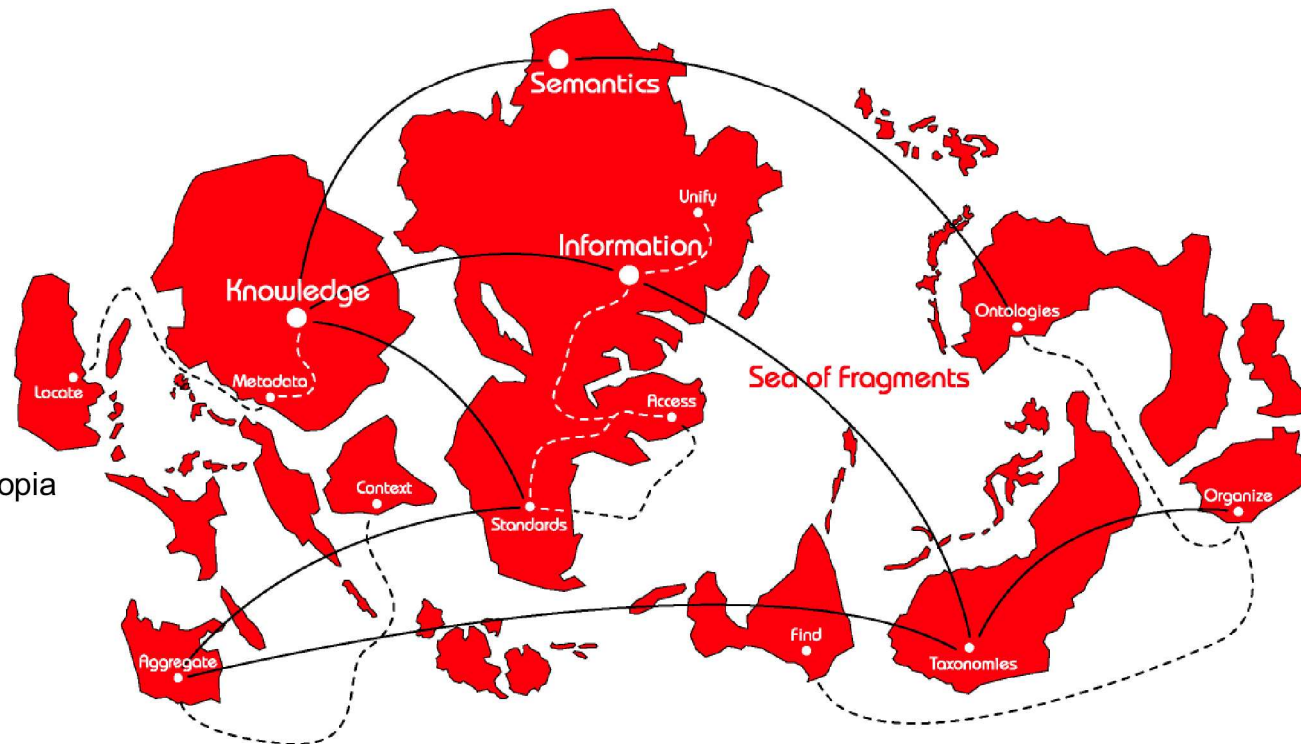


# Realization of Seamless Knowledge

Connecting distributed RDF and Topic Maps



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Presented at SWO-SIG  
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# Who is talking?

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- **Lars Marius Garshol**
  - Development manager at and co-founder of Ontopia
  - Co-author of the new ISO 13250 Topic Maps, parts 2 and 3
  - Co-editor of ISO 18048 Topic Map Query Language (TMQL)
  - Responsible for the Unicode support in the Opera web browser
  - Active open source developer in the XML community
  - Wrote *“Definitive XML Application Development”*, published by Prentice-Hall in 2002
- **Ontopia**
  - the leading topic map software vendor
  - Norwegian company headquartered in Oslo
  - Main product: Ontopia Knowledge Suite (OKS)

# Overview

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- **Introduction**
- **A comparison of the models**
- **RDF/TM interoperability**

