



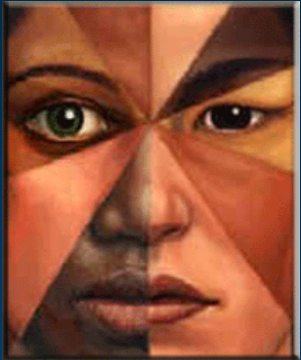
NATO
|
OTAN

Semantic Interoperability in NATO

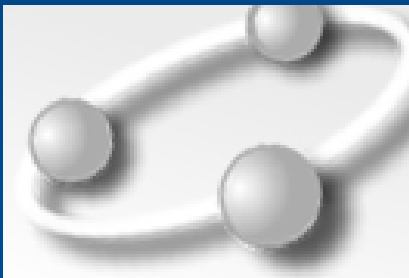
György Kuczogi
Senior Scientist
NATO C3 Agency



Typical integration tasks

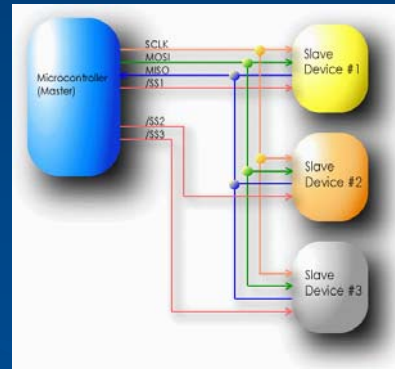
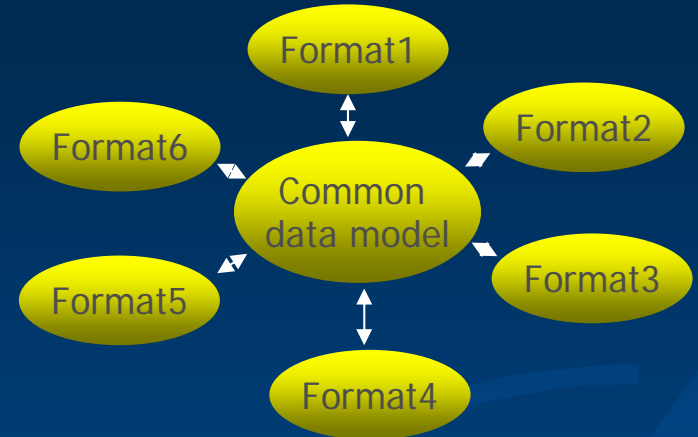


- Entity aggregation
- Data source federation
- Cross-system correlation



Answers from the text book

- **Service Oriented Architecture**
 - Common data model
 - Service contracts
 - Standards



Problems with text book answers (I)

- **Static answer**
 - for a dynamic world
 - handcuffs developers
 - requires the hard-to-find skill of fortune telling



Problems with text book answers (II)

- **SOA scalability issue:**
 - High number of service contracts
 - Chain dependencies
 - Rigid, non-forgiving contracts

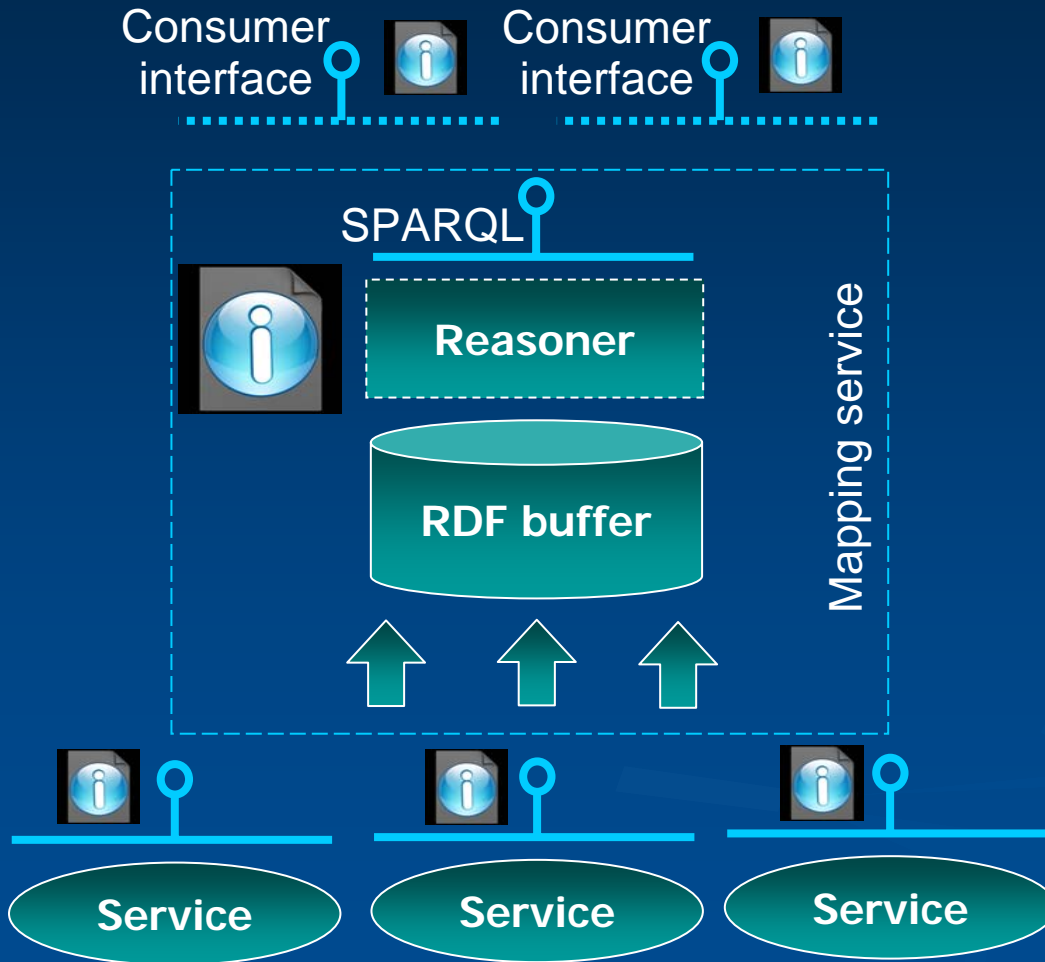
Change effects everyone!



