



The Social Semantic Desktop



Sebastian Trüg strueg@mandriva.com
Jos van den Oever jos@vandenoever.info
Stéphane Laurière slauriere@mandriva.com



“ I have a dream for the Web [in which computers] become capable of analyzing all the data on the Web – the content, links, and transactions between people and computers. A ‘Semantic Web’, which should make this possible, has yet to emerge, but when it does, the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines. The ‘intelligent agents’ people have touted for ages will finally materialize. ”

—Tim Berners-Lee, 1999



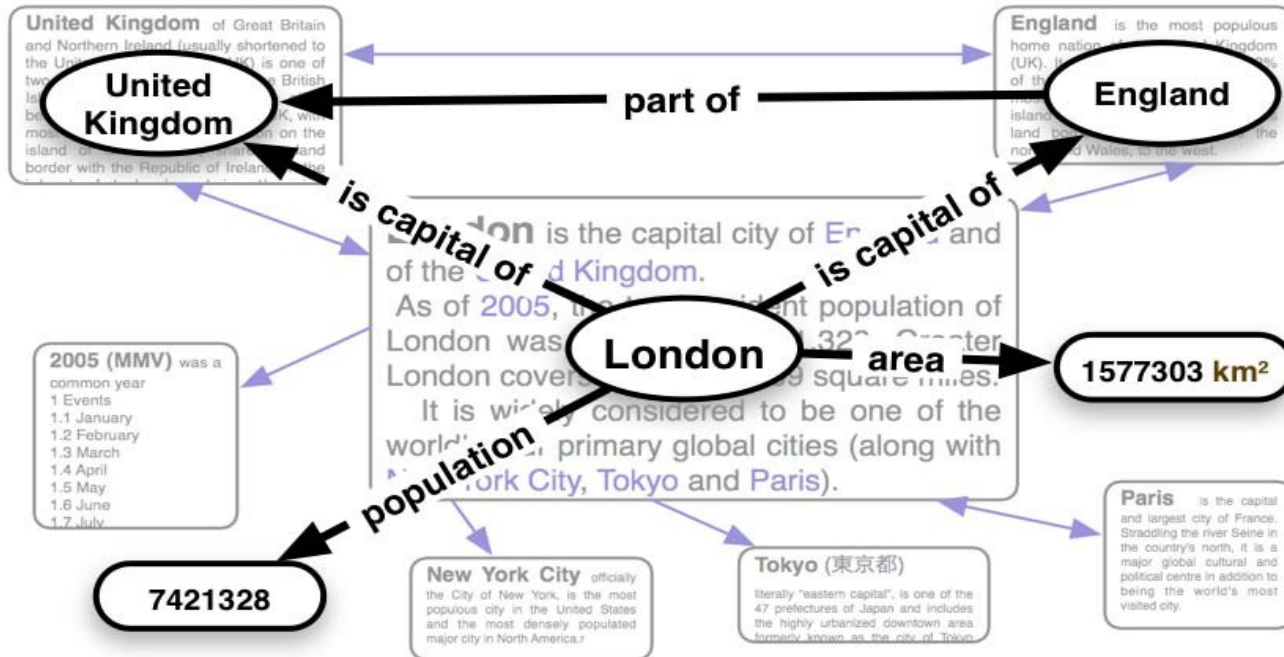
semantic == computer parseable

Dear internet, please give me a list of shops within 10 km of my home where I can buy a wooden plank of 50x50x2 cm. Sort the results by netto price.

- ♦ give objects names and types
- ♦ give names to relations between objects



<http://nepomuk.semanticdesktop.org>



subject

predicate

object

this_document

dc:format

application/pdf

this_document

dc:title

SQL, XQuery, and SPARQL

this_document

dc:creator

Jim Melton

this_document

dc:creator

foaf://Jim_Melton



```
<rdf:Description rdf:about=""
  xmlns:dc="http://purl.org/dc/elements/1.1/">
  <dc:format>application/pdf</dc:format>
  <dc:title>
    <rdf:Alt>
      <rdf:li xml:lang="x-default">
        SQL, XQuery, and SPARQL</rdf:li>
    </rdf:Alt>
  </dc:title>
  <dc:creator>
    <rdf:Seq>
      <rdf:li>Jim Melton</rdf:li>
    </rdf:Seq>
  </dc:creator>
  <dc:description>
    <rdf:Alt>
      <rdf:li xml:lang="x-default"/>
    </rdf:Alt>
  </dc:description>
</rdf:Description>
```



- ♦ Store RDF triples
- ♦ Implements an API for
 - storing RDF
 - retrieving RDF triples for specific subjects
 - query the RDFs with a query language
 - very general way of storing for relations and values
 - simple RDF store is an SQL database with 3 columns: subject, predicate object



- Query language similar to SQL
- No need for a supporting schema, the RDF triples form the schema implicitly
- Allows you to query everything

