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TMRA
2007

Campus Villa Ida
Leipzig, Germany • Oct. 10 -12, 2007

www.tmra.de

3rd International Conference on
Topic Maps Research and Applications

Scaling Topic Maps

Leipzig, Germany • Oct. 10-12, 2007



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01



Campus Villa Ida

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Welcome Message

Welcome to TMRA 2007! The motto of this year's conference is "Scaling Topic Maps". Taken literally the motto implies developing Topic Maps tools that scale to large data and user volumes. This is a very real and useful research problem which is addressed by many of the contributions to the conference. But there is an even broader interpretation of the motto: wide adoption of Topic Maps in academia and industry. This is an equally important problem, and one that this conference exists to help solve. And there is a more fanciful view on the motto. To scale can also mean to climb, so for the attendee the conference provides a way to "scale the mountain of Topic Maps" and maybe that is in a sense what we all do together at the conference. In all these ways we hope that TMRA 2007 will help to scale Topic Maps.


Stimulated by the success of the previous conferences we have retained the concept of TMRA unchanged. The conference is preceded by tutorials@TMRA, a full day of five in-depth tutorials. The main conference schedule is separated into two parallel tracks, providing a rich program for all interests. The Open Space sessions will provide you a light and exciting look at work which will most likely be presented at future conferences. And TMRA 2007 is succeeded by a 3-day ISO meeting which emphasises the importance of the conference.

Like last year, we are proud to welcome you in the Campus Villa Ida of the Media Foundation Leipzig. We thank the Media Foundation for hosting TMRA 2007, and all sponsors and supporters of TMRA 2007. In particular, we would like to emphasize our platinum sponsors Bouvet, Topic Maps 2008, and NetworkedPlanet.

We hope you enjoy the conference, that you see lots of new and innovative ideas, meet progressive and amazing people, make new friends in the community, and that you will return from TMRA full of verve for starting new projects to be presented at TMRA 2008.



Lutz Maicher



Lars Marius Garshol

01



Lutz Maicher



Lars Marius Garshol

Wednesday
October 10

02

Full Day Session
09.00 - 17.00

Morning Session
09.00 - 12.30

Afternoon Session
13.30 - 17.00

Kevin Trainor

Practical Ontology Design for Topic Maps

Room: Everth

Benjamin Bock

Ruby Topic Maps

Room: Rotunde

Olli Lyytinen

Introduction to Wandora

Room: Rotunde

Robert Barta

TMQL – the upcoming Topic Maps
query language

Room: Peterhans

Gabriel Hopmans

CTM – the upcoming Compact Topic Maps
notation

Room: Peterhans

Practical Ontology Design for Topic Maps (full day),

Kevin Trainor (Ligent, USA)

Designing the ontology is an integral and important aspect of every Topic Maps application. It might sound difficult, but in fact it's not. Learn exactly what an ontology is and how to go about developing one. This day takes the form of an interactive workshop that provides an overview of all the issues to be considered when modelling topic maps. Practical examples are used to apply the methodologies and to help you make modelling decisions based on your requirements. By the conclusion of the tutorial, each participant will have had the opportunity to contribute to the design of a realistic ontology using the methods and principles presented during the workshop.

Audience: This tutorial is suitable for all levels. It is particularly well suited for information architects, CIOs, project managers, system designers and system developers.

Ruby Topic Maps (half day),

Benjamin Bock (University of Leipzig, D)

Ruby Topic Maps (RTM) is a Topic Maps engine created in and for the Ruby programming language. Its focus is an intuitive, easy to use interface, or, as the creators of Ruby would express it: RTM aims to be the Topic Maps programmer's best friend. This tutorial promotes Ruby and RTM to Topic Maps programmers, especially Java programmers who used TMAPI before. This is the first presentation of RTM, so it will start at the very beginnings. Going on with the usage of the library, it will highlight major differences to other major programming languages and also to other TM engines.

Audience: The participants should not be completely new to Topic Maps or programming in general. However, neither Ruby skills nor knowledge of other Topic Maps engines are required. The target audience has preferably a technical background as the topic is a programming library.

02

Wednesday
October 10

Tutorials @ TMRA

TMQL – the upcoming Topic Maps query language (half day),*Robert Barta*

Writing a Semantic Web application quickly exposes the need to use a proper query language to effectively access semantic content inside a Topic Map store. This tutorial will first introduce the more conventional language features and will demonstrate how applications can benefit from TMQL in general. It will then cover more advanced topics such as atomification, topic addressing, variables and bindings, association predicates before it turns to content generation of tables, XML and maps. The last part will show how TMQL fits into the TM standards landscape and how the semantics is defined. Potential implementors also can get an opportunity to be walked through existing code of a prototype implementation.

