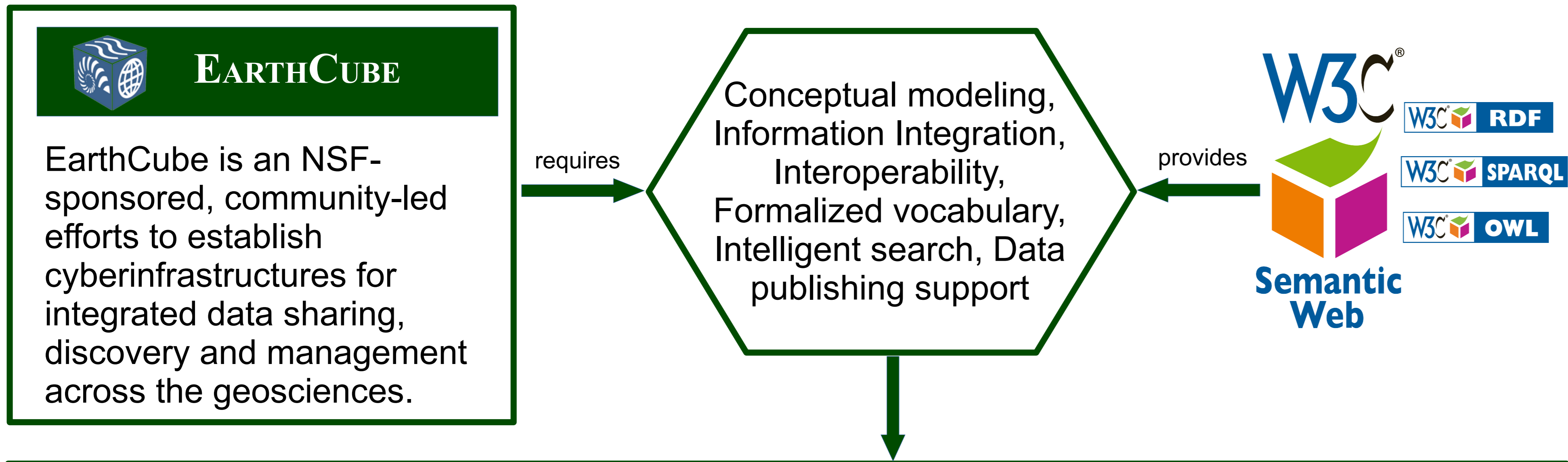


Cross-repository Information Discovery in the Earth Sciences

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OCEANLINK Project

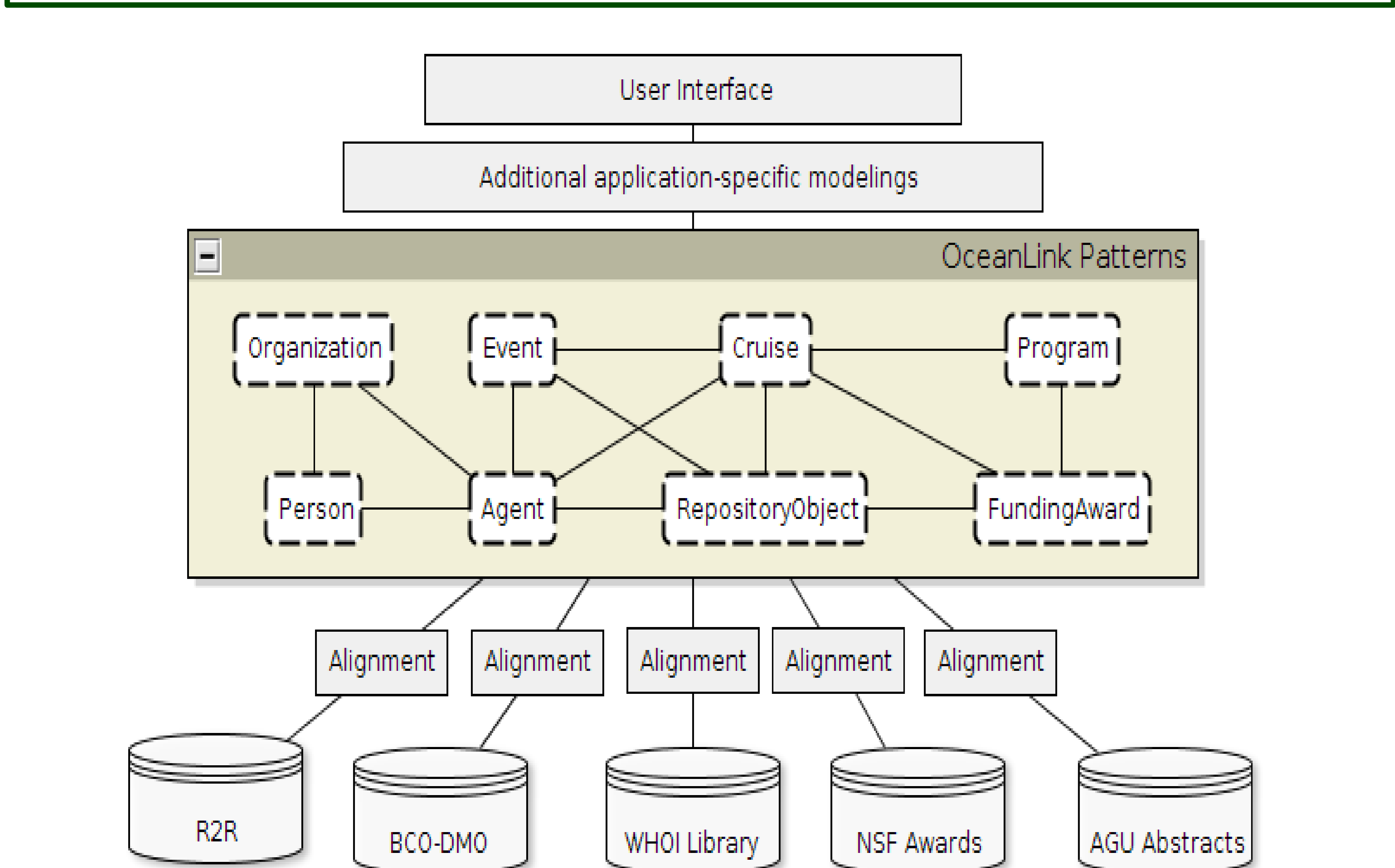
An EarthCube building block focused on ocean science knowledge infrastructure.

Starts with 6 repositories of research vessels data, biological and chemical ocean data, cruise reports, theses, funded awards, conference abstracts.

CHALLENGE Build a centralized framework that preserves heterogeneity amongst the repositories. This has both technical and social aspects.

SOLUTION

- Use extensible Ontology Design Patterns, instead of upper ontology, to model key notions.
- Allow data repositories to define their own alignment to the patterns.