SPARQL query:

```
SELECT ?sal WHERE { emps:e13976 HR:salary ?sal }
```

SQL query:

```
SELECT salary  
FROM employees  
WHERE emp_id = 'e13976'
```

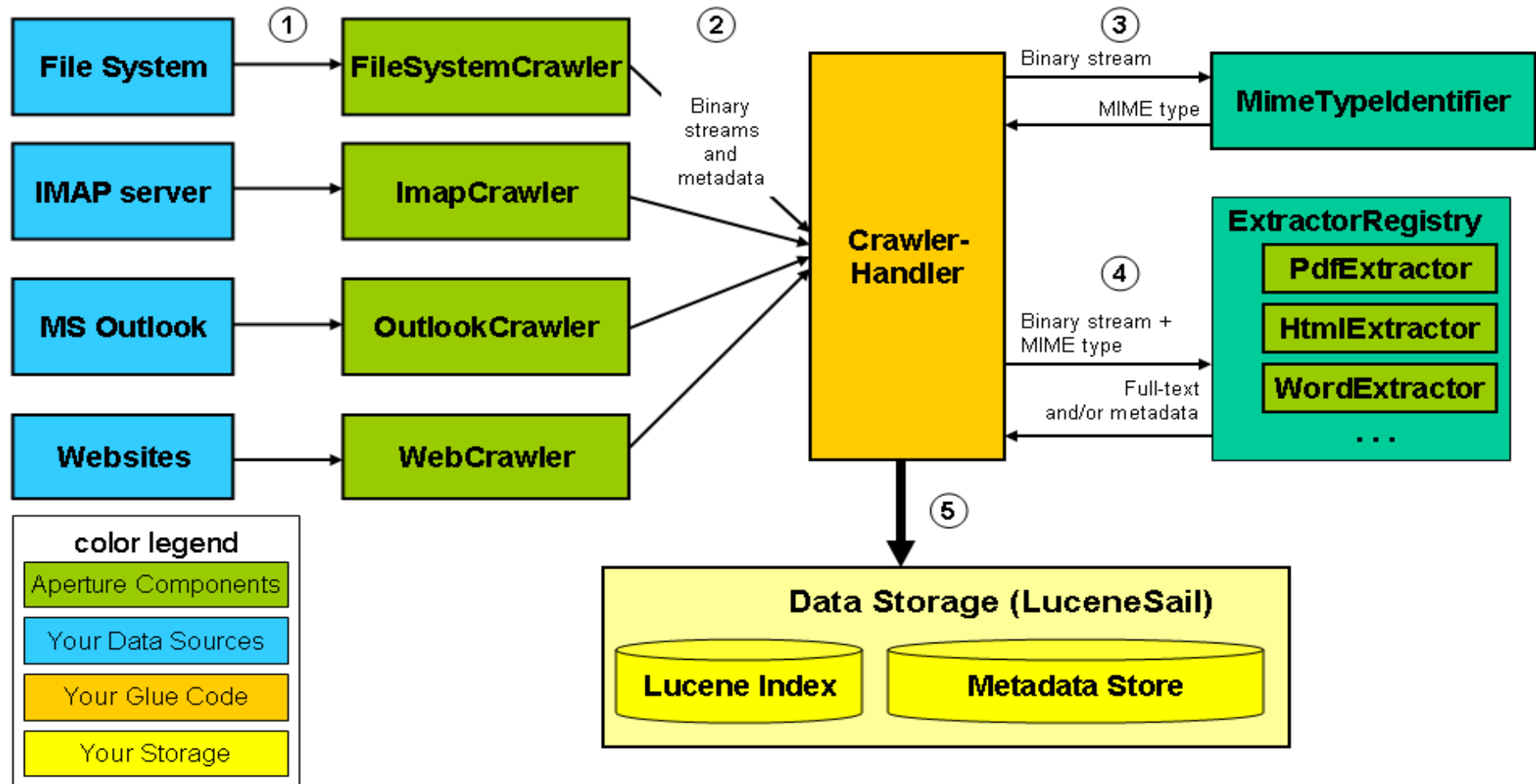


Aperture

a Java framework for getting data and metadata

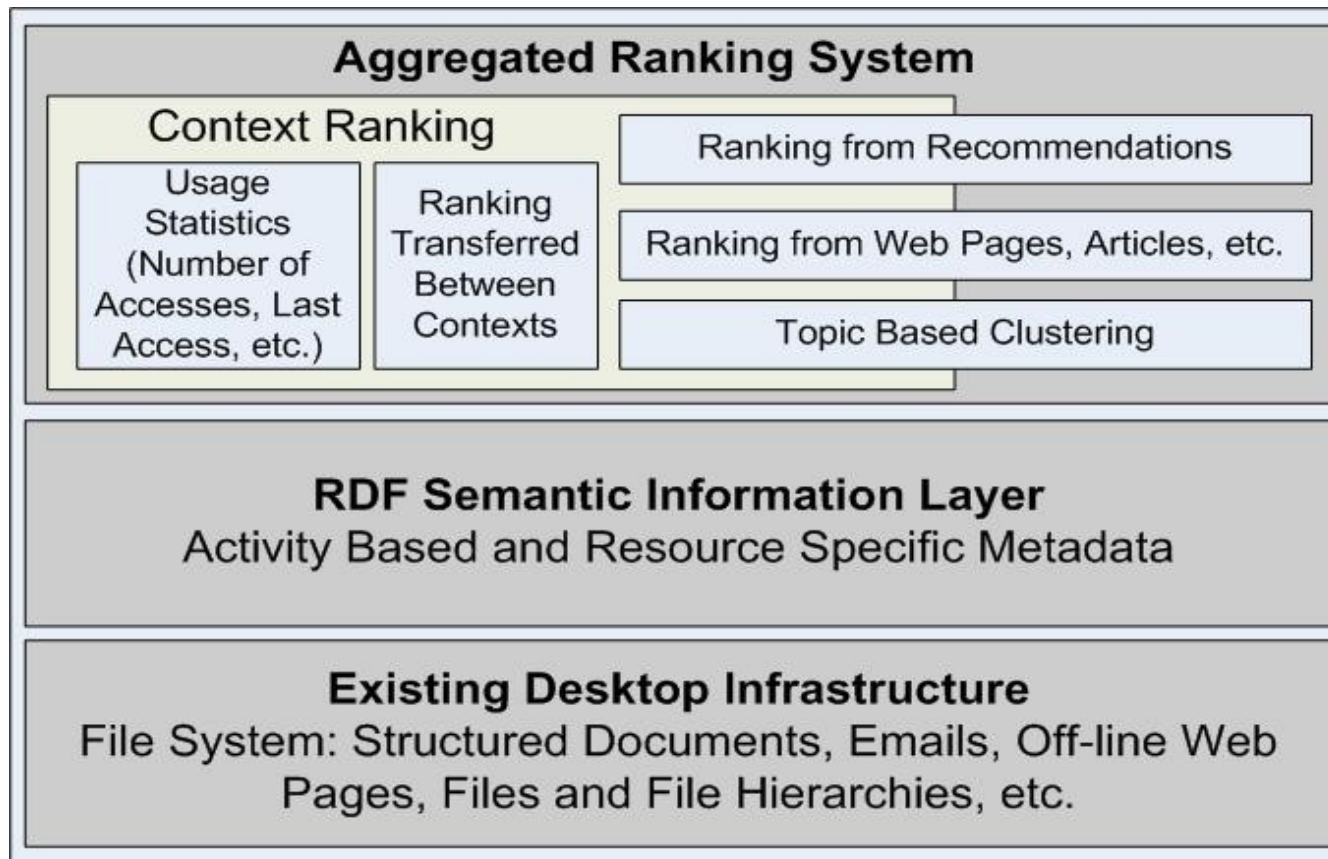
Yet another search engine?

