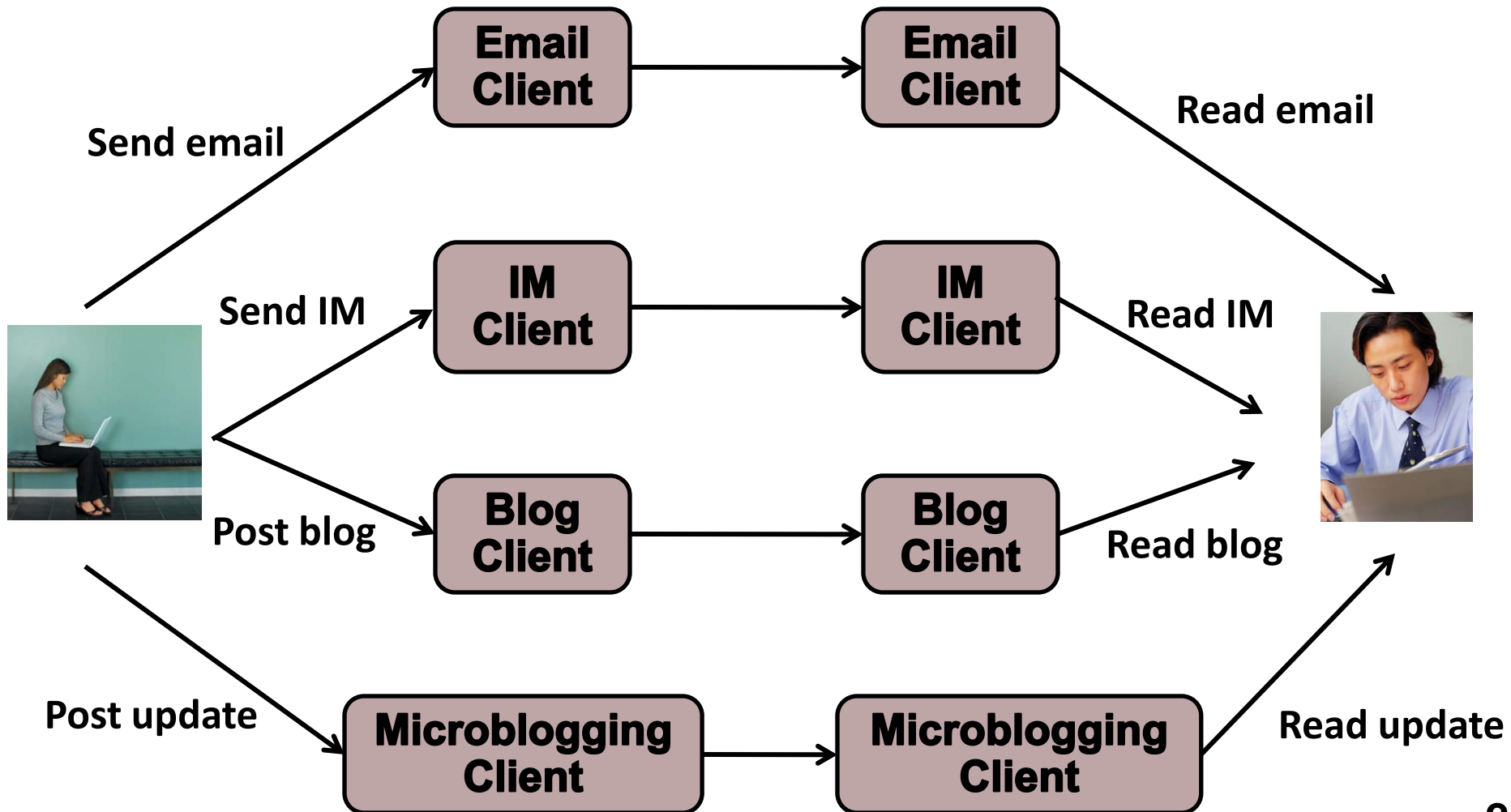


# Application of OASIS Integrated Collaboration Object Model (ICOM) with Oracle Database 11g Semantic Technologies

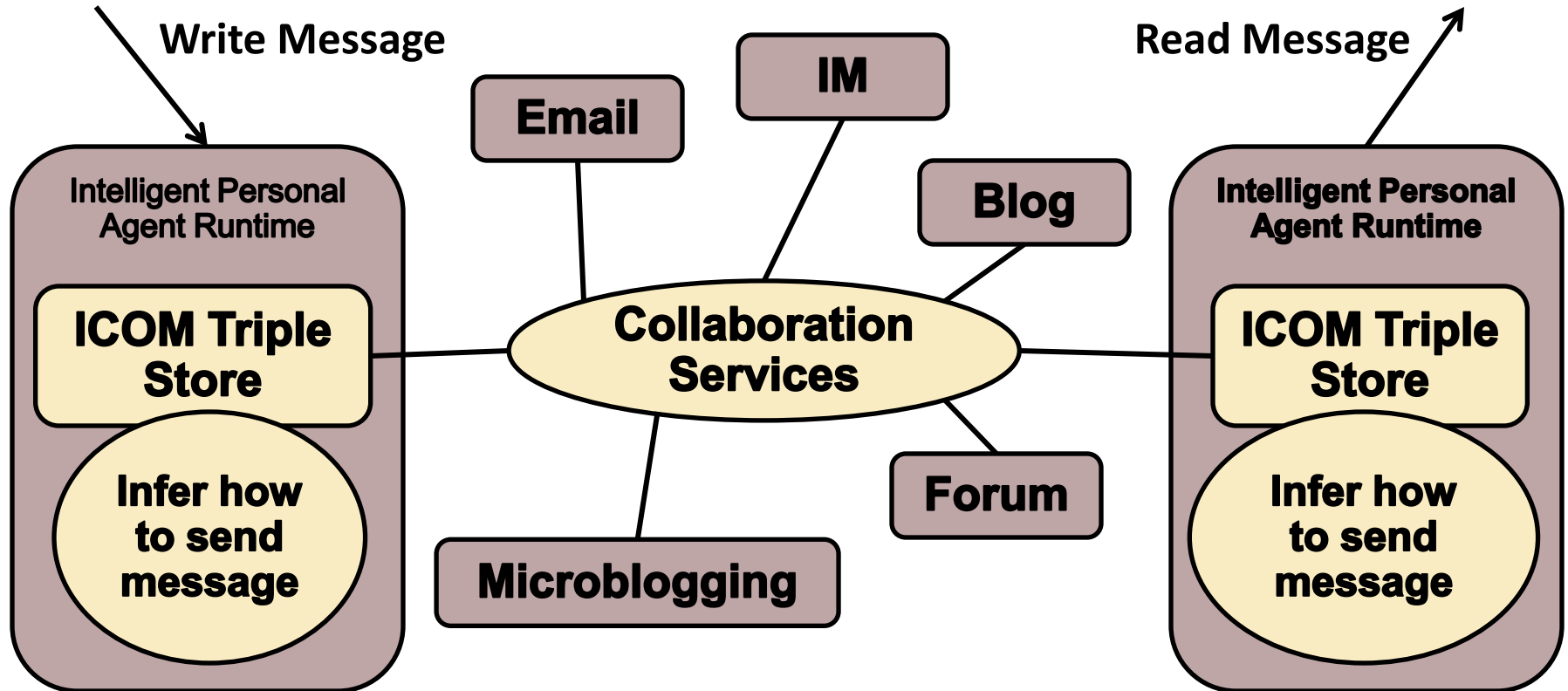
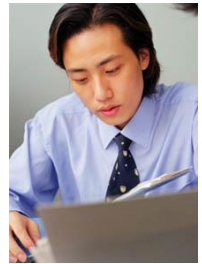
Zhe Wu  
Ramesh Vasudevan  
Eric S. Chan  
**Oracle**