Audience: The main emphasis will be on the language features themselves, so the tutorial is mainly addressed towards application developers. Still, TMQL may play a certain architectural role in future infrastructures, so that many aspects for information architects are highlighted.

Introduction to Wandora (half day),*Olli Lyytinen (Grip Studios, FIN)*

Wandora is a generic Topic Maps based knowledge management suite. This tutorial will introduce the audience to Topic Maps, Wandora and how to use Wandora to build web applications based on Topic Maps. The tutorial will start with topic map editing in Wandora, at the same time giving a brief introduction to basic Topic Maps concepts. After being familiar with Topic Maps editing features in Wandora, tutorial will continue with building a practical Topic Maps based web application. This will be done importing an existing knowledge base and modifying and augmenting that using editing features in Wandora to suit the needs of the web application being built. Finally the topic map

will be published as a web application using Wandora.

Audience: No previous knowledge about Topic Maps is necessarily needed although at least basic knowledge about Topic Maps or similar techniques, such as RDF, should make the tutorial easier to follow.

CTM - the upcoming compact Topic Maps notation (half day),*Gabriel Hopmans (Morpheus Software, NL)*

CTM (Compact Syntax for Topic Maps) is a new part of the ISO standard. CTM is a lightweight text-based notation for representing topic maps and is to be used for manually authoring topic maps. This tutorial introduces CTM and shows how one can build topic maps using this notation. Practical examples are used how one can develop a topic map step by step. Also some typical Topic Maps application use cases are shown on how can generate topic maps from existing legacy data sources. For these use cases we will refer also to some parts of the CTM standard (such as templates) which one might use.

Audience: The tutorial is suitable for all levels, but participants need to know the basics of Topic Maps.

Thursday
October 11

03

09.00 - 09.30
09.30 - 10.30

coffee break

10.30 - 11.00
11.00 - 12.30

lunch break

12.30 - 13.30

Morning Session – Thursday October 11, 2007

Opening and Sponsors' Presentation Session

Marc Wilhelm Küster, Graham Moore: **Scaling Topic Maps**

Room: Schiller I + II

Applied Topic Maps in Industry and Administration

Peter-Paul Kruijssen; Room: Schiller I+II; p.: 12

Stefan Smolnik

Convergence of classical search and semantic technologies – evidences from a practical case in the chemical industry

Heimo Hänninen, Sirpa Ruokangas,

Antti Rauramo

Ontology Powered Portal for Telecom Operators

Lars Marius Garshol

A Citizen's Portal for the City of Bergen

Visualisation and Representation of Topic Maps

Dino Karabeg; Room: Everth + Peterhans; p.: 14

Hendrik Thomas, Rike Brecht, Bernd

Markscheffel, Tobias Redmann, Stephan Bode,

Karsten Spekowius

TMchartis – a Tool Set for Designing Multiple Visualizations for Topic Maps

Lars Johnsen

Open Educational Topic Maps: A Text-oriented Perspective

Eicke Godehardt, Nadeem Bhatti

Using Topic Maps for Visually Exploring Various Data Sources in a Web-based Environment

Afternoon Session – Thursday October 11, 2007

Collaborative Applications

Alexander Sigel; Room: Schiller I+II; p.: 16

Robert Cerny

Topincs Wiki

Tobias Hofmann, Martin Pradella

Bookmap – A Topic Maps Based Web Application for Organising Bookmarks

Demonstrations

Robert Cerny; Room: Schiller I+II; p.: 17

Roy Lachica

Fuzzyzy.com

Markus Ueberall

A Topic Map Templates based Prototype for Software Development Support

Standards Related Research

Stian Danenbarger; Room: Everth + Peterhans; p.: 16

Lars Marius Garshol

A Theory of Scope

Giovani Librelotto, Renato Preigschadt,

José Ramalho, Pedro Henriques

Comparing Topic Maps Constraint Specification Languages

Poster Session

Rani Pinchuk; Room: Foyer; p.: 19

Ann Houston

Automatic Topic Map Generation from Free Text using Linguistic Templates

Dino Karabeg, Roy Lachica

Towards holistic knowledge creation and interchange Part II: Examples, theory and strategy



03

Thursday
October 11

13.30 - 14.30

14.30 - 15.30
15.30 - 16.30

coffee break

Afternoon Session – Thursday October 11, 2007

Topic Maps Wiki Project Kick-Off

Chair: Markus Ueberall

Room: Schiller I+II

Tobias Redmann, Hendrik Thomas,

Bernd Markscheffel

Why aren't Topic Maps ruling the world yet?