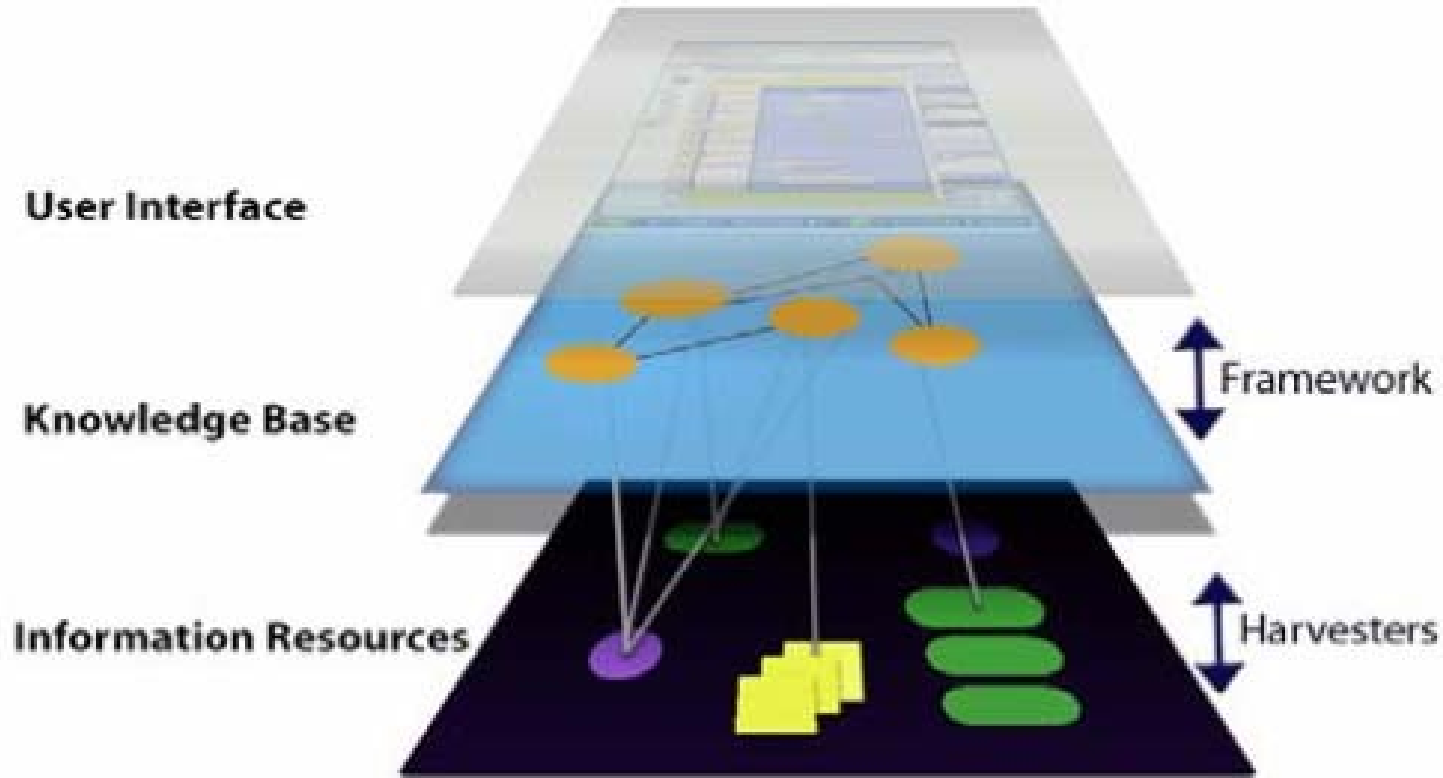
- extracts data as RDF triples
- stores data in an RDF store
- allow you to do SPARQL queries on the content



beagle++

- ♦ Analyzers:
 - BibTex Metadata Generator
 - Mail Indexer
 - MailFile Indexer
 - Publication Metadata Generator
 - Web Cache
- ♦ Inferred knowledge:
 - Entity Representation
 - Path Annotator
 - ObjectRank







NEPOMUK – The Social Semantic Desktop

- The Social Semantic Desktop, S.Decker – M.Frank 2004
- FP6 Project IST 2006 – 2008, budget 17M€
- 4 big industry actors, 3 SMEs, 8 research centers
- 5 countries
- Open-source





- ♦ **Vannevar Bush**
 - A **Memex** is *“a device in which an individual stores all his books, records, and communications.”*
- ♦ **Doug Engelbart**
 - **Open Hypertext System** *“The open hyperdocument system (OHS) is a standards-based, open source framework for developing collaborative, knowledge management applications.”*
- ♦ **Tim Berners Lee**
 - **Semantic Web**



- ◆ How to tag all my files with the same tags as my del.icio.us bookmarks? Idem with events, contacts?
- ◆ List all my contracts >100k€ signed 2003 -2006?
- ◆ From which email is this file from?
- ◆ What are all the OSS projects mentioned in this document?
- ◆ How to share with my team all our documents annotated with “virtualisation” and “team”?

Vision: merge document / database approaches.

My desktop is a database. My inbox is a goldmine.

My colleagues desktops are a distributed database.