Deirdre Lee,  
Laura Dragan  
**DERI**

# *Today, if Lisa wants to send a message...*



# ***Need a Standard Ontology to expose the data behind the 'Wall of Applications'***



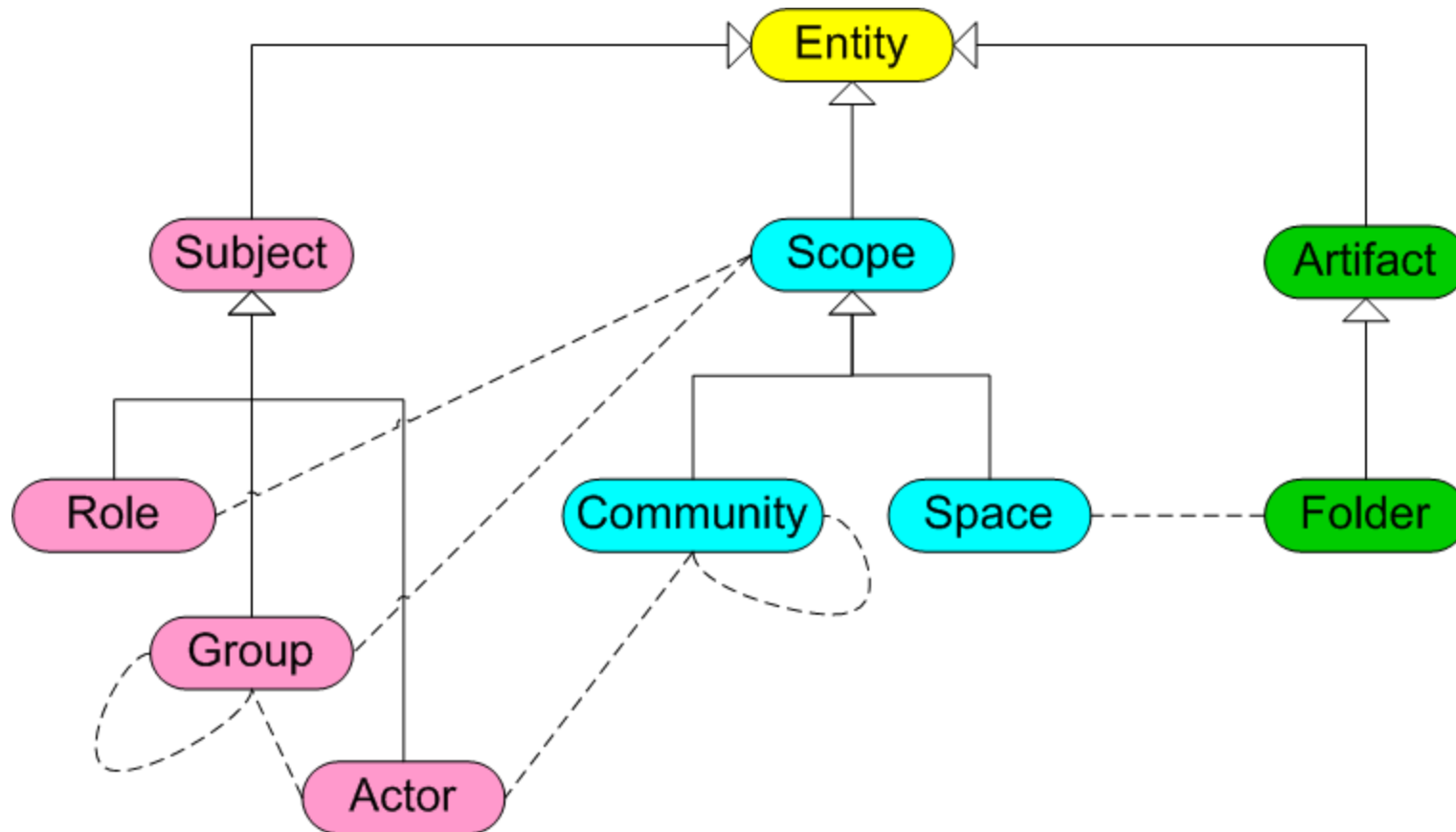
# ***Problems with Collaboration Tools Today***

- Require constant **context switching** among applications to perform a task
- Prevent **aggregation** and **reasoning** of diverse types of collaboration objects from **incompatible** applications
- Lack **interoperability** to enable collaboration across **organizational boundaries**
- Need to **weave unstructured** business **practices** and collaboration **activities** into **structured** business **processes**

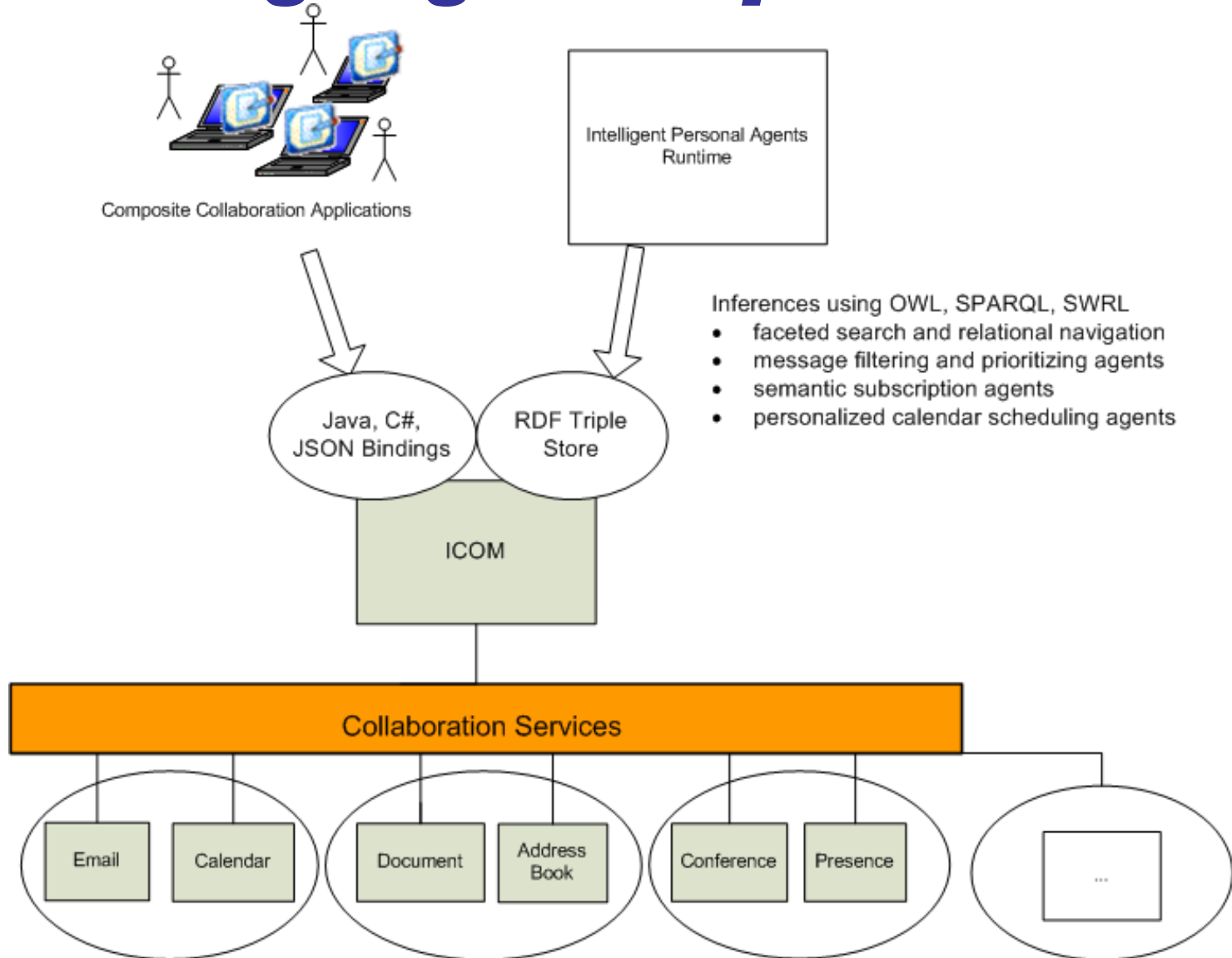
# ***OASIS ICOM TC***

- Chartered in March 2009
- Define a standard for integrated and interoperable enterprise collaboration.
- Specification to include classes and properties of collaboration objects for a broad range of collaboration activities.
- Encompass and improve on existing collaboration models.

# ***Basic Entities in ICOM***



# Language-independent



# Demonstrate Versatility of ICOM

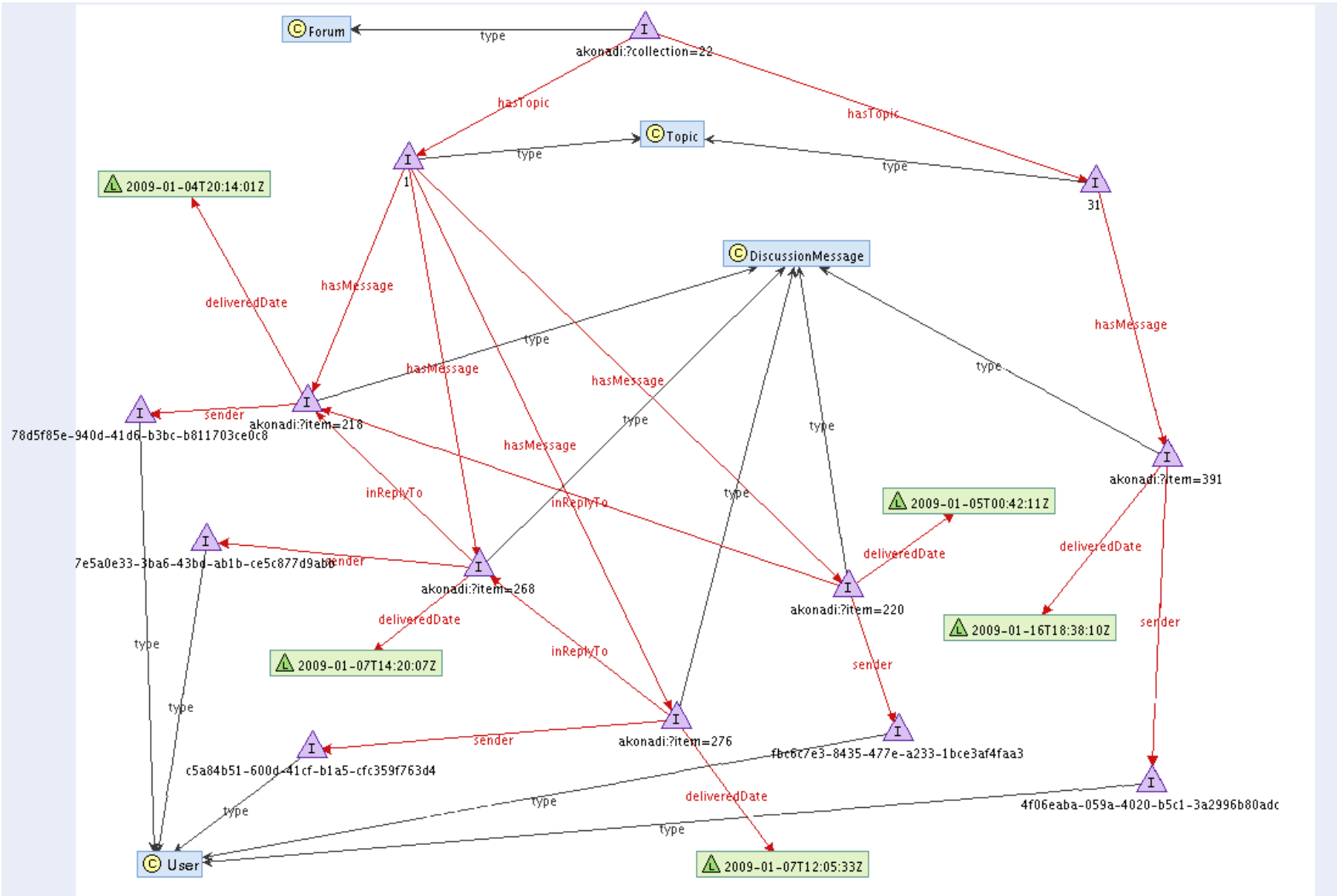
Develop mapping rules from different data sources to ICOM RDF