Reidar Bratsberg, Jan Schreiber,

Terje Syversen

Ontology Driven Strategy for Inference of Learning Object Metadata

Tobias Redmann, Hendrik Thomas

Design Principles for a Topic Maps Wiki – The Wiki Way of Knowledge Management with Topic Maps

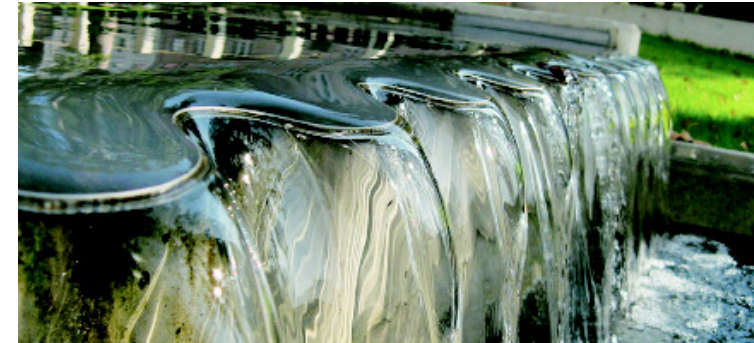
Open Space Session

Chair: Lars Marius Garshol; Room: Everth + Peterhans

Social Event

Café Paul – Otto-Schill-Straße 1 – Leipzig

phone: 0049 341 2248458



Impressions 2006

09.00 - 10.30

Morning Session – Friday October 12, 2007

Information Integration with Topic Maps

Stefan Smolnik; Room: Schiller II; p.: 21

Robert Barta

Knowledge-Oriented Middleware Using
Topic Maps

*Volker Stümpflen, Karamfilka Nenova,
Thorsten Barnickel*

Large Scale Knowledge Representation of
Distributed Biomedical Information

Markus Ueberall, Oswald Drobnik

Versioning of Topic Map Templates and
Scalability

Social Software

Graham Moore; Room: Schiller I; p.: 22

Jack Park

Toward a Topic Maps Amanuensis

*L'Hédi Zaher, Jean-Pierre Cahier,
Claude Guittard*

Cooperative Building of Multi-Points of
view Topic Maps with Hypertopics

Roy Lachica, Dino Karabeg

Towards holistic knowledge creation and
interchange

Topic Maps Engines

Robert Barta; Room: Schiller II; p.: 24

Benjamin Bock - Ruby Topic Maps

Stian Danenbarger, Arnar Lundesgaard

ZTM – a TMDM Management System for
the Web

Topic Maps and Dublin Core

Room: Schiller I; p.: 26

Steve Pepper

Expressing Dublin Core in Topic Maps

Lutz Maicher

Mapping between the Dublin Core Abstract
Model and the TMDM

Afternoon Session – Friday October 12, 2007

Information Management with
Topic Maps

Kevin Trainor; Room: Schiller II; p.: 27

Jens Heider, Julian Schütte

On Path-Centric Navigation and Search
Techniques for Personal Knowledge Stored
in Topic Map

Chattun Lallah, Atta Badii, Oleksandr

Kolomiyets, Meng Zhu, Michael Crouch

KAIFIA: Knowledge Assisted Intelligent

Framework for Information Access

Open Space Session

Chair: Lars Marius Garshol; Room: Schiller I

Moving Topic Mapping beyond the Hype Cycle

Peter F. Brown; Room: Schiller II, p.: 28

Closing TMRA 2007

13.30 - 14.30

14.30 - 15.30

15.30 - 16.30

16.30 - 17.00

coffee break

Applied Topic Maps in Industry and Administration**Scaling Topic Maps***Marc Wilhelm Küster und Graham Moore*

Topic map engines are highly efficient tools for the structuring of and access to information - provided that it is either centrally stored or, at least, does not leave the confines of particular implementations. In practice, metadata is often stored in heterogeneous, distributed registries across the web. In order to scale topic maps to a resource oriented world, we either need to aggregate data from local sources in one registry (publish-subscribe model) or treat those sources as nodes in a virtual semantic peer-to-peer network. This talk will look at one exemplary network of registries, the nascent pan-European eGovernment Resource Network (eGRN) that even now in its prototypical stage consists of two separate nodes running on different platforms and are powered by different implementations. They exchange their data through ATOM-based feeds which carry topic map fragments as payloads, making, as a side effect, every topic a first-class citizen in an eGovernment Resource Oriented Architecture (ROA).