The Social Semantic Desktop

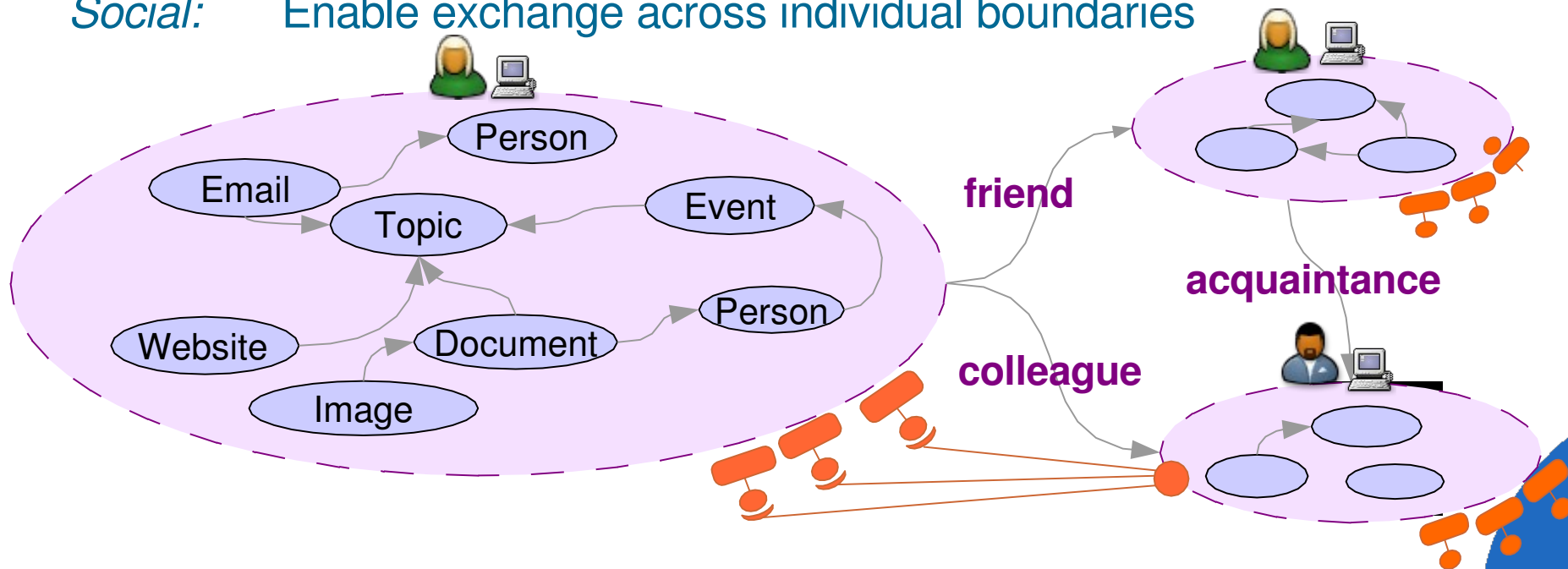


The desktop is a privileged adoption channel for the Semantic Web

Desktop: Help individuals in managing information on the Web/their PC

Semantic: Make content available to automated processing

Social: Enable exchange across individual boundaries



Personal Semantic Web: *a semantically enlarged intimate supplement to memory*

Social protocols and distributed search

Social semantic peers



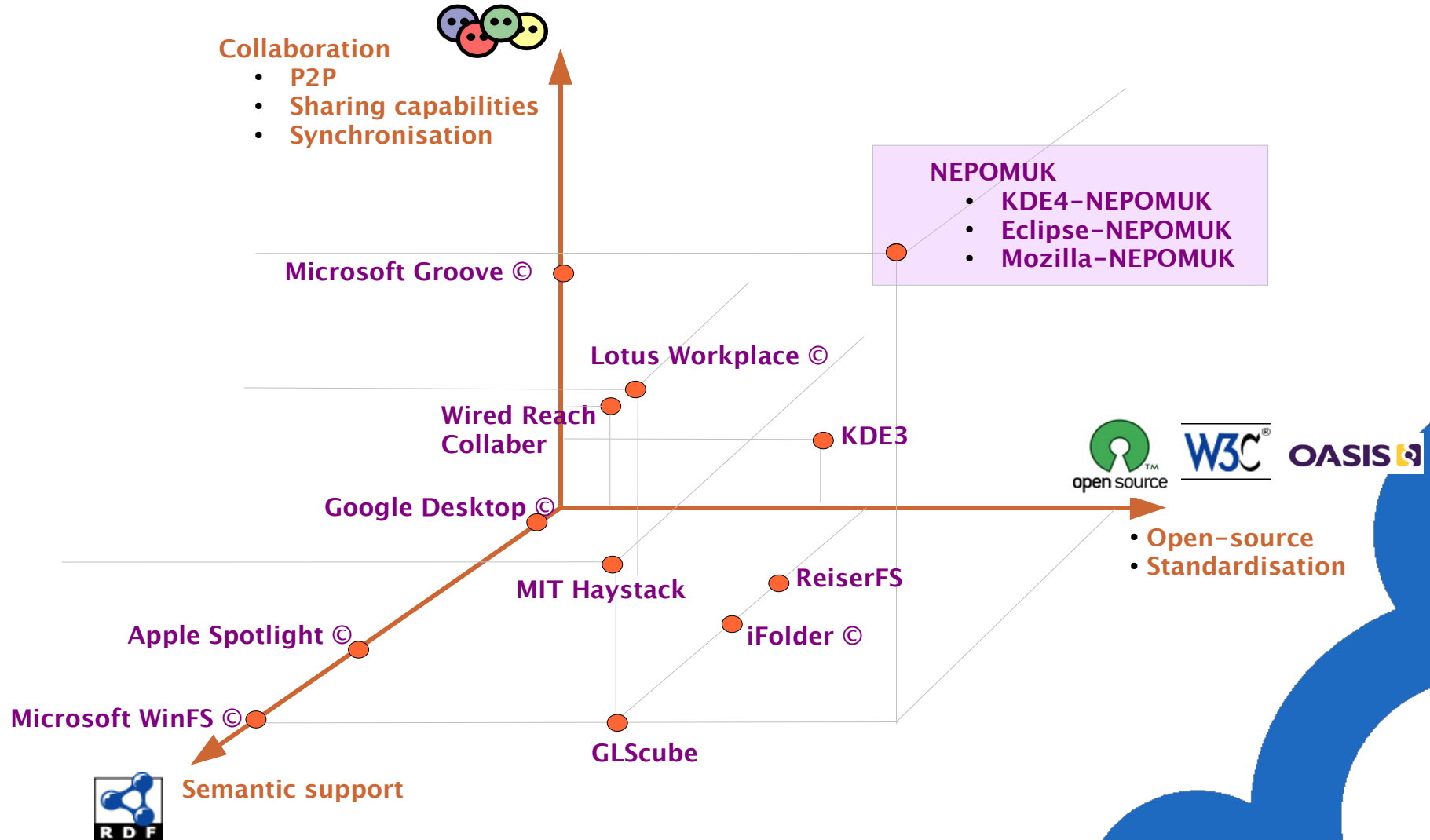
- ◆ APIs for semantic management of information
- ◆ APIs for P2P sharing of knowledge
- ◆ Implementation on top of 3 desktop frameworks