- map NEPOMUK, SIOC, MIME, etc., to ICOM RDF
- work in progress to represent Ontolog Forum in ICOM
- see <http://wiki.oasis-open.org/icom/OntologForumData>
- primary investigators: Deirdre Lee and Laura Dragan

<i>NEPOMUK, SIOC, FOAF, DC</i>	<i>ICOM</i>
<i>nmo:Mailbox, sioc_t:MailingList</i>	<i>icom_forum:Forum</i>
<i>nmo:Email, sioc_t:MailMessage</i>	<i>icom_forum:DiscussionMessage</i>
<i>nco:PersonContact</i>	<i>icom_contact:Contact</i>
<i>nfo:Attachment</i>	<i>icom:MimeConvertible</i>
<i>sioc:UserAccount</i>	<i>icom:User</i>
<i>dcterms:created</i>	<i>icom:createdOn</i>
<i>sioc:has_creator</i>	<i>icom:hasCreatedBy</i>
<i>nmo:from</i>	<i>icom:hasSender</i>
<i>nmo:isPartOf, sioc:has_container</i>	<i>icom:hasParent</i>



# ICOM RDF Representation of Ontolog Forum



## *Join the TC!*



### Homepage

- <http://oasis-open.org/committees/icom>

### More info on current developments

- <http://wiki.oasis-open.org/icom>



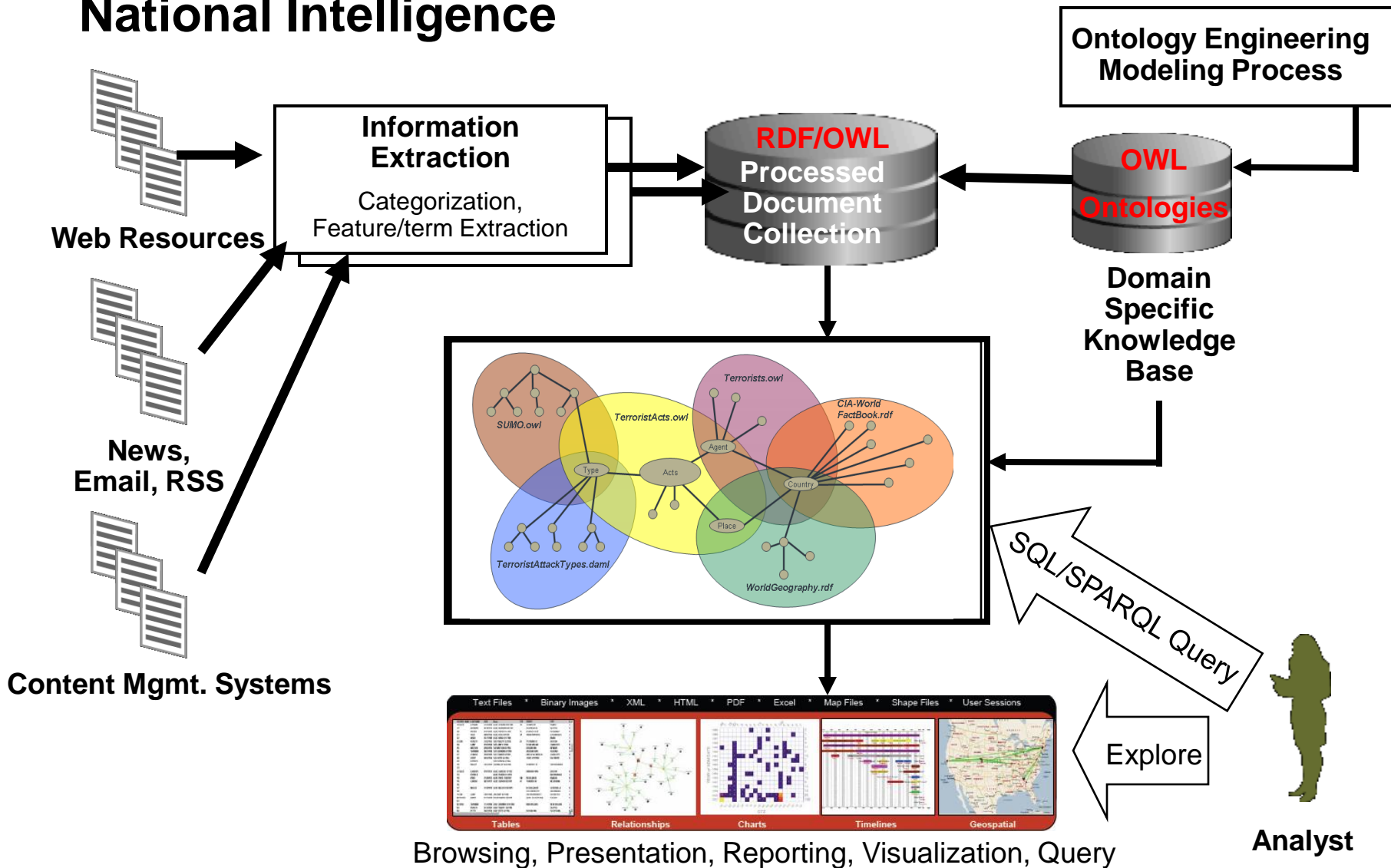
# **Oracle Database 11g Semantic Technologies Overview**

**Aug 2010**

# Business Needs

- Discovery of data relationships across...
  - Structured data (database, apps, web services)
  - Unstructured data (email, office documents) Multi-data types (graphs, spatial, text, sensors)
- Text Mining & Web Mining infrastructure
  - Terabytes of structured & unstructured data
- Enable data reuse by associating more meaning (context) with the data
- Allow schemas to continuously and dynamically evolve
- Support queries that are not defined in advance