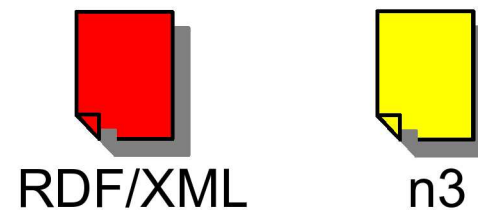
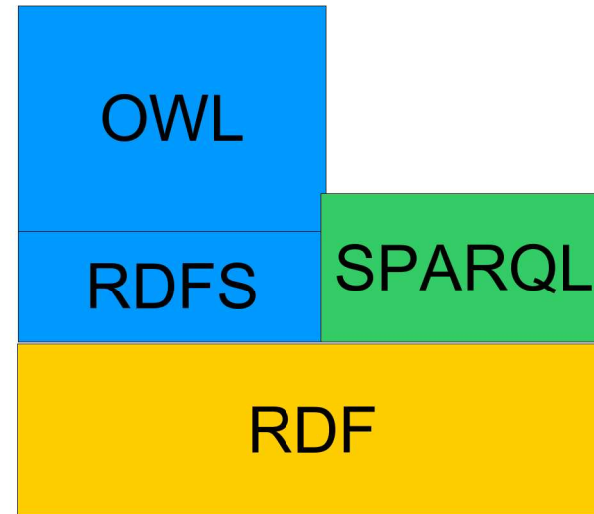
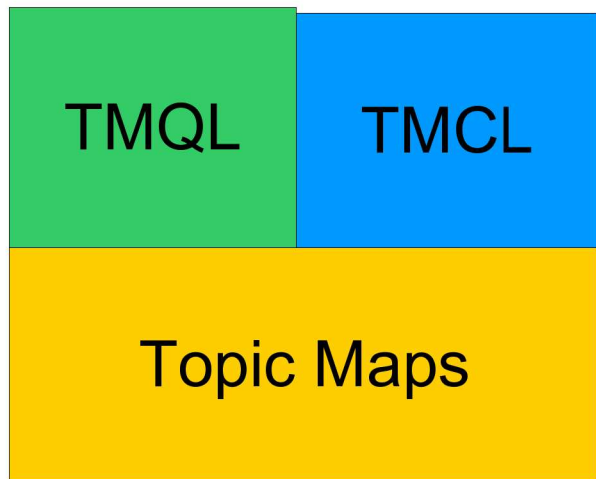
## Introduction



*The big picture*  
*Goals and applications*

# The big picture

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# Comparison of goals and use

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- **Topic Maps goals**
  - make information findable
  - make indexes mergeable
  - enable collocation of information
  - support “seamless knowledge”
- **Topic Maps uses**
  - portal infrastructure
  - classification/indexing
  - application integration
  - business process modelling
  - product data management
  - e-learning
  - asset management
  - content management
- **RDF goals**
  - represent metadata on the web (RDF MS, Lassila & Swick)
  - unify metadata and data (MCF, Guha)
  - support data integration (Miller)
  - enable the Semantic Web (Berners-Lee, Miller, ...)
- **RDF uses**
  - portal infrastructure
  - application integration
  - document metadata
  - web agent applications
  - ???

## Comparing the models



*Things and symbols*

*Assertions*

*Topic maps – overview*

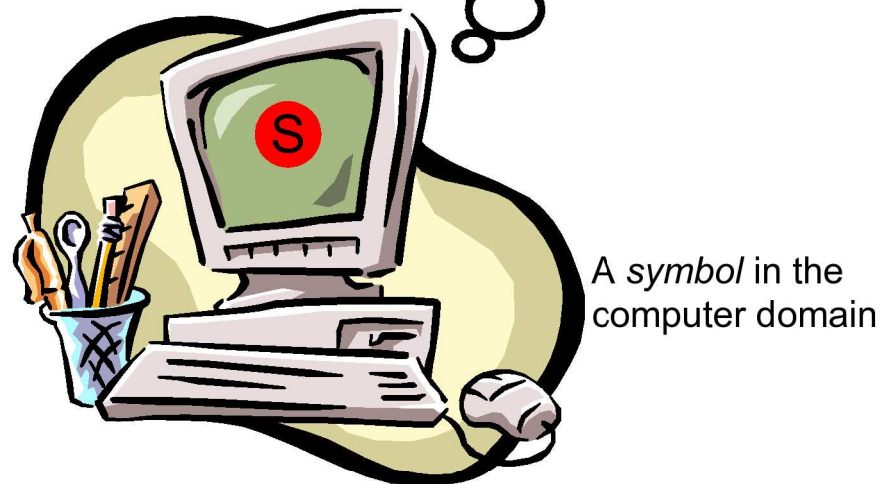
*Other features*

# Things

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- **The heart of RDF and topic maps is the same:**
  - symbols representing real-world things
- **Both RDF and topic maps consist of assertions about these things**