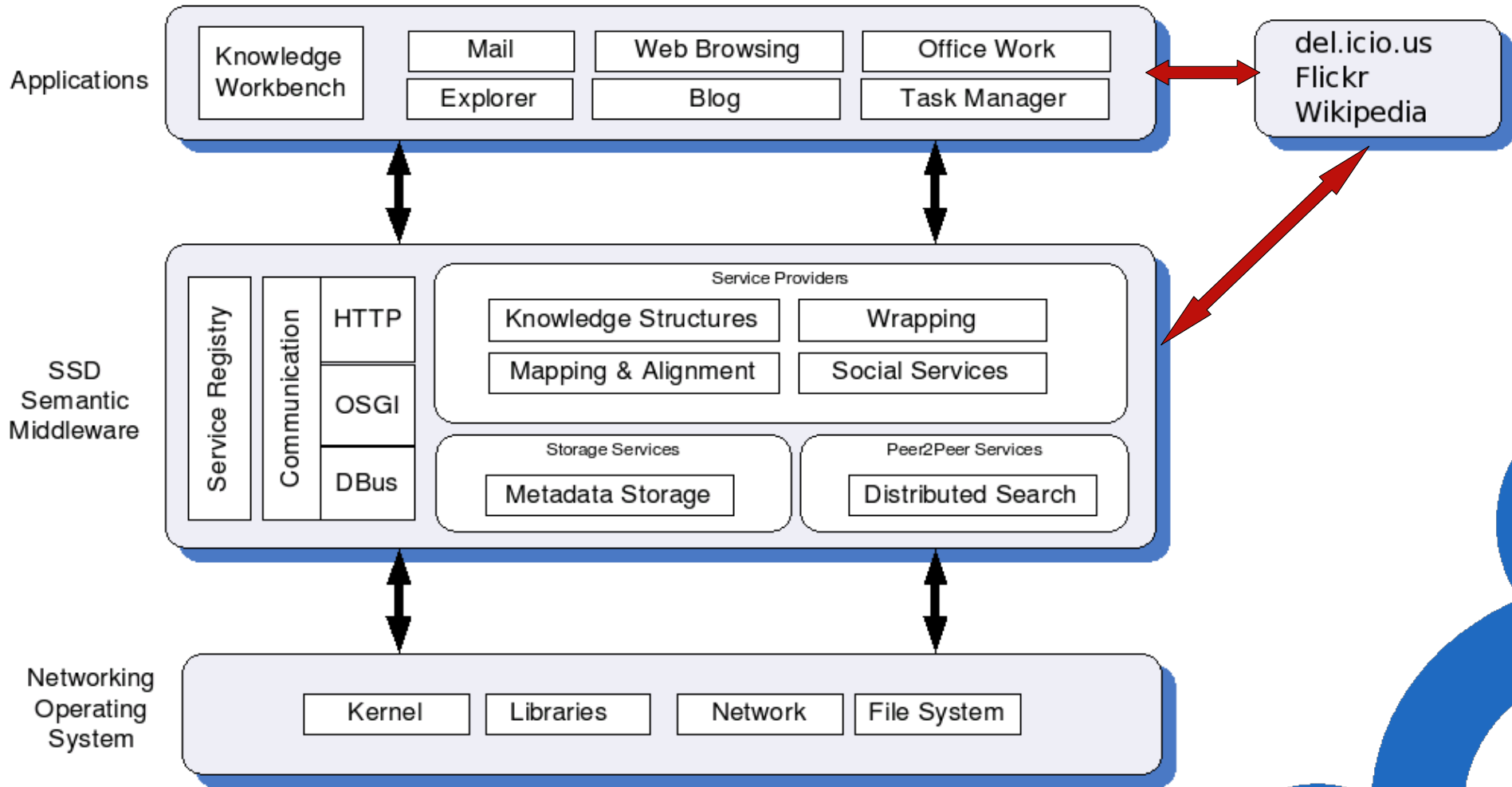


- ◆ Standardisation of the APIs
- ◆ SemanticDesktop.org foundation



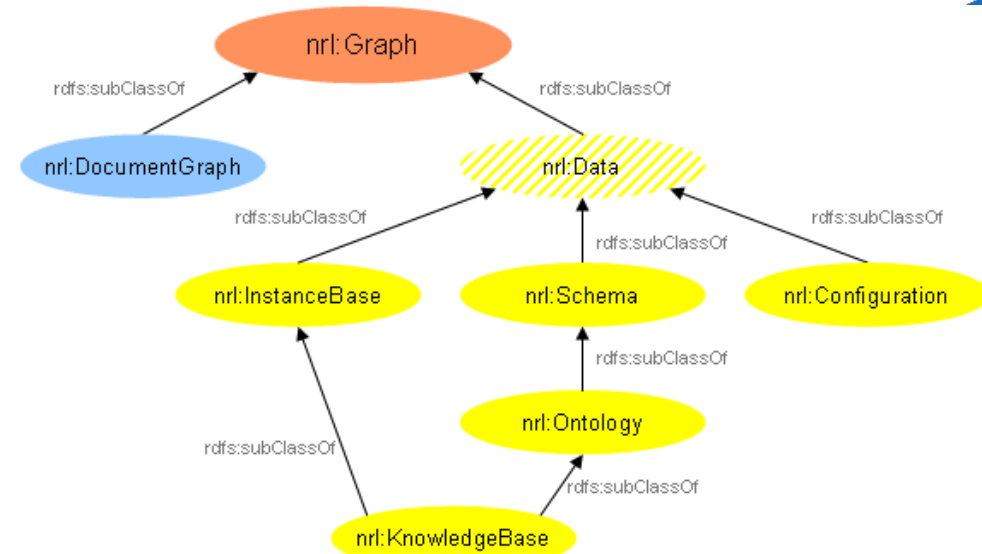
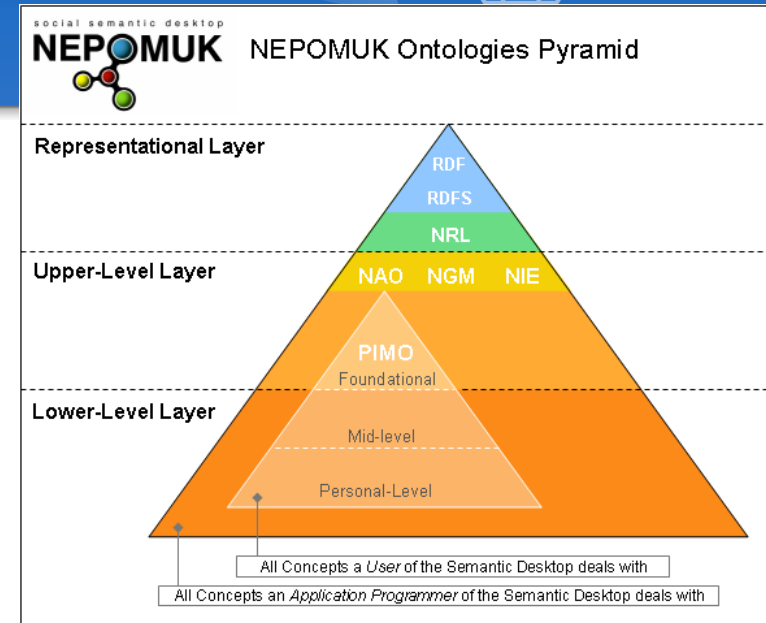
Market context