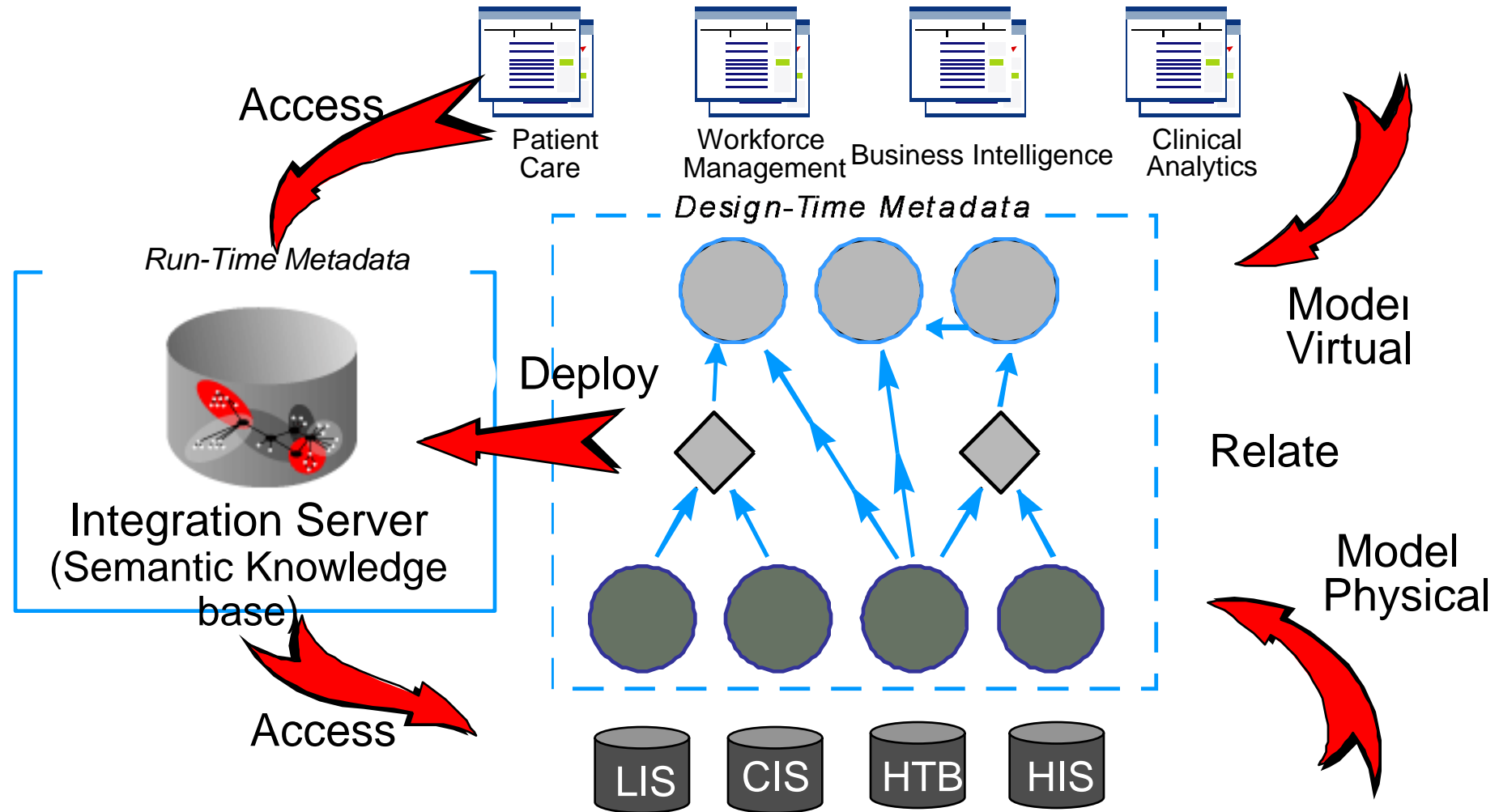
# Canonical Use Case: Text Mining National Intelligence