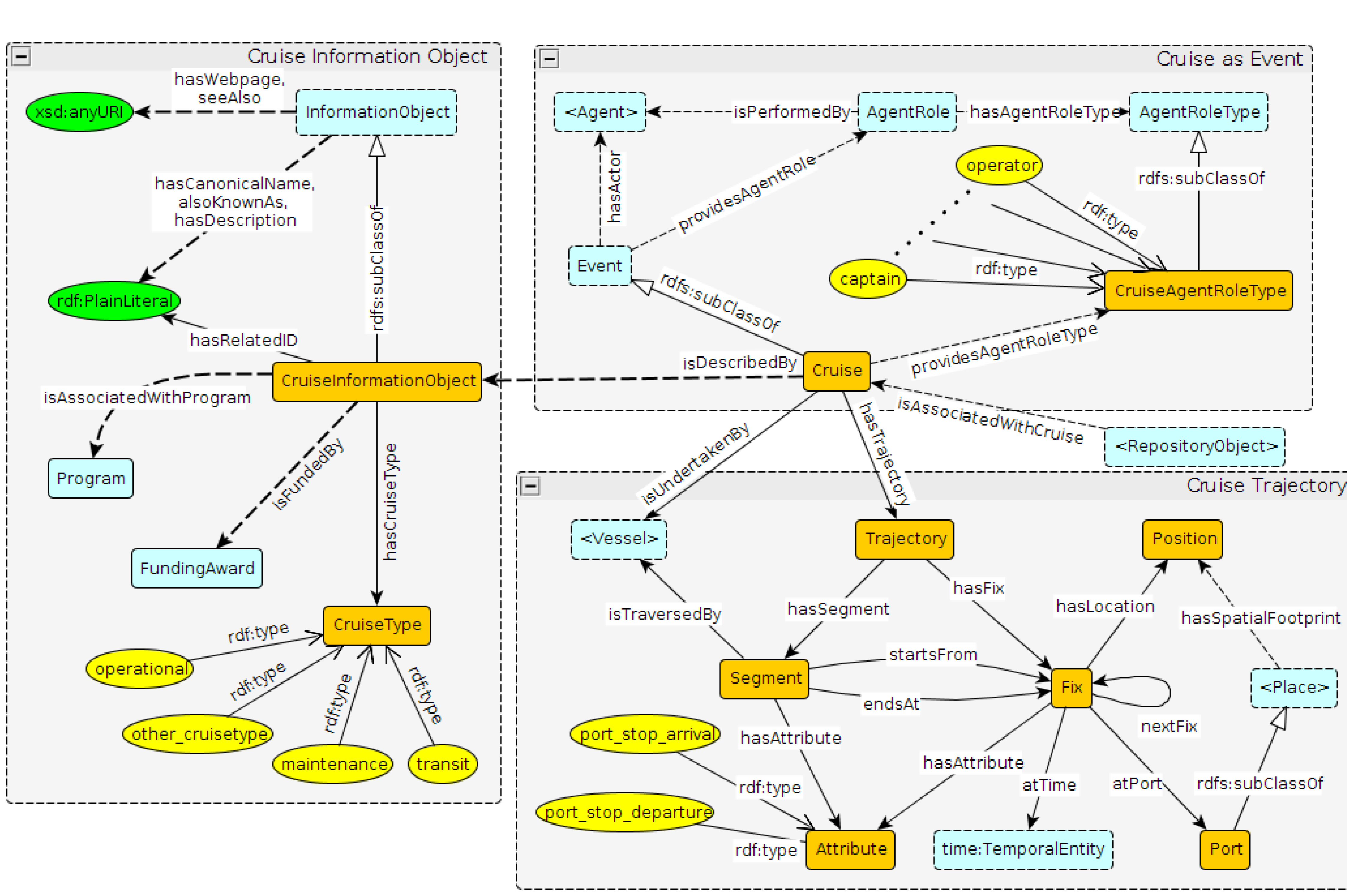


Modeling an Ontology Design Pattern (ODP)

- ODP¹: a reusable solution to some frequently occurring ontological modeling problem emerging in different domains and can act as a building block.
- Content Pattern: a kind of ODP that encapsulates generic notions within a particular domain of discourse, as a highly modular ontology, axiomatized using some standard language like OWL.
- Content patterns are formulated as a result of an ontology engineering process through intense discussions to find consensus between stakeholders (VoCamp style meeting).
- Manageable ontology engineering process, both technically and socially, as consensus can be reached one key notion at a time, and ontological commitments are kept at a minimum.

A Pattern Example: Oceanographic Cruise

- “Glue” to other patterns in OceanLink.
- Reuse Semantic Trajectory², Simple Event Model³ and DOLCE's Information Object⁴.
- Formalized as a set of OWL axioms (not displayed here).



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