Convergence of classical search and semantic technologies – evidences from a practical case in the chemical industry*Stefan Smolnik*

With the availability of growing information repositories and the increasing importance of the knowledge factor, organizations are being increasingly challenged to efficiently support knowledge management processes with appropriate information structuring and retrieval technologies. Besides traditional information retrieval approaches, the use of semantic technologies like Topic Maps is becoming more important. In this talk, the potential value of these approaches, technological requirements, and applications

are compared and appropriate recommendations are derived for a suitable choice of technology. Furthermore, experiences from a case in the chemical industry will provide further insights into the applicability of these recommendations in practice.

Ontology Powered Portal for Telecom Operators*Heimo Hänninen, Sirpa Ruokangas, Antti Rauramo*

Telecom infra requires a multifaceted mega-system of hardware, software and related services which are continuously upgraded and extended. Huge amount of information is required to support the system from planning to decommission. Users expect easy-to-use documentation, consistent navigation and powerful search on product info portal. There is a clear need for different views on the same information depending on the user's role and the business context. There are three main problems with the current portal. First, users cannot find the information due to unfriendly navigation structures and ineffective search. Second, development costs are high because of inflexible architecture and third, users are getting used to more advanced consumer portals with customization and personalization. Our company carried out a prototype project implementing intelligent information architecture – an ontology layer built between the data storages and the portal user interface.

A Citizen's Portal for the City of Bergen*Lars Marius Garshol*

In early 2007 the City of Bergen, the second largest city in Norway, launched a new citizen's portal based on Topic Maps. This talk describes the project, the technology used, and some lessons learned from the project.

Visualisation and Representation of Topic Maps

TMchartis – a Tool Set for Designing Multiple Visualizations for Topic Maps

Hendrik Thomas, Rike Brecht, Bernd Markscheffel, Tobias Redmann, Stephan Bode, Karsten Spekowi

The most common approach for Topic Maps visualization is a topic centered one. The associated nodes are displayed in graph network. For every topic a new graph has to be generated which leads to a constantly changing visualization. This is quite confusing for the user and does not support the creation of a mental model of the information structure. Furthermore, based on the individual needs of the users different structural concepts like a hierarchical tree, a list, a network or a combination of these can be appropriate. The design decision for the visualization should not only depend on the modeled information. First of all it shall support the focused task, e. g. providing an overview, explaining the knowledge structure or showing detailed information on a field of interests. Instead of more and more sophisticated graph algorithms only a combination of automated layout and intellectual design can provide the user with helpful visualization of the modeled knowledge domain. TMchartis addresses these problems by providing an easy-to-use tool set for creating multiple problem-oriented views on Topic Maps. TMchartis consists of a stand-alone java application, enabling experts to align and customize each individual topic and association on a two dimension drawing map. Similar to Google Maps users can freely navigate on the map, zoom and search for topic nodes. The multiple visualizations of a topic map can be integrated in web pages as Java applet. By providing problem-oriented views, Topic Maps visualizations can be developed from a nice-to-have feature to a real aid for navigation and retrieval.

Open Educational Topic Maps: A Text-oriented Perspective – Lars Johnsen

This talk makes the case for a text-oriented approach to the creation and presentation of open Topic Maps based information architectures for e-learning. More specifically,

it argues that importance should be attached to the communicative aspects of such architectures, in particular consistency, cohesion and coherence. The talk further suggests that one way of keeping this aim in focus is to work with standardized text modules as communication vehicles. To exemplify more concretely the role that standardized text might play, two specific sets of tools for modular text production are briefly discussed, namely CNXML and Structured Writing. Finally, it is demonstrated how a descriptive framework such as Rhetorical Structure Theory may be used to support the analysis, design and creation of communicative structures in open educational Topic Maps architectures.

