

OntoBroker™

The Inference Engine

Exploiting the SemanticWeb

The focus is on contents, not on words. At the heart of the Semantic Web lies the meaning of concepts, contexts and relations. They define models of knowledge that are called "ontologies". The inference engine ONTOBROKER processes ontologies. Our system excels by background knowledge from these models. Thus, new knowledge is derived.

Ontologies serve as a means for establishing a conceptually concise basis for communicating knowledge for many purposes. ONTOBROKER allows the intelligent processing of ontologies. Thereby, the overall goal is the exploitation of rich semantic structures for machine-supported access to explicit and implicit knowledge. This purpose drives our development of ONTOBROKER and our investigations of the Semantic Web applications of the future.

ONTOBROKER exploits semantic structures by evaluating axioms about concepts, objects, relations between objects and attributes of objects.

An axiom is a statement that defines or constrains some aspect of the knowledge model. It is intended to assert model structure or to control or influence the behaviour of the model. A variety of types of axioms exist like data integrity constraints, mathematical and functional derivations, logical inferences or relationships among facts

ONTOBROKER is a Java based main-memory deductive database engine and query interface. It processes F-Logic statements – a subset of First Order Logic. Its declarative semantics (well-founded semantics) guarantees, that results are independent of the sequence of the rules and the sequence of the statements within the rules. F-Logic allows to infer about facts, the attribute values and about the ontology itself, e.g. subclass relationship or available attributes of a concept.

Semantic applications will change the way information is used

The ONTOBROKER serves as semantic middleware platform that easily integrates heterogeneous data sources and therefore builds the unique interface to mission critical information. Through the use of ontologies information can be processed by machines. Additionally language and structural conflicts can be easily solved. Fixed structures can be dissolved with logical patterns of thoughts and human associations. The ONTOBROKER is already used by W3C as a reference implementation for the Semantic Web and has more 100 installations worldwide.

"ONTOBROKER allows for the intelligent processing of knowledge models. Thus, it creates new knowledge. From reference customers you may recognize the added value in a wide variety of application systems."

Prof. Dr. J. Angele, CTO ONTOPRISE