- ◆ Representation Language (NRL)
- ◆ Annotation Ontology (NAO)
 - nao:hasTag, nao:hasTopic, nao:isRelated
- ◆ Graph metadata
 - Named Graphs annotation
 - nrl:subGraphOf, ...
- ◆ Information Elements (NIE): extracted metadata ontology
- ◆ PIMO desktop ontology

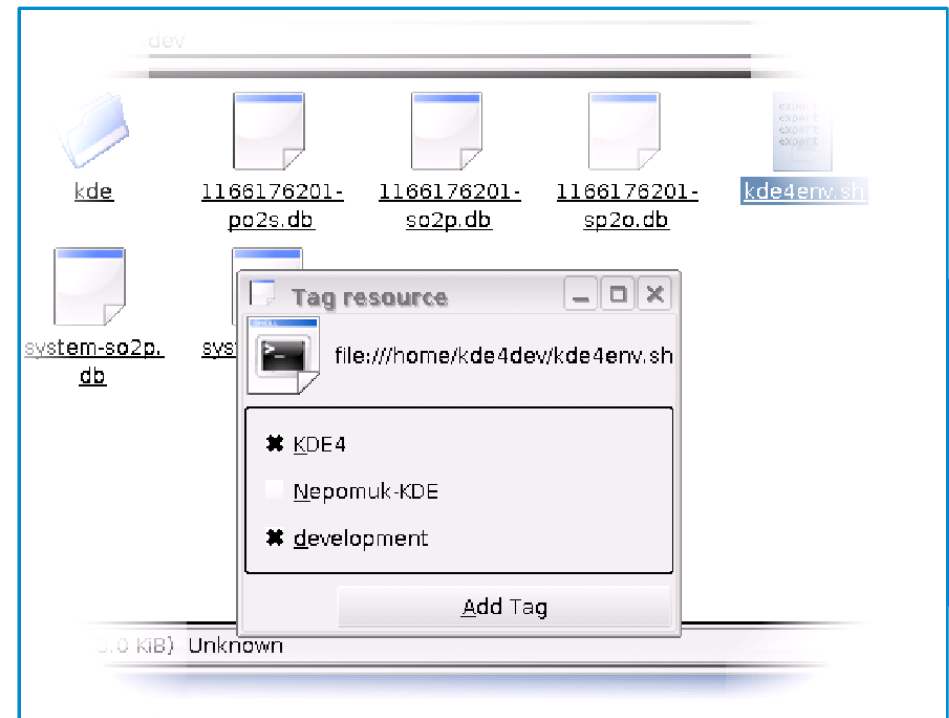
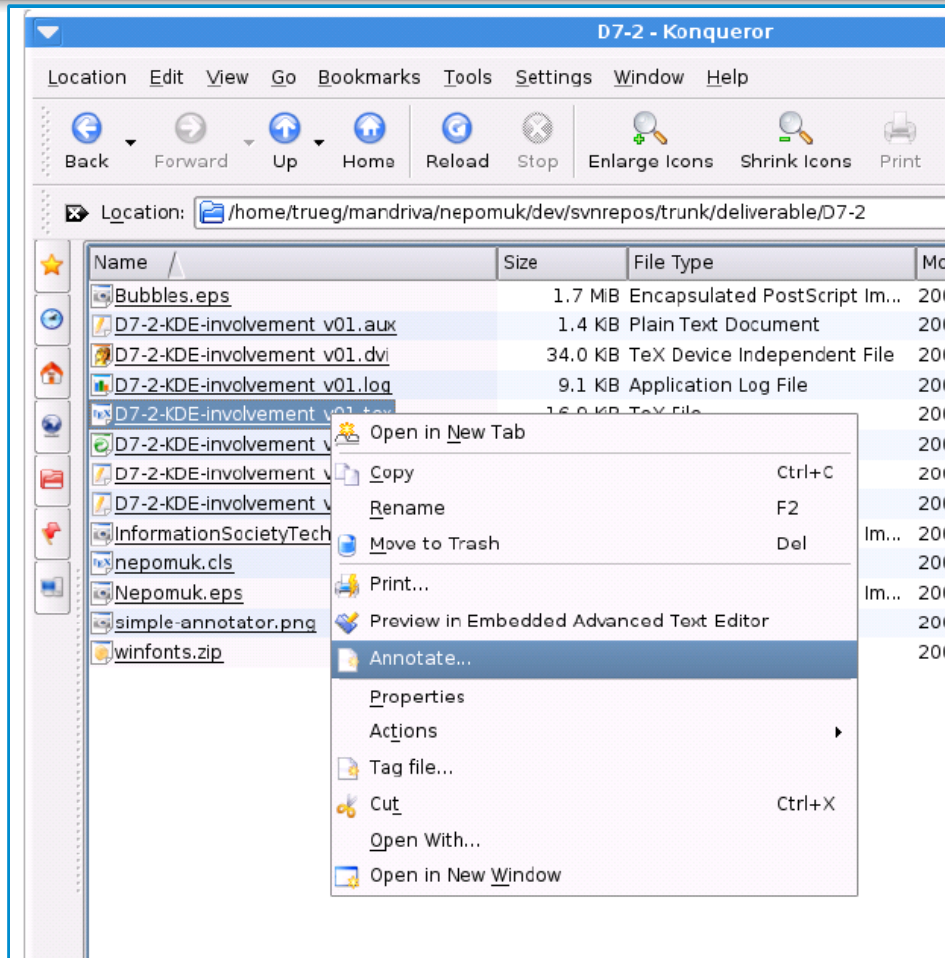