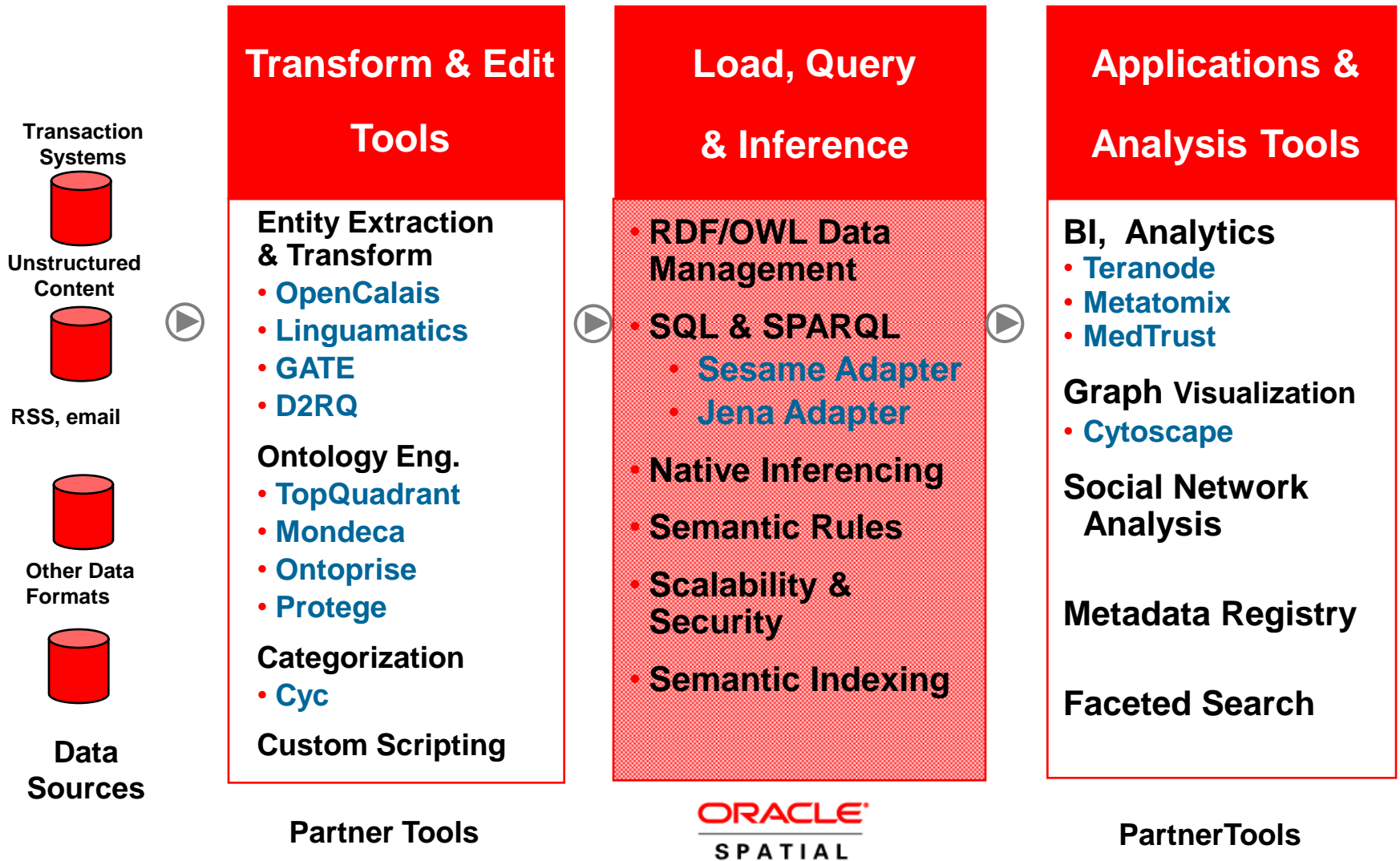
# Canonical Use Case: Data Integration

## Health Informatics

### Enterprise Information Consumers (EICs)



# Semantic Application Workflow



# Oracle's Partners for Semantic Technologies

## Integrated Tools and Solution Providers:

### Ontology Engineering



### Reasoners



### Applications



### Query Tool Interfaces



### Standards



### NLP Entity Extractors



### SI / Consulting





# Some Oracle Database Semantics Customers

## Life Sciences



## Defense/Intelligence



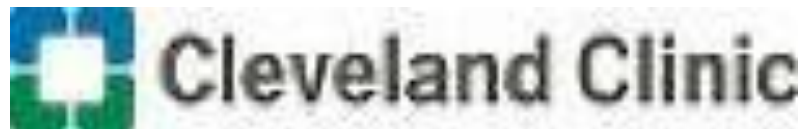
## Education



## Telecomm & Networking



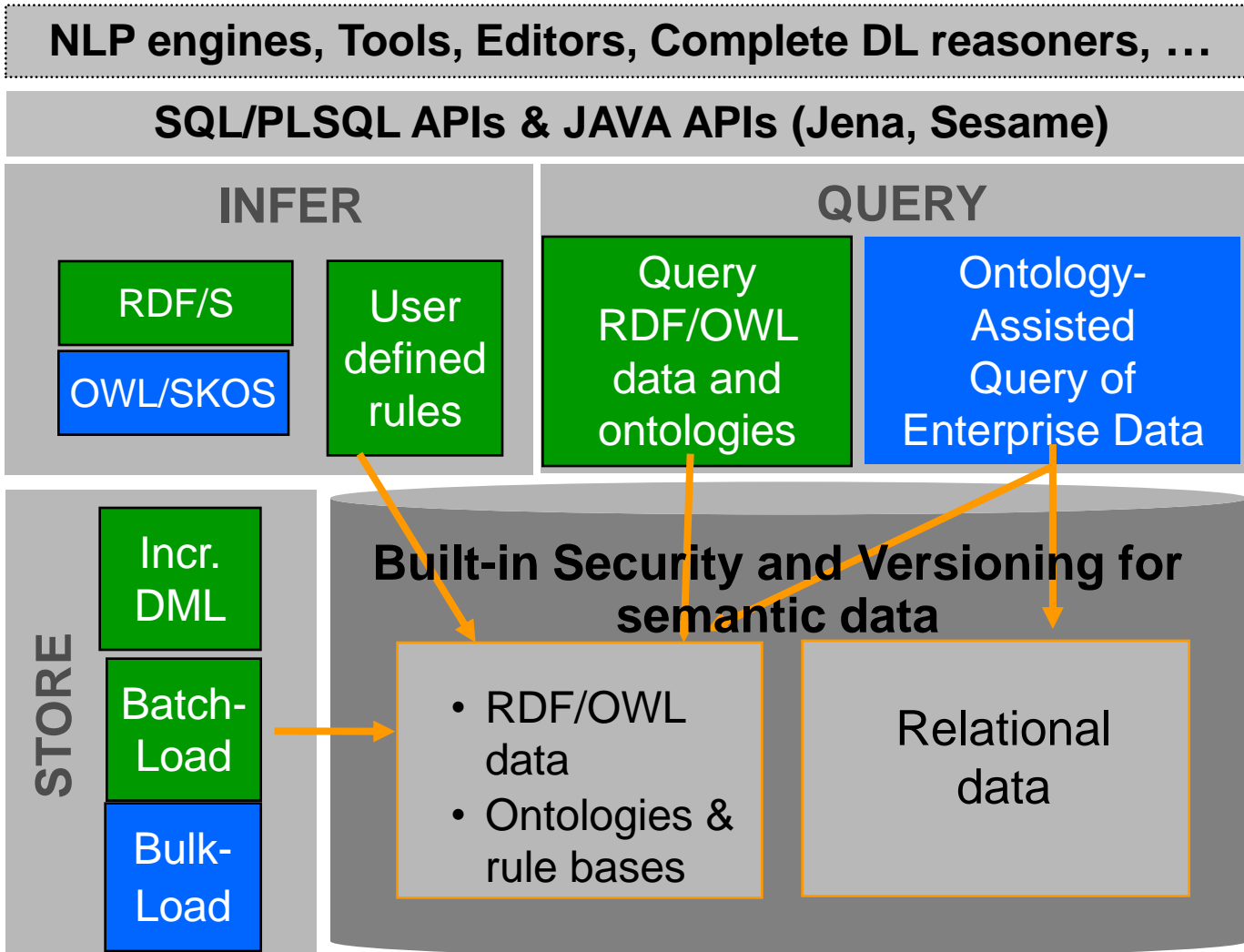
## Clinical Medicine & Research



## Publishing



# Capabilities Overview of Release 11.2



# Oracle Database Provides

## Reasoning and Discovery

- RDFS / OWL inferencing
- User-defined rules for inferencing
- Plug-in architecture for inference engines such as PelletDB
- Inferencing proofs and explanations
- SPARQL & mixed SQL DB queries

## Data Integration

- Distributed SPARQL queries through Service in Jena
- Ontologically-assisted SQL queries
- Integration with 3rd party NLP entity extraction engines: e.g., OpenCalais
- Semantic Indexing for documents

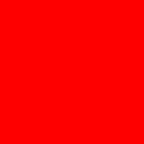
# Oracle Database Provides

## Scalability

- Efficient RDBMS storage and loading of RDF data
- Support RAC, Exadata platform, partitioning, compression, versioning
- Incremental & parallel inferencing
- Supports concurrent users, distributed applications

## Security

- Graph level security
- Virtual Private Database declarative constraints based on RDF data char. & app. / user context
- Oracle Label Security restricts RDF data access to users having compatible access labels



**Demo: Application of OASIS Integrated  
Collaboration Object Model (ICOM) with  
Oracle Beehive Collaboration and  
Oracle Database 11g Semantic Technologies**

# An Example Application of ICOM with Oracle Beehive and Semantic Technologies

- Represent Ontolog forum discussion threads in ICOM RDF
  - extend ICOM with triples for user interest profile
    - <?user hasInterest ?interest>
    - <?interest hasTerm ?literal>
- Extract users' interests and expertise
  - Beehive continuously update user interests and expertise profiles based on user's authorship of artifacts
- Connect information seekers to the right people at the right time to collaborate

# Extract User Interests and Expertise Profiles

- Rank the phrases continuously by
  - composition
  - relative frequency of use
  - aging in a moving window of time
- Let the users declare extracted terms as “public” or keep them as “protected”
  - “protected” terms are used by single-blind broker
  - through the broker, searchers see topics, not user identities
- Criteria for matching expertise requests
  - - strength of the terms
  - - social proximity
  - - responsiveness
  - - availability (rich presence)

# Interests and Expertise Search

Home Welcome STRWC20\amanda.edwards | My Site | My Links |

**Project Lucas** All Sites

Home Search Connection Requests **Project Lucas**

View All Site Content

**Documents**

- Shared Documents

**Lists**

- Calendar
- Tasks

**Discussions**

- Team Discussion

**Sites**


**People and Groups**

Recycle Bin

Home > Project Lucas

Project Lucas

**In the News**



**In the News**

Global Construction wins National Soccer Stadium Bid  
Green Energy - Global Construction recognized for Leadership in Green Construction  
Global Construction on course for third year of record growth

**Calendar**

1/19/2010 9:00 AM Customer Site Visit **NEW**

**Team Discussion**

Subject

There are no items to show in this view of the "Team Discussion" discussion board. To create a new item, click "Add new discussion" below.

**Announcements**

**Welcome to the Project Lucas Team Site!** **NEW** 1/19/2010 6:03 PM  
by STRWC20\amanda.edwards  
Congrats to everyone on the Project for launch of the new site. We will now have one single place to collaborate on the projects.

**Search Interests and Expertise**

construction contracts

- Amanda Edwards**  
Contract Manager  
**Interests and Expertise:** Change Orders, **construction contracts**, Contract Specifications, Contract management software, contract lifecycle management, Claims Construction Change Orders, Construction Industry Contract Law
- Daniel Murphy**  
Project Manager  
**Interests and Expertise:** general contracting firm, Large construction projects, overall construction project, Construction project managers, Construction Project Management, Engineering Project Management, Certificate, Engineering Project


**i** Not finding what you are looking for? A **Connection Request** can automatically contact others on your behalf based on interests and expertise that they may not have made public.

**Shared Documents**

Type	Name	Modified By
	Communications	STRWC20\amanda.edwards
	Construction and Testing	STRWC20\amanda.edwards
	Planning and Analysis	STRWC20\amanda.edwards



# ICOM RDF Describing One Message


Workbench
OpenRDF

Sesame server

Repositories

New repository

Delete repository

Explore

Summary

Namespaces

Contexts

Types

Explore

Query

Export

Modify

Add

Remove

Clear

System

Information

Current Selections:

Sesame server: <http://stbdd08:7001/openrdf-sesame> [change]

Query Oracle Database: [icomf \(icomf\)](#) [change]

## Explore (msg09\_10:msg00202.html)

Subject	Predicate	Object	Context
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom:hasName</a>	<a href="#">"Re:[ontolog-forum]Just What Is an Ontology, Anyway? Re:[ontolog-forum]Just What Is an Ontology, Anyway?"</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom:mid</a>	<a href="#">"&lt;00e401ca565b866290f20\$327bd604@ocom&gt;"</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom:hasMarker</a>	<a href="#">ofuid_388106968fd9f12d248f1091cc57bec</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom:hasDeliveredTime</a>	<a href="#">"Mon, 26 Oct 2009 16:14:30-0000"</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom_forum:inReplyTo</a>	<a href="#">msg09_10msg00202.html</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom:hasSender</a>	<a href="#">userid_5764</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">rdf:type</a>	<a href="#">icom:Entity</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">ex:relevantTime</a>	<a href="#">"Mon, 26 Oct 2009 16:14:30-0000"</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom:hasParent</a>	<a href="#">topic_idf68b329da9893e34099c7d8ad5cb9c940</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">ex:relevantUser</a>	<a href="#">userid_5764</a>	
<a href="#">topic_idf68b329da9893e34099c7d8ad5cb9c940</a>	<a href="#">icom_forum:hasMessage</a>	<a href="#">msg09_10msg00202.html</a>	
<a href="#">msg09_10msg00202.html</a>	<a href="#">icom_forum:inReplyTo</a>	<a href="#">msg09_10msg00202.html</a>	
<a href="#">topic_idf68b329da9893e34099c7d8ad5cb9c940</a>	<a href="#">icom:hasElement</a>	<a href="#">msg09_10msg00202.html</a>	

Resource:

Limit results:

Copyright © Aduna 1997-2008

- Above RDF triples describing the following Ontology forum message.

<http://ontolog.cim3.net/forum/ontolog-forum/2009-10/msg00202.html>

- Tbox uses OWL 2 property chain feature:  
SubObjectPropertyOf( ObjectPropertyChain( :hasElement :hasTopic :hasMessage ) ex:contains )

# ICOM RDF Describing One Message

**Workbench** OpenRDF

Sesame server: <http://stbdd08:7001/openrdf-sesame> [change]  
 Query Oracle Database : icomf (icomf) [change]

Explore (msg09\_10:msg00202.html)

Subject	Predicate	Object	Context
<a href="#">msg09_10msg00202.html</a>	icomf:hasName	"Re:[ontolog-forum] Just What Is an Ontology, Anyway? Re:[ontolog-forum] Just What Is an Ontology, Anyway?"	
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">topic_idf68b22eda989ce34099d</a>			
<a href="#">msg09_10msg00202.html</a>			
<a href="#">topic_idf68b22eda989ce34099d</a>			