Reference	Topic maps	RDF
Symbol	Topic	Node
Thing	Subject	Resource

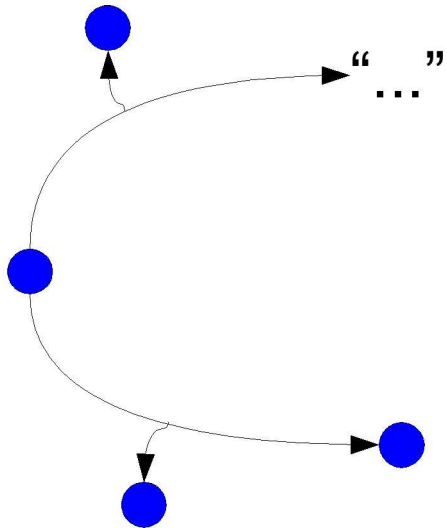




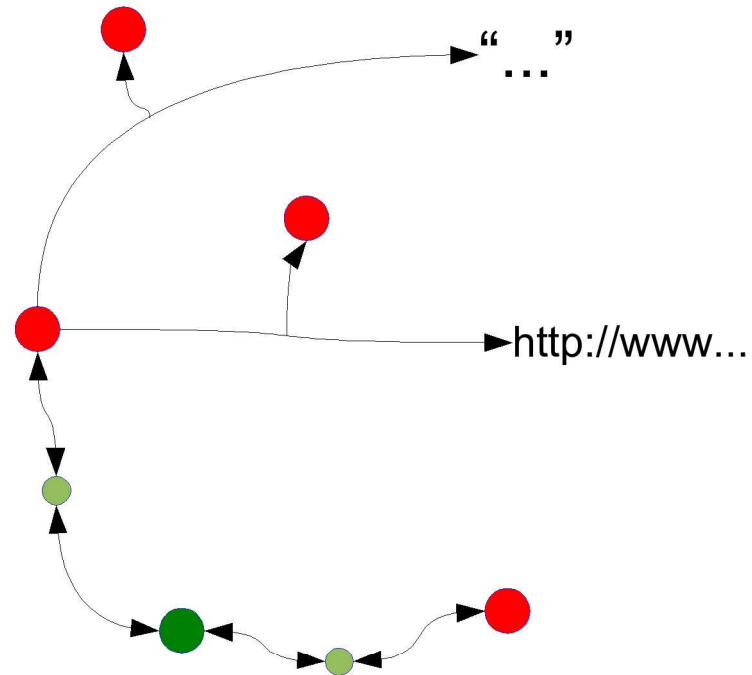
# Assertions

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- **RDF has one kind of assertion: the statement**
  - subject, predicate, object
- **Topic maps have three kinds**
  - (1) Names                      Names of topics
  - (2) Occurrences            Concept-resource
  - (3) Associations            Concept-concept