- ◆ KNep Service Registry daemon: service registration and discovery via a dbus interface
- ◆ KNepClient library: QT/KDE API for communication with the registry around dbus communication
- ◆ KMetadata: for handling Nepomuk ontologies metadata from KDE apps. Provides a C++ class for each resource type.
- ◆ Metadata extractor
- ◆ Metadata store backend: based on QRDF/Soprano
- ◆ Resource identification service
- ◆ Metadata query service

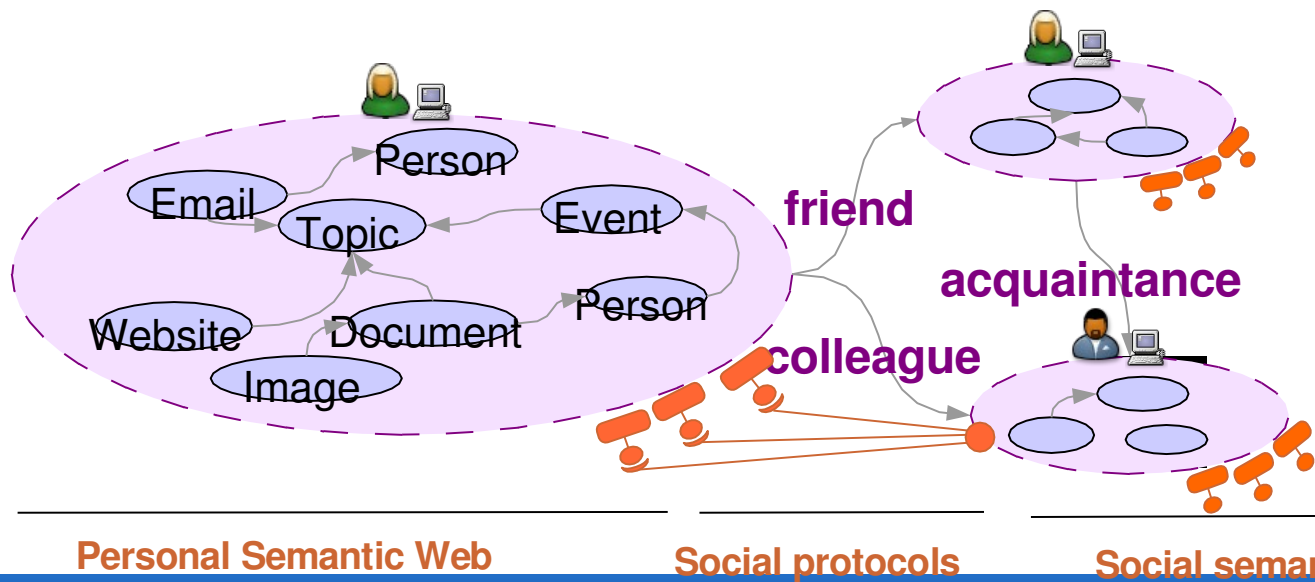


Konqueror integration





- Desktop P2P communication – What is available in KDE?
- API for sharing resources across the desktops
- Distributed indexing
- Social search and recommendations (see L3S)





- ♦ **Semantic text editor**
 - <http://wikimodel.sourceforge.net>
 - Analogy code source editing / text editing
 - Automatic completion
 - IBM LanguageWare
- ♦ **Interfaces HTML/Ajax, KDE, Eclipse RCP, XUL**



Title:	Test Annotations	
Keywords:	Cognium Systems	Mikhail : Mikhail Kotelnikov Alex : Alexander Polonsky COG : Cognium Systems
Content	The staff working in COG: * Alex * Mikhail IBM term disambiguation technology is used to automatically generate keyword suggestions based on the text in the "Content" field.	

- ◆ SemanticPad by Cognium Systems (EPL)
 - <http://www.cogniumsystems.com>
- ◆ Intégration de IBM LanguageWare
 - <http://www.alphaworks.ibm.com/tech/lrw>



- ♦ **May 2007**
 - Tag and ontology management available in the kdelibs
 - Semantic Konqueror, Kontact
- ♦ **2007 / 2008**
 - Rich semantic wiki editor on top of Kate Mozilla
 - Cross desktop social search + P2P recommendations
- ♦ **2008**
 - API standardization
 - Mandriva case study: Club + Linuxpedia
 - SemanticDesktop.org foundation



Web site: <http://nepomuk-kde.semanticdesktop.org>

Mailing-list: nepomuk-kde@semanticdesktop.org

Src: trunk/playground/base/nepomuk-kde

Foundation: www.semanticdesktop.org

Contacts

- Sebastian Trüg strueg@mandriva.com
- Jos van den Oever jos@vandenoever.info
- Stéphane Laurière slauriere@mandriva.com
- General info info@nepomuk.semanticdesktop.org

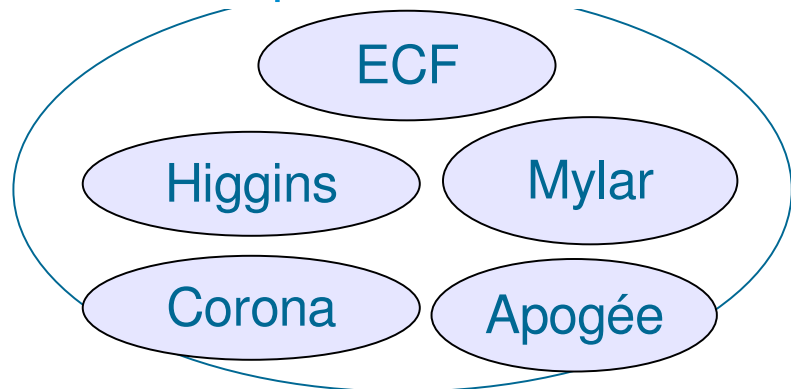




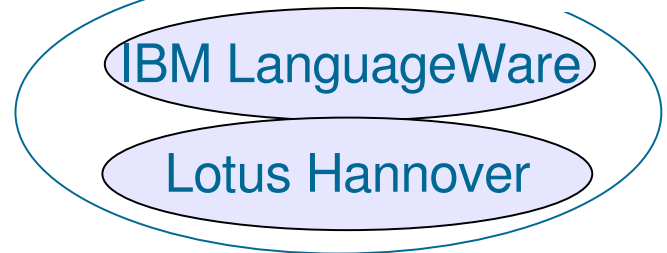
Thank you!