Resource:   
 Limit results:  Show

Copyright © Aduna 1997-2008

**Another OWL 2 property chain usage:**

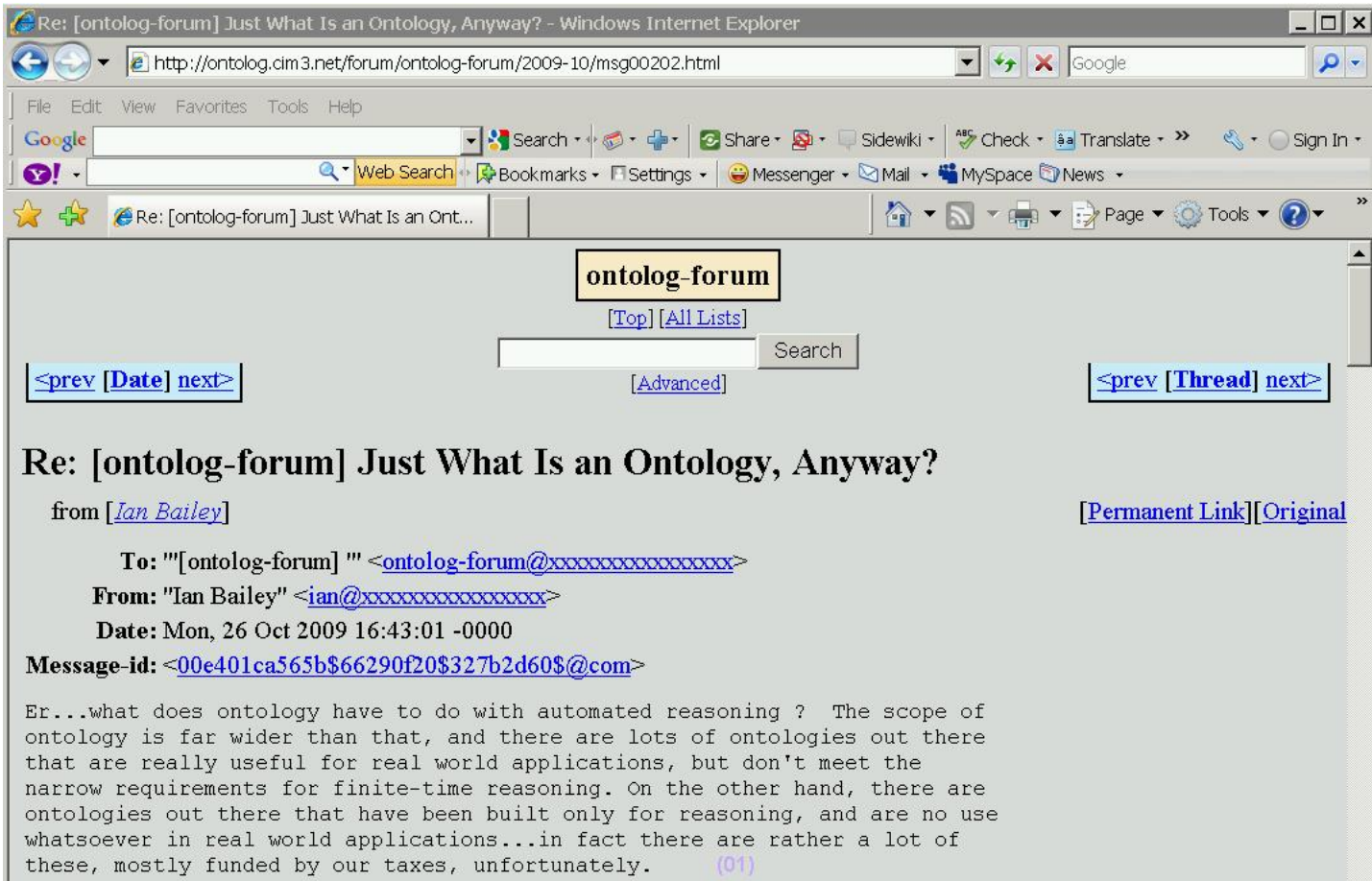
SubObjectPropertyOf(:similarTheme :related)  
 SubObjectPropertyOf(  
     ObjectPropertyChain( :hasParent :related :elementOf ) :related )

related(docX, docY) :- similarTheme(docX, docY)  
 related(topicA, topicB) :- similarTheme(topicA, topicB)  
 related(docX, docY) :- hasParent(docX, topicA) . related(topicA, topicB) .  
 elementOf(topicB, docY)

• This kind of recursive definition of relations is common in social network applications.

- Above RDF triples describe a message in the forum at <http://ontolog.cim3.net/forum/ontology>
- Tbox uses OWL 2 property chain usage: SubObjectPropertyOf( ObjectPropertyChain( :hasParent :related :elementOf ) :related )

# The Actual Message Contents



Re: [ontolog-forum] Just What Is an Ontology, Anyway? - Windows Internet Explorer

http://ontolog.cim3.net/forum/ontolog-forum/2009-10/msg00202.html

File Edit View Favorites Tools Help

Google Search Share Sidewiki Check Translate Sign In

Web Search Bookmarks Settings Messenger Mail MySpace News

ontolog-forum

[Top] [All Lists]

Search

<prev [Date] next> [Advanced] <prev [Thread] next>

**Re: [ontolog-forum] Just What Is an Ontology, Anyway?**

from [Ian Bailey] [Permanent Link][Original]

To: "[ontolog-forum]" <ontolog-forum@xxxxxxxxxxxxxxxxxx>

From: "Ian Bailey" <ian@xxxxxxxxxxxxxxxxxx>

Date: Mon, 26 Oct 2009 16:43:01 -0000

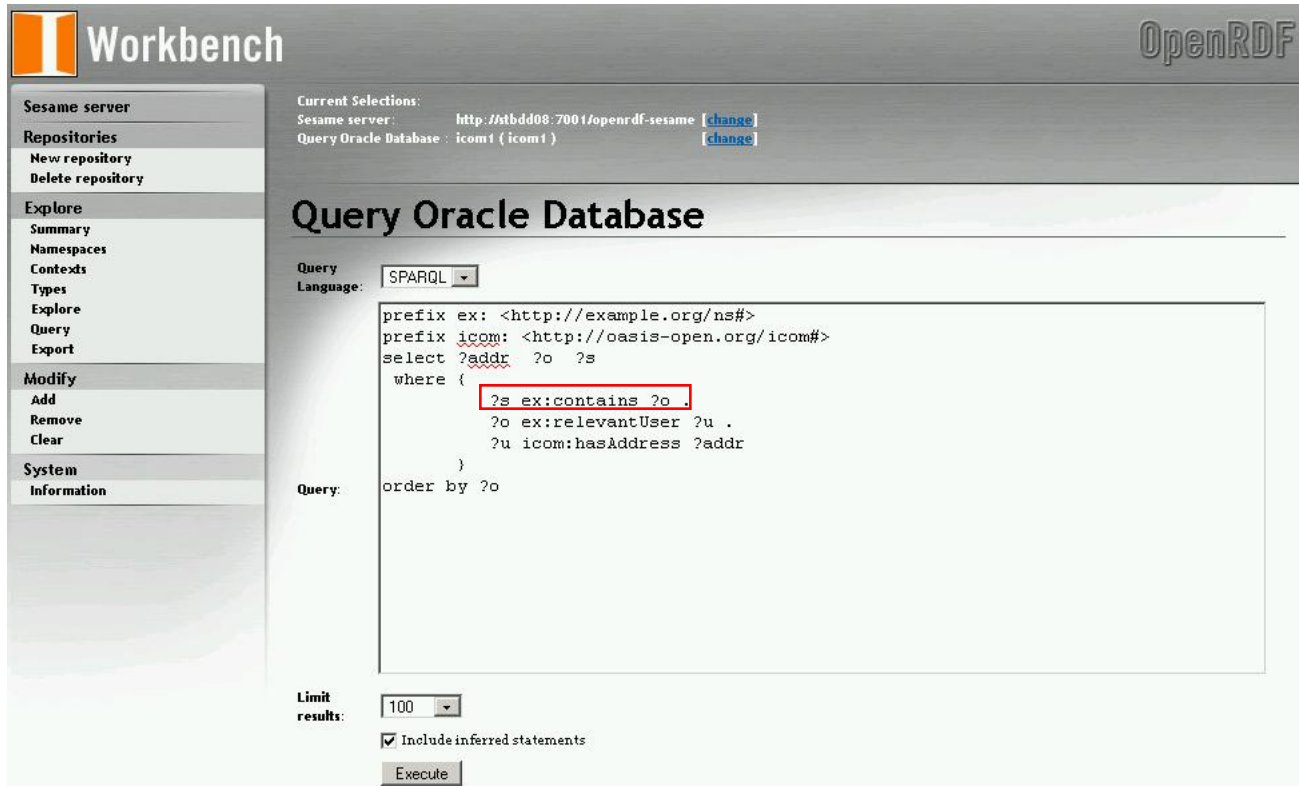
Message-id: <00e401ca565b\$66290f20\$327b2d60\$@com>

Er...what does ontology have to do with automated reasoning ? The scope of ontology is far wider than that, and there are lots of ontologies out there that are really useful for real world applications, but don't meet the narrow requirements for finite-time reasoning. On the other hand, there are ontologies out there that have been built only for reasoning, and are no use whatsoever in real world applications...in fact there are rather a lot of these, mostly funded by our taxes, unfortunately. (01)

<http://ontolog.cim3.net/forum/ontolog-forum/2009-10/msg00202.html>

# SPARQL Query

- A generic query simplified by using OWL 2 property chain



The screenshot shows the OpenRDF Workbench interface. The top bar includes the 'Workbench' logo and 'OpenRDF' text. The left sidebar contains navigation menus for 'Sesame server', 'Repositories', 'Explore', 'Modify', and 'System'. The main area is titled 'Query Oracle Database' and features a SPARQL query editor. The query is as follows:

```
prefix ex: <http://example.org/ns#>
prefix icom: <http://oasis-open.org/icom#>
select ?addr ?o ?s
  where {
    ?s ex:contains ?o .
    ?o ex:relevantUser ?u .
    ?u icom:hasAddress ?addr
  }
Query: order by ?o
```

Below the query editor, there are controls for 'Limit results' (set to 100), a checked checkbox for 'Include inferred statements', and an 'Execute' button. The 'Query Language' is set to 'SPARQL'.