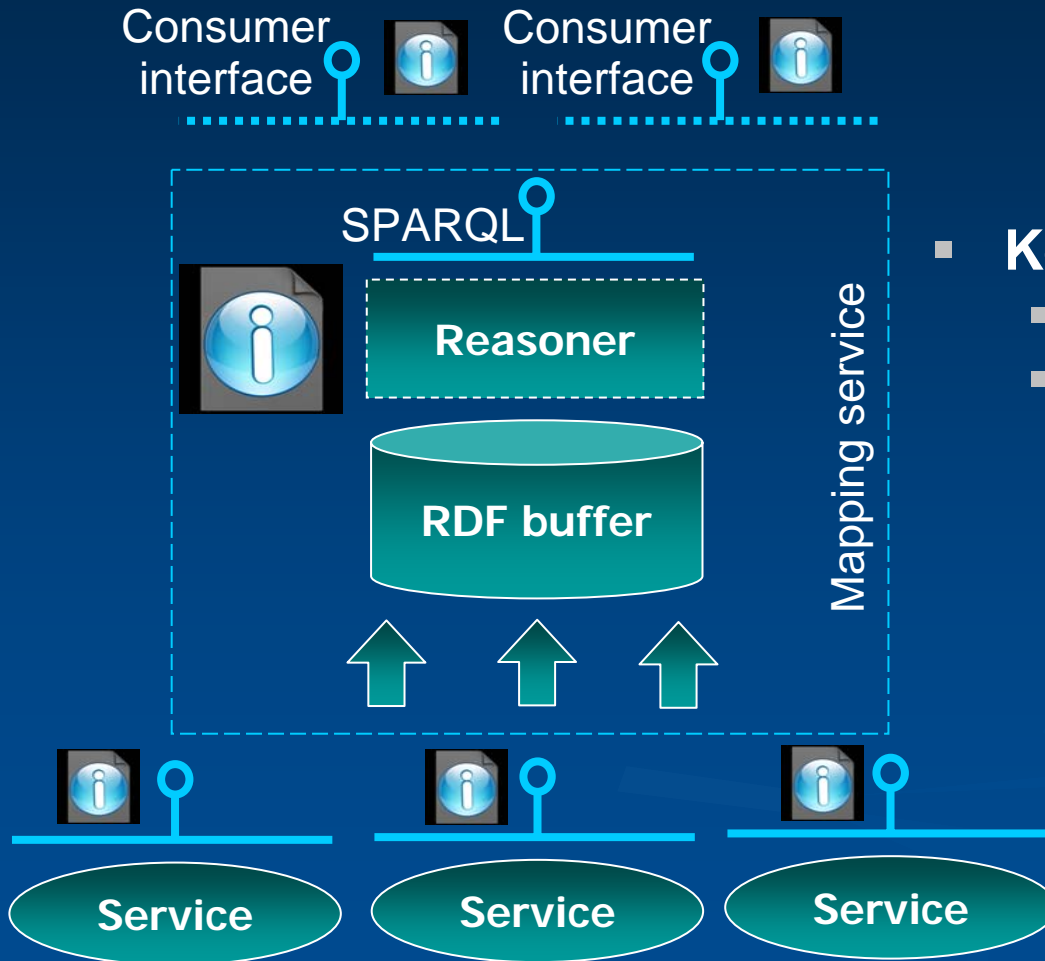
Freedom to change interface: splitting the service contract



Freedom to change interface: splitting the service contract



Semantic technologies: the enablers



- **Key RDF concepts:**
 - Syntax independence
 - Decoupling instance from type



More information

- **Semantic Interoperability project**
<http://si.nc3a.nato.int/>
- **TIDE community site (password protected)**
<http://tide.act.nato.int/>
- **RDF/OWL toolkit for .NET**
<http://rowlex.net>
<http://rowlex.nc3a.nato.int>



NC3A.SI.R  OWLEX



Questions?



