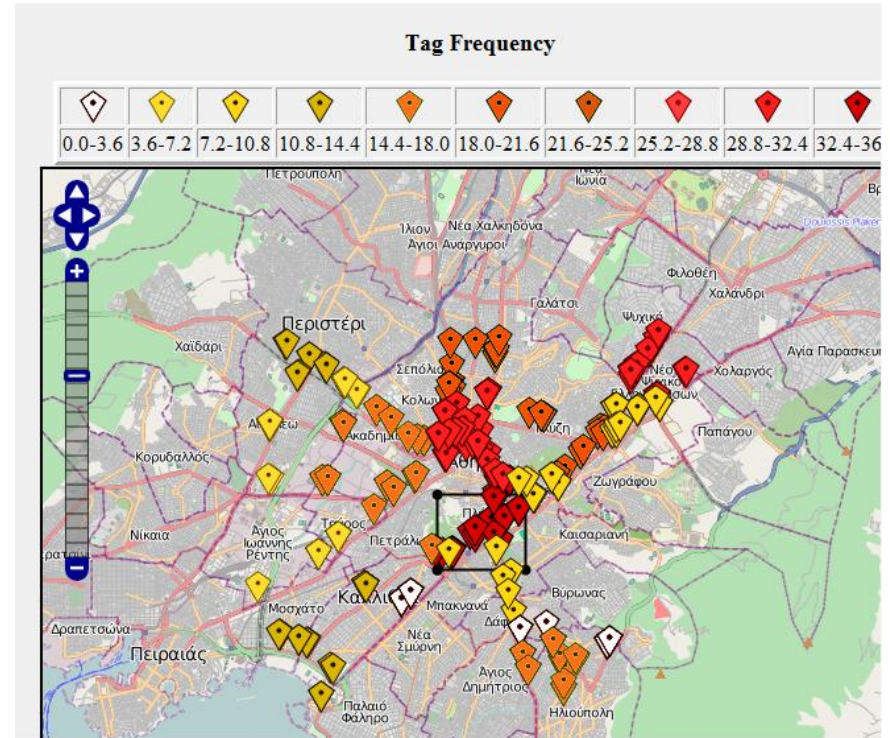


MetaData Retrieval



Tags Filter and Map Characterization

1. Sample construction by a regular grid around the area to be characterized
2. Spatial auto-correlation hypothesis: the frequency of an annotation category is similar in nearby cells
3. Selection of categories whose frequency in the central grid cell is an anomaly w.r.t. the frequency distribution in the neighborhood cells



Thank you for your attention!