# SPARQL Query

- A generic query simplified by using OWL 2 property chain

The screenshot shows the OpenRDF Workbench interface. On the left is a sidebar with navigation options: Sesame server, Repositories (New repository, Delete repository), Explore (Summary, Namespaces, Contexts, Types, Explore, Query, Export), Modify (Add, Remove, Clear), System (Information), and Information. The main area displays 'Current Selections' for the Sesame server and Query Oracle Database. Below this is a 'Query Result (100)' section with a 'Limit results' dropdown set to 100. A table of results is shown with columns 'Addr', '0', and 's'. Each row contains a mailto address, a file path (e.g., msg09\_0:msg00000.html), and the URI 'ws:ontology workspace'.

Addr	0	s
<a href="mailto:ray@cme.nist.gov">&lt;mailto:ray@cme.nist.gov&gt;</a>	<a href="#">msg09_0:msg00000.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:clynch@ontoreason.com">&lt;mailto:clynch@ontoreason.com&gt;</a>	<a href="#">msg09_0:msg00001.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:rravisharma@gmail.com">&lt;mailto:rravisharma@gmail.com&gt;</a>	<a href="#">msg09_0:msg00002.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:abdoul@cytanet.com.cy">&lt;mailto:abdoul@cytanet.com.cy&gt;</a>	<a href="#">msg09_0:msg00003.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:sova@bestweb.net">&lt;mailto:sova@bestweb.net&gt;</a>	<a href="#">msg09_0:msg00004.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:wheeler@artifact-software.com">&lt;mailto:wheeler@artifact-software.com&gt;</a>	<a href="#">msg09_0:msg00005.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:torpat@micra.com">&lt;mailto:torpat@micra.com&gt;</a>	<a href="#">msg09_0:msg00006.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:torpat@micra.com">&lt;mailto:torpat@micra.com&gt;</a>	<a href="#">msg09_0:msg00008.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:edbark@nist.gov">&lt;mailto:edbark@nist.gov&gt;</a>	<a href="#">msg09_0:msg00009.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:ratolk@odu.edu">&lt;mailto:ratolk@odu.edu&gt;</a>	<a href="#">msg09_0:msg00010.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:torpat@micra.com">&lt;mailto:torpat@micra.com&gt;</a>	<a href="#">msg09_0:msg00011.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:edbark@nist.gov">&lt;mailto:edbark@nist.gov&gt;</a>	<a href="#">msg09_0:msg00012.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:cmenzel@tam.u.edu">&lt;mailto:cmenzel@tam.u.edu&gt;</a>	<a href="#">msg09_0:msg00013.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:Waclaw.Marcin.Kusnierczyk@idi.ntnu.no">&lt;mailto:Waclaw.Marcin.Kusnierczyk@idi.ntnu.no&gt;</a>	<a href="#">msg09_0:msg00014.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:wheeler@artifact-software.com">&lt;mailto:wheeler@artifact-software.com&gt;</a>	<a href="#">msg09_0:msg00015.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:torpat@micra.com">&lt;mailto:torpat@micra.com&gt;</a>	<a href="#">msg09_0:msg00016.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:torpat@micra.com">&lt;mailto:torpat@micra.com&gt;</a>	<a href="#">msg09_0:msg00017.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:sean.barker@tiscali.co.uk">&lt;mailto:sean.barker@tiscali.co.uk&gt;</a>	<a href="#">msg09_0:msg00018.html</a>	<a href="#">ws:ontology workspace</a>
<a href="mailto:cmenzel@tam.u.edu">&lt;mailto:cmenzel@tam.u.edu&gt;</a>	<a href="#">msg09_0:msg00019.html</a>	<a href="#">ws:ontology workspace</a>

# SPARQL Query

- Find users with certain interests

The screenshot shows the OpenRDF Workbench interface. On the left is a navigation sidebar with sections: Sesame server, Repositories (New repository, Delete repository), Explore (Summary, Namespaces, Contexts, Types, Explore, Query, Export), Modify (Add, Remove, Clear), and System (Information). The main area is titled 'Query Oracle Database' and contains a SPARQL query editor. The query is as follows:

```
PREFIX ontolog:<http://ontolog.cim3.net/forum/ontolog-forum>
PREFIX icom_forum:<http://oasis-open.org/icom/forum#>
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX interest:<http://oasis-open.org/icom/interest#>

select ?u
{
  ?u interest:hasInterest ?tid .
  ?tid <http://oasis-open.org/icom#hasTerm> "upper ontology"
}
```

Below the query editor, there are controls for 'Limit results' (set to 100), a checked checkbox for 'Include inferred statements', and an 'Execute' button.

This query asks for users who have interest in “upper ontology”



# SPARQL Query

- Find users with certain interests

Workbench OpenRDF

Sesame server  
Repositories  
New repository  
Delete repository  
Explore  
Summary  
Namespaces  
Contexts  
Types  
Explore  
Query  
Export  
Modify  
Add  
Remove  
Clear  
System  
Information

Current Selections:  
Sesame server: <http://stbdd08.7001/openrdf-sesame> [change](#)  
Query Oracle Database : icom1 (icom1) [change](#)

Query Result (28)

Limit results: 100

U

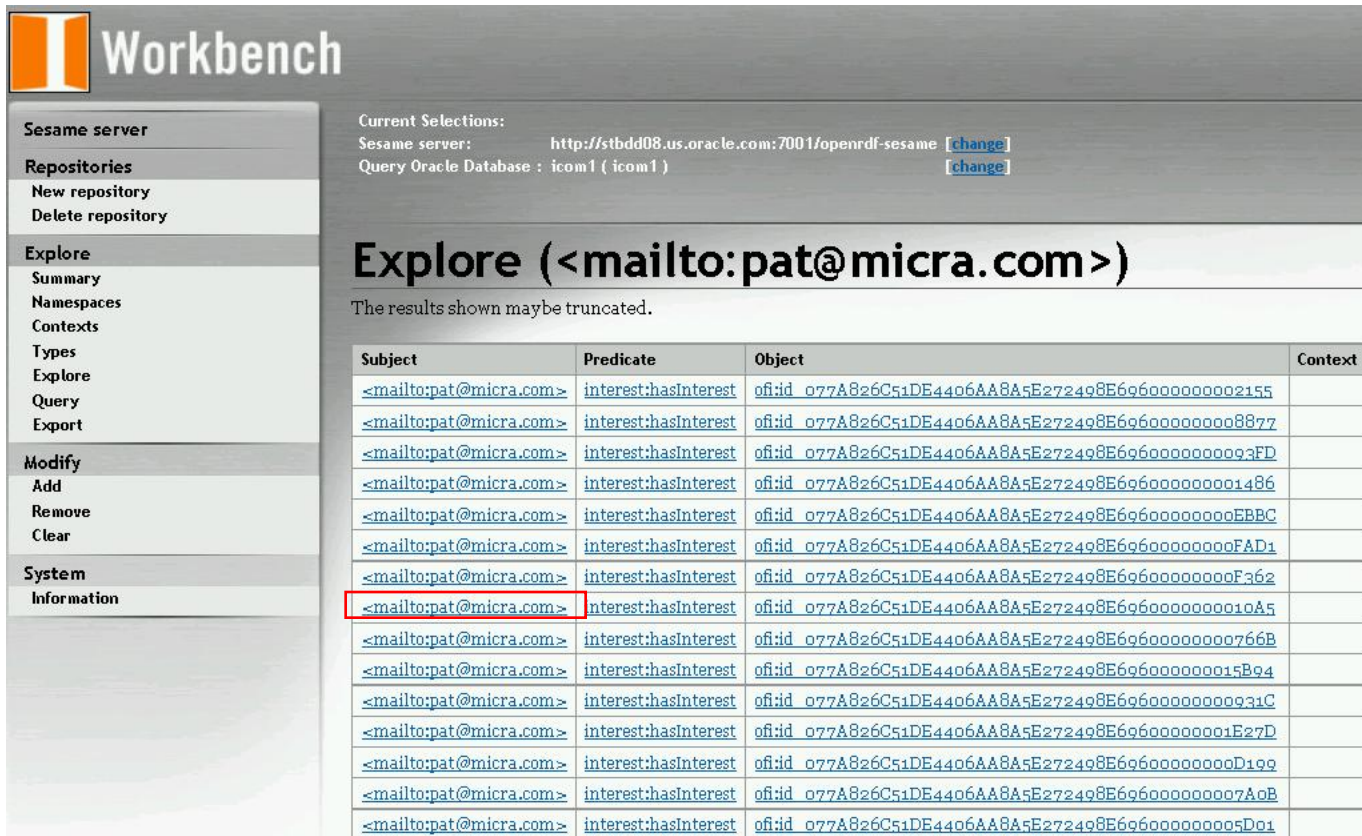
- [<mailto:sean.barker@baesystems.com>](mailto:sean.barker@baesystems.com)
- [<mailto:john@firststarpress.com>](mailto:john@firststarpress.com)
- [<mailto:f.kovacs@btinternet.com>](mailto:f.kovacs@btinternet.com)
- [<mailto:dr.matthew.vest@gmail.com>](mailto:dr.matthew.vest@gmail.com)
- [<mailto:mccomb@semanticarts.com>](mailto:mccomb@semanticarts.com)
- [<mailto:cory-c@enterprisecomponent.com>](mailto:cory-c@enterprisecomponent.com)
- [<mailto:klaskev@gmu.edu>](mailto:klaskev@gmu.edu)
- [<mailto:james.schoening@us.army.mil>](mailto:james.schoening@us.army.mil)
- [<mailto:sean.barker@tiscali.co.uk>](mailto:sean.barker@tiscali.co.uk)
- [<mailto:ian@model futures.com>](mailto:ian@model futures.com)
- [<mailto:pat@micra.com>](mailto:pat@micra.com)
- [<mailto:jeffrey.a.schiffel@boeing.com>](mailto:jeffrey.a.schiffel@boeing.com)
- [<mailto:atolk@odu.edu>](mailto:atolk@odu.edu)
- [<mailto:rh@pioneerca.com>](mailto:rh@pioneerca.com)
- [<mailto:m.bennett@hypercube.co.uk>](mailto:m.bennett@hypercube.co.uk)
- [<mailto:abdoul@cytanet.com.cy>](mailto:abdoul@cytanet.com.cy)
- [<mailto:ibl@snet.net>](mailto:ibl@snet.net)
- [<mailto:matthew.vest@shell.com>](mailto:matthew.vest@shell.com)