Using Topic Maps for Visually Exploring Various Data Sources in a Web-based Environment

Eicke Godehardt, Nadeem Bhatti

Today every company and every single person owns a lot of data. However, easy ways for exploration and navigation are not very widespread. Especially, if complex relations between these data are defined and the amount of data becomes bigger, an easy to use interface is necessary. This talk describes a Topic Maps viewer, which is easy embeddable into websites to offer none-experts an innovative way to find new and relevant information. To display even huge information spaces in a web environment, this talk describes two concepts supporting scalability are explained, namely data exchange and visualization. For the data exchange between client and server pre-fetching mechanism is introduced to load data in small chunks. Garbage collection complements this to prevent overloading of the viewer by unloading not needed topics. Furthermore the clustering concept for the visualization is used to handle the huge amount of information.

Collaborative Topic Maps Applications

Topincs Wiki – Robert Cerny

Topincs is a RESTful web service interface for retrieval and manipulation of topic maps. A Topincs Server, implementing the interface, can host many stores, which are collections of maps that a group of users work upon. The Topincs Editor is a browser-based application, that allows editing of topic maps. In this talk the Topincs Wiki, another view on the content of a Topincs Store, is presented. Its purpose is to hide the Topic Maps paradigm from the user, thus simplifying the collaborative creation of topic maps.

Bookmap – A Topic Map Based Web Application for Organising Bookmarks

Tobias Hofmann, Martin Pradella

This talk proposes a basic Ontology for use in Topic Maps storing semantic information on bookmark collections. Furthermore, we introduce a data model which allows implementing such a system on a LAMP (Linux, Apache, MySQL, PHP) platform, extended with the Cake-PHP framework. A prototype has been developed as proof of concept, where the use of AJAX and drag and drop capabilities in the browser resulted in a good user experience during a preliminary user evaluation.

Standards Related Research

A Theory of Scope – Lars Marius Garshol

This talk describes an interpretation of scope based on the past few years of research on the subject. It presents a review of work in the field so far, and defines four mathematical operators for scope filtering which correspond to common use cases for scope.

Comparing Topic Maps Constraint Specification Languages

Giovani Librelotto, Renato Preigschadt, José Ramalho, Pedro Henriques

In this talk, we will use a test suite and show, step-by-step, the way we handled several kinds of Topic Maps constraints in many different instances in order to answer questions like: Do they do the same job? Are there some kinds of Topic Maps constraints that are easier to specify with one of them? Do you need different background to use the tools? Is it possible to use them in similar situations (the same topic maps instances)? May we use them to produce an equal result? How do AsTMa!, OSL, and XTche relate to Topic Maps Constraint Language (TMCL)? What kind of constraints each one of these three can not specify? We will conclude this talk with a summary of the comparisons accomplished between those Topic Maps constraint languages over the use case proposed.

Demonstrations

Fuzzy.com v2 distributed global tagging – Roy Lachica

The act of tagging has become popular on many contemporary websites. Often referred to as folksonomies they provide an easy to use, flexible and social alternative for categorization or labelling of Internet resources. We introduce Fuzzy which is a middle-way between folksonomies and the more formal ontology development tools. The ‘folkology’ of Fuzzy let users create a semantic network of tags that can be shared on the Internet across applications and domains. Folksonomies provide a simple way and thus a low threshold for usage but does not allow for machine readable sharing. Formal ontology development on the other hand enable machine readable information sharing but require the user to have expertise in semantic modelling, to have domain knowledge and training in usage of the required information systems. Formal ontology development is therefore not suitable for common and casual web users.

With the underlying topic map, Fuzzzy is a semi-formal common shared ontology which is developed organically in a bottom-up approach supported by discussion, voting and a democratic membership structure. Users that are voted as valuable will gain more influentialty in the system. More privileges will be given based on the amount of work he or she has done within the online community of Fuzzzy. By using Topic Maps and Web 2.0 principles we have developed a free and usable prototype application for semantic information modelling. Fuzzzy 2 can further act as a tag server or act as a node in the Fuzzzy distributed tag network. The information infrastructure allows anyone with a compatible Topic Map based ontology to connect to the Fuzzzy network.

A Topic Map Templates based Prototype for Software Development Support

Markus Ueberall

This demonstration of an Eclipse plug-in is intended to complement our contribution “Versioning of Topic Map Templates and Scalability” (which focuses on technical and methodological aspects) by exhibiting the use of templates in combination with graphical modelling and forms-based input dialogs in order to support collaborative software development processes in practice.

Topic Maps Wiki Project Kick-Off – Chair: Markus Ueberall

Despite the steadily growing interest in Topic Maps, there is no primary source of information which presents a current overview of domain-related activities – this both hampers information-seeking tasks and impacts the overall community visibility. This session intends to give a short overview of existing collaborative, Topic Maps centric engines and approaches which may serve as starting points and to resume