

GEOSPATIAL SEMANTIC MEDIATION

(A SEMANTIC WEB PERSPECTIVE)

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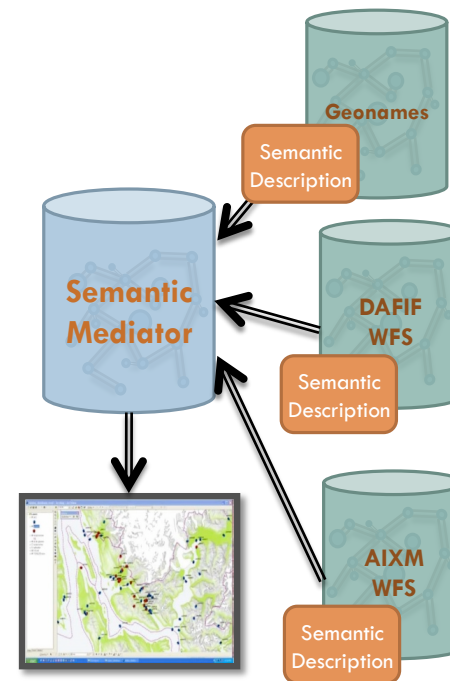
Why Semantic Mediation?



- Meaningful Combinations of Data
 - By a machine, and not in the head of the user.
 - Across multiple geospatial data sources.
 - Across geospatial data sources and non-geospatial data sources.
 - Converting into the vocabulary of the user.
 - Without knowing every place that a piece of data could be stored.
 - Without knowing how to interact with n different data services.

Where we started

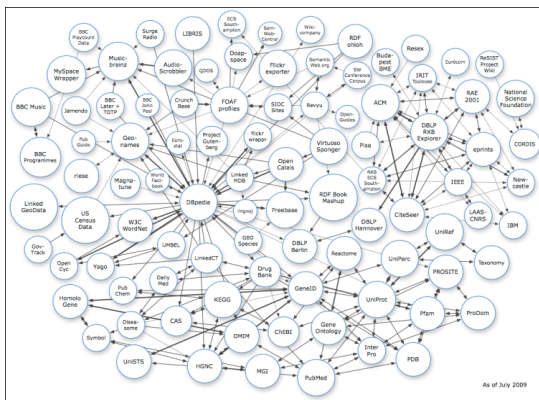
- OGC Interoperability Experiment (2005)
 - Combine data from multiple Web Feature Services
 - WFS's have semantic descriptions of their content
 - Semantic mediator translates queries, interacts directly with WFS's, and unifies answers



Semantic Web (circa 2005)

- RDF & OWL
 - ▣ Documents posted on the Web
- Focus on ontologies
- No standard query language
- Few reused URIs/ links between datasets

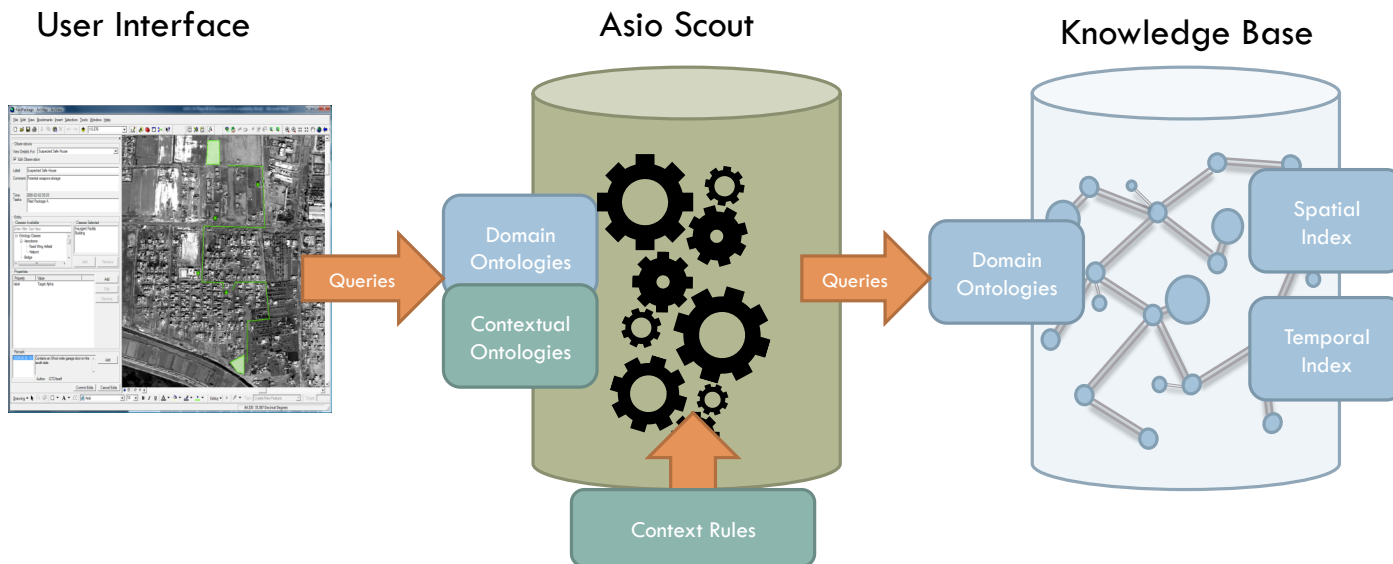
Semantic Web (circa 2010)



linkeddata.org

- Focus is on *data*
- Linking Open Data
 - SPARQL Endpoints means increasing pockets of data for which you can *query* the web
- Open Street Map (linkedgedata.org)
- GeoNames.org (6.9M features)
- Data.gov (6.4B triples!)

Translating Data – Contextual Query Answering



Embracing the Semantic Web

- What would it mean for the OGC to fully embrace the Semantic Web?
 - Geometry descriptions in RDF
 - RDF predicates for geospatial queries (GeoSPARQL)
 - Ontologies for geospatial domains
 - These can start light!
 - Much of the material already exists in GML schemas
 - Leverage temporal ontologies
 - Web Ontology Service?
 - Maybe. This would support current OGC infrastructures, giving them some of the benefits of semantics
 - Semantic Web Feature Service?
 - Maybe not. For Semantic Web applications leveraging geospatial data, spatially-enabled SPARQL endpoints may be superior

The Geospatial Semantic Web