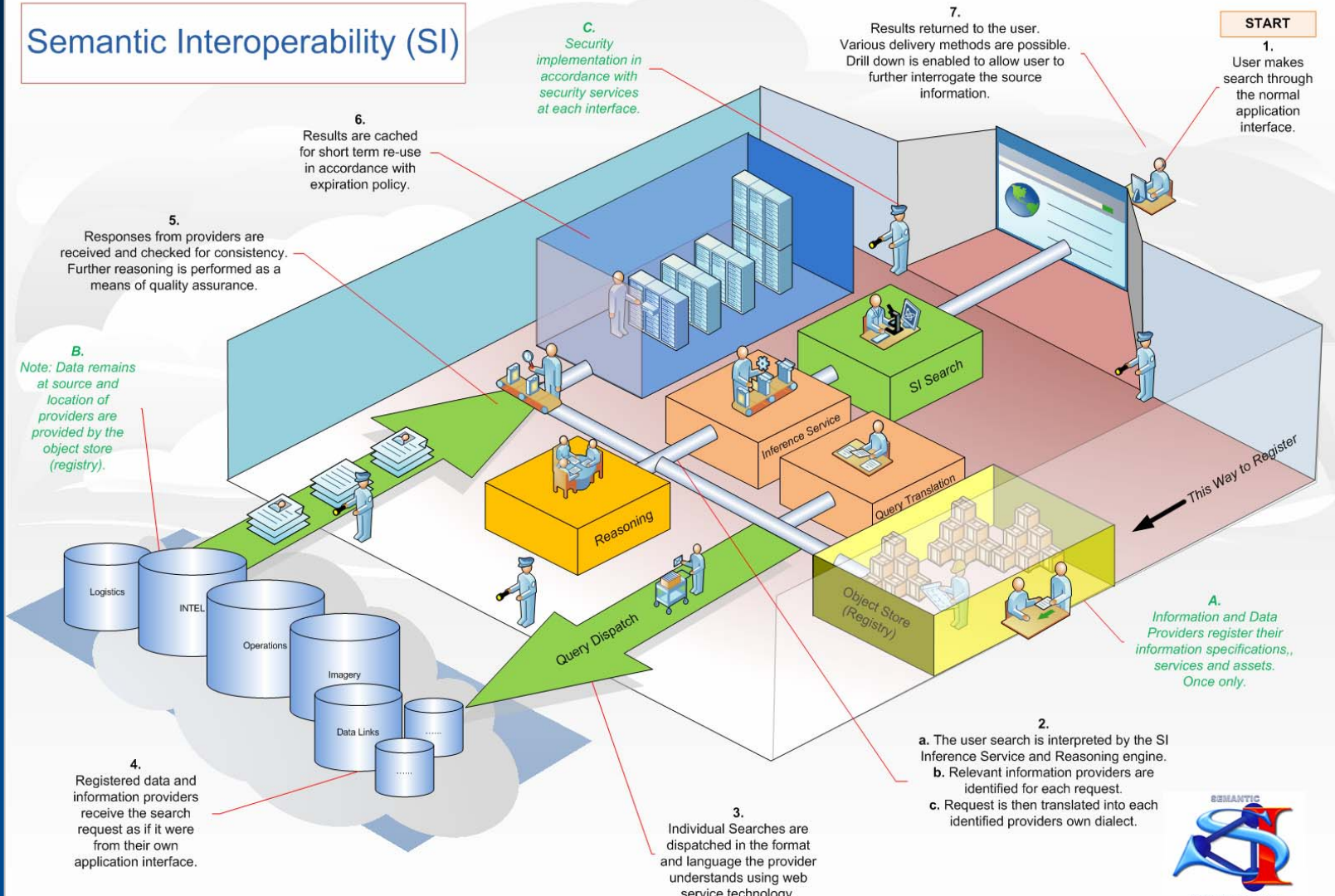
What does semantic web give me that I cannot do with XML and/or SQL?

From the website of a widely known software vendor:

"[...] your Semantic Web agent found and booked your flight, hotel, and car service, then updated your accounting system and calendars automatically. It even compared your itinerary to your calendar and detected the scheduling conflict with your dentist appointment. [...] This example, of course, is a long-term vision for applying the Semantic Web. [...] the vision itself is important for understanding the potential of Semantic Web technologies. [...]"

Experimental implementation

Semantic Interoperability (SI)



Analysis of offerings of semantic tools

- **Five levels of information***
 - ☑ Apobethics (intentions)
 - ❓ Pragmatics (orchestration)
 - ❓ Semantics (concept mapping)
 - ❓ Syntax (syntactical conversions)
 - ☑ Statistics (symbol set)



* Gitt, W.: *"Information: The Third Fundamental Quantity"*
Simens Review, 1989, 56 pp 36-41



Application in NATO

- **MSA**
- **TIDE**
- **SI project at NC3A**
- **BRITE**
- **LC2IS**