Patrick Cassidy

Patrick Cassidy is among those who have interest or expertise in “upper ontology”

# SPARQL Query

## - Find users with certain interests



The screenshot shows the Oracle Workbench interface. On the left is a navigation pane with sections: Sesame server, Repositories (New repository, Delete repository), Explore (Summary, Namespaces, Contexts, Types, Explore, Query, Export), Modify (Add, Remove, Clear), and System (Information). The main area displays 'Current Selections' for 'Sesame server' and 'Query Oracle Database : icom1 ( icom1 )'. Below this is a query titled 'Explore (<mailto:pat@micra.com>)' with a warning 'The results shown may be truncated.' A table of results is shown with columns: Subject, Predicate, Object, and Context. The table contains 15 rows, all with the same predicate 'interest:hasInterest'. The 'Object' column contains various URIs. The second row's 'Subject' cell, '<mailto:pat@micra.com>', is highlighted with a red box.

Subject	Predicate	Object	Context
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000002155	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000008877	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E6960000000093FD	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000001486	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E69600000000EBBC	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E69600000000FAD1	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E69600000000F362	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E6960000000010A5	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000000766B	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E6960000000015B94	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000000931C	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000001E27D	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000000D199	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E696000000007A0B	
<mailto:pat@micra.com>	interest:hasInterest	ofi:id_077A826C51DE4406AA8A5E272498E6960000000005D01	

This table shows that Patrick Cassidy has many interests.



# SPARQL Query

## - Find users with certain interests

Workbench OpenRDF

Sesame server  
Repositories  
Explore  
Modify  
System Information

Current Selections:  
Sesame server: <http://stbdd08.us.oracle.com:7001/openrdf-sesame> [\[change\]](#)  
Query Oracle Database : icom1 ( icom1 ) [\[change\]](#)

### Explore (ofi:id\_077A826C51DE4406AA8A5E272498E696000)

Subject	Predicate	Object	Context
<a href="#">ofi:id_077A826C51DE4406AA8A5E272498E6960000000015163</a>	<a href="#">icom:hasTerm</a>	"multiple arity relations"	
<a href="mailto:pcassidy@mitre.org">&lt;mailto:pcassidy@mitre.org&gt;</a>	<a href="#">interest:hasInterest</a>	<a href="#">ofi:id_077A826C51DE4406AA8A5E272498E6960000000015163</a>	
<a href="mailto:pat@micra.com">&lt;mailto:pat@micra.com&gt;</a>	<a href="#">interest:hasInterest</a>	<a href="#">ofi:id_077A826C51DE4406AA8A5E272498E6960000000015163</a>	

Resource:   
Limit results:

**“Multiple arity relations”**

This table shows details about a particular interest Patrick Cassidy has and another person who shares the same interest.

# Semantic Query for Similar Interests

## - SPARQL 1.1 feature used

### SPARQL Endpoint using Joseki and Jena Adapter for Oracle Database

Simple query test interface. You can put in your own query. The queries are submitted against the dataset specified in Joseki's configuration file.

**John F. Sowa**

SELECT - get variables (apply XSLT stylesheet)

```
select ?other count(?tid)
{
  <mailto:sowa@bestweb.net> <http://oasis-open.org/icom/interest#hasInterest> ?tid .
  ?other <http://oasis-open.org/icom/interest#hasInterest> ?tid .
}
group by ?other
having (count(?tid) > 100)
```

XSLT style sheet (leave blank for none):

Submit Query

This query asks for users who share interests with John F. Sowa

# Semantic Query for Similar Interests

## - SPARQL 1.1 feature used

User	Number of shared interests
<mailto:f.kovacs@btinternet.com>	"331" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:rich@englishlogickernel.com>	"373" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:ravi.sharma@vangent.com>	"124" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:phayes@ihmc.us>	"671" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:edbark@nist.gov>	"115" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:abdoul@cytanet.com.cy>	"508" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:cms@metaset.co.za>	"265" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:pat@micra.com>	"916" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:gary.berg-cross@em-i.com>	"224" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:bgajdero@ryerson.ca>	"128" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:cmenzel@tamu.edu>	"126" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:lobrst@mitre.org>	"211" ^^<http://www.w3.org/2001/XMLSchema#integer>
<mailto:ingvar.johansson@ifomis.uni-saarland.de>	"125" ^^<http://www.w3.org/2001/XMLSchema#integer>

Pat Hayes

Pat Hayes shares quite a few interests with John F. Sowa

# Semantic Query for Common Interests

The screenshot shows the OpenRDF Workbench interface. The left sidebar contains navigation options like 'Sesame server', 'Repositories', 'Explore', 'Modify', and 'System Information'. The main area is titled 'Query Oracle Database' and shows a SPARQL query. The query is as follows:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX interest:<http://oasis-open.org/icom/interest#>

select ?terms ?tid
where
{
  <mailto:sowa@bestweb.net>
  <http://oasis-open.org/icom/interest#hasInterest> ?tid .
  <mailto:phayes@ihmc.us>
  <http://oasis-open.org/icom/interest#hasInterest> ?tid .
  ?tid <http://oasis-open.org/icom#hasTerm> ?terms
  filter regex(?terms, ".* ")
  filter regex(?terms, "logic", "i")
}
order by desc(?tid)
```

Red boxes highlight the email addresses in the query, with red arrows pointing to the names 'John F. Sowa' and 'Pat Hayes' written in red text to the right. Below the query, there are controls for 'Limit results' (set to 10), a checked box for 'Include inferred statements', and an 'Execute' button.

This query asks for the common “logic” related interests between John F. Sowa and Pat Hayes.

# Semantic Query for Common Interests

The screenshot shows the Oracle Workbench OpenRDF interface. On the left is a navigation sidebar with sections: Sesame server, Repositories (New repository, Delete repository), Explore (Summary, Namespaces, Contexts, Types, Explore, Query, Export), Modify (Add, Remove, Clear), and System Information. The main area displays 'Current Selections' for Sesame server and Query Oracle Database. Below that is a 'Query Result (8)' section with a 'Limit results' dropdown set to 100. A table lists 8 terms and their TID values.

Terms	Tid
<a href="#">"completeness of first-order logic"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E69600000001E210</a>
<a href="#">"Common Logic version of FOL"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E69600000001519F</a>
<a href="#">"actual ontological content"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E6960000000136E9</a>
<a href="#">"subset of logic"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E6960000000061A0</a>
<a href="#">"role of logic"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E696000000004E84</a>
<a href="#">"Common Logic standard"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E6960000000043BB</a>
<a href="#">"use of logic"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E69600000000160F</a>
<a href="#">"classical first-order logic"</a>	<a href="#">ofi:tid_077A826C51DE4406AA8A5E272498E696000000000D3A</a>

Their common interests include: completeness of first-order logic, common logic version of FOL, ...

# For More Information

<http://search.oracle.com>

semantic technologies



Check the following site for Oracle's  
SemTech 2010 presentations

[www.oracle.com/technetwork/database/options/semantic-tech/events-082086.html](http://www.oracle.com/technetwork/database/options/semantic-tech/events-082086.html)

## ICOM Homepage

- <http://oasis-open.org/committees/icom>

## More info on current developments

- <http://wiki.oasis-open.org/icom>