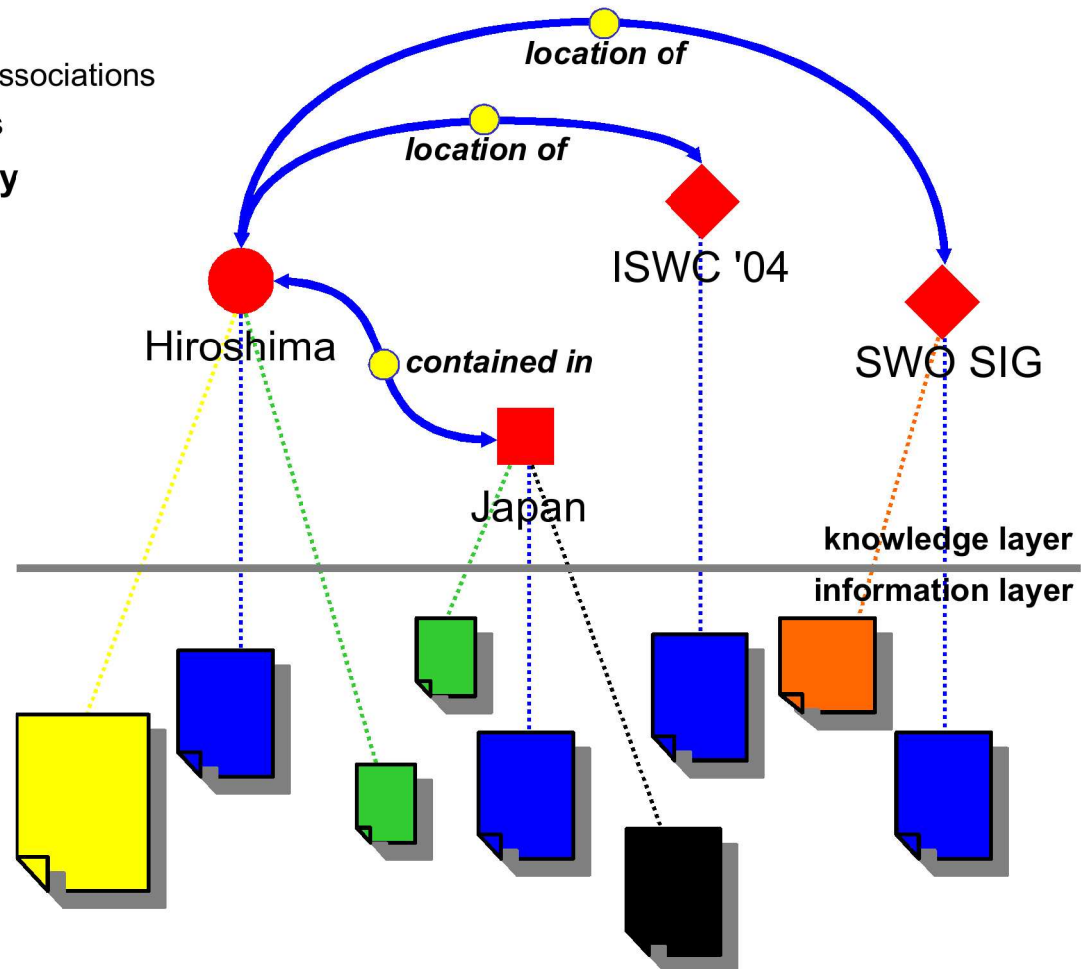


<http://www.ontopia.net>



# Overview of topic maps

- **A two-layer model**
  - knowledge layer: topics & associations
  - information layer: resources
- **The two layers are linked by occurrences**

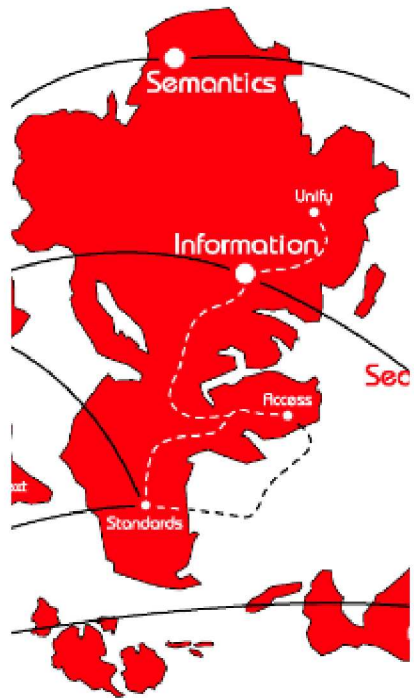


# More features of topic maps

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- **Assertions about assertions**
  - names, occurrences, and associations can be reified
  - this enables us to make assertions about other assertions
- **Representation of context**
  - assertions in topic maps have *scope*
  - scope enables us to represent the context of an assertion
  - uses: provenance, qualification of statements, authority, ...
- **Identity mechanisms**
  - the identity of subjects can be captured using URIs in topic maps
  - however, topic maps distinguish between information resources and other subjects
  - for more information, see *Curing the Web's Identity Crisis: Subject Indicators for RDF* by Steve Pepper and Sylvia Schwab

## Topic map-RDF interoperability



*RDF to topic maps*  
*Topic maps to RDF*  
*Future work*

# The RTM vocabulary

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- **The RTM vocabulary is an RDF vocabulary for expressing RDF-to-topic map mappings**
  - <http://psi.ontopia.net/rdf2tm/>
- **It operates on the level of RDF vocabularies**
  - for each property, state whether it should map to a name, occurrence, or association
  - if it maps to an association, provide the association roles
- **RTM is implemented in the OKS, and in the Omnigator**
  - an open source implementation is underway in tmap-utils

***Demo of RTM using Omnigator***  
***Developed in collaboration with mr. Motomu Naito***

# The TMR vocabulary

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- **The TMR vocabulary is a topic map vocabulary for expressing topic maps-to-RDF mappings**
- **Most topic map constructs can be mapped easily**
  - TMR provides the RDF properties to represent names
  - TMR also defines which association role should be the subject, and which the object, in RDF statements
  - Scope is expressed using RDF reification :-)
- **TMR is implemented in the OKS and in the Omnigator**

# Future work

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- **Within the Semantic Web Best Practices [...] Working Group a Task Force is being set up to work on TM/RDF interoperability**
  - most likely it will build on the RTM/TMR approach
  - not clear yet exactly what the scope of the work will be
  - there may be 2-3 TFs, we don't know yet
- **The task force is currently looking for participants**
  - <http://www.w3.org/2001/sw/BestPractices/RDFTM/>
  - to join, you must be a member of W3C and SWBPD WG

# Thank you!

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- **The slides from this talk**
  - <http://www.knowledge-synergy.com/topicmaps/sig-swo.pdf>
- **About topic maps**
  - <http://www.topicmap.com> (English)
  - <http://www.knowledge-synergy.com> (Japanese)
- **Topic maps standardization**
  - <http://www.isotopicmaps.org>
- **About RDF and topic maps (RTM, TMR, +++)**
  - <http://www.ontopia.net/topicmaps/materials/tmrdf.html>
- **The Omnigator**
  - <http://www.ontopia.net/omnigator/>
- **Questions**
  - [larsga@ontopia.net](mailto:larsga@ontopia.net) (English)
  - [motom@green.ocn.ne.jp](mailto:motom@green.ocn.ne.jp) (Japanese)