<http://nepomuk.semanticdesktop.org>

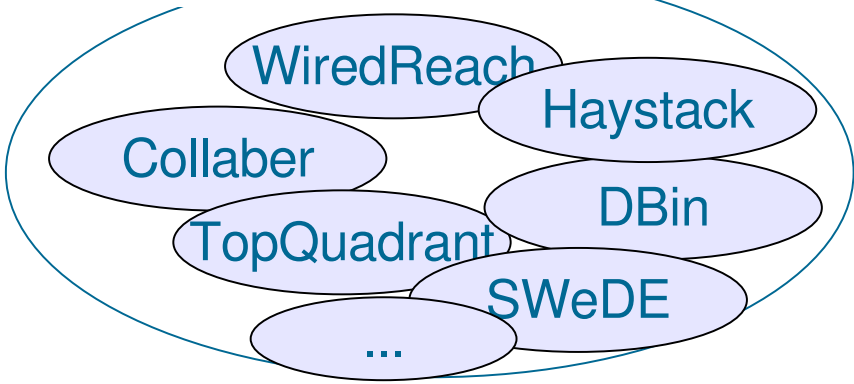
Eclipse Foundation



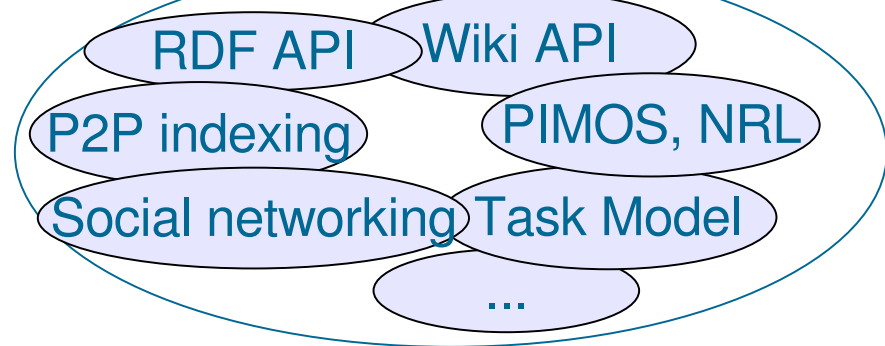
IBM



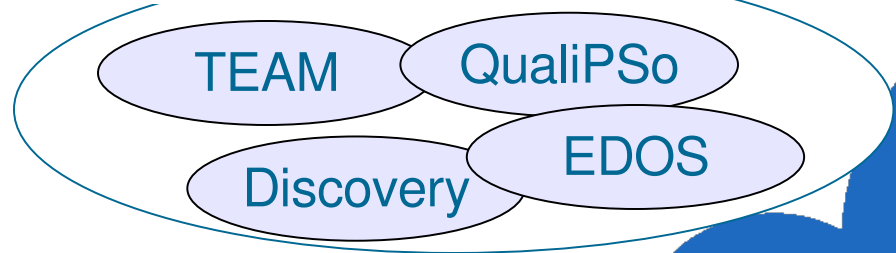
Eclipse RCP projects



NEPOMUK



EU Research Projects





- ◆ Notion de modèle d'activité
- ◆ Workflows personnels org.semanticdesktop.fsm
- ◆ Exemple: organisation d'un workshop
- ◆ Voir également Unified Activity Model by IBM
- ◆ Capture du contexte de l'utilisateur (projet Mylar@Eclipse)
- ◆ Visualisation multi-facettes



- Which KDE P2P communication framework?
- Which KDE context capturing system (see Mylar project @ Eclipse)?



Save Save and exit Preview Exit Format source

Title: Semantic Web

Abstract:

Keywords: Knowledge representation; Web 3.0; Description logic COG; Cognium Systems

Content 1: Purpose

Humans are capable of using the Web to carry out tasks such as finding the Finnish word for "car", to reserve a library book, or to search for the cheapest DVD and buy it. However, a computer cannot accomplish the same tasks without human direction because web pages are designed to be read by people, not machines. The semantic web is a vision of information that is understandable by computers, so that they can automate more of the tedium involved in finding, sharing and co on the web.

* COG

Other properties: @[rdfs:seeAlso]

* [RDF]
* [W3C]

@[rdf:type] [wiki:Topic]

RDF

Visited pages: [RDF](#) < [Semantic Web](#) < [Alex Polonsky](#) < [TimBernersLee](#) < [Main Page](#) < [Ora Lassila](#) < [Knows about](#)

Wiki Page select keywords [Edit as: Wiki Page](#) | [Other...](#)

Introduction

Resource Description Framework (RDF) is a family of World Wide Web Consortium (W3C) specifications originally designed as a metadata model using XML but which has come to be used as a general method of modeling knowledge, through a variety of syntax formats (XML and non-XML). The RDF metadata model is based upon the idea of making statements about resources in the form of subject-predicate-object expressions, called triples in RDF terminology. The subject denotes the resource, and the predicate denotes traits or aspects of the resource and expresses a relationship between the subject and the object. For example, one way to represent the notion "The sky has the color blue" in RDF is as a triple of specially formatted strings: a subject denoting "the sky", a predicate denoting "has the color", and an object denoting "blue".

This mechanism for describing resources is a major component in what is proposed by the W3C's Semantic Web activity: an evolutionary stage of the World Wide Web in which automated software can store, exchange, and use machine-readable information distributed throughout the web, in turn enabling users to deal with the information with greater efficiency and certainty. RDF's simple data model and ability to model disparate, abstract concepts has also led to its increasing use in knowledge management applications unrelated to Semantic Web activity.

See Also [Semantic Web](#)

«RDF» is referenced...

...in See Also by

- [Semantic Web](#)

...in Knows about by

- [Ora Lassila](#)
- [TimBernersLee](#)

Table of Content

- [Introduction](#)

See Also

- [Semantic Web](#)