APPLYING ONTOLOGICAL APPROACH TO STORING CONFIGURATION DATA

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**MOTIVATION**
- Storing diverse facility data in a centralized way
- Avoiding data duplications and inconsistencies
- Automating control system software configuration
- Documenting facility information in various forms
- Tracking changes made by system users

**SOLUTION**
Developing a **knowledge base** for configuration data of double-direction bipolar transfer line **K-500** at BINP

**ARCHITECTURE OF SEMANTIC PLATFORM**

- **Data layer**
  - control system configuration files
- **Logic layer**
  - Parser-Serializer
  - REST API
  - K500ConfigPortal – Web App
- **Presentation layer**
  - GUI: Navigator, Search engine, Visualizations

**ONTHEMPL05**

**Ontology** is a formal representation of concepts and relations of the domain of discourse, enriched by rules for inferring assumed knowledge.

**Knowledge base** is built upon **ontology model**. Contains facts about facility in the form of triplet statements: **object + relation + subject**

Consists of:
- RDF Store: Storing
- Reasoning Engine: Analysis and verification
- Query Processor: Providing access to data

**Web interface** allows:
- Browsing objects of control system in a wiki-styled navigator
- Performing lexical search with semantic filters
- Executing queries to knowledge base, generating views and visualizations

**BENEFITS OF ONTOLOGICAL APPROACH**
- Expressing complex relations in a natural way
- Performing data consistency verification
- Inferring assumed knowledge out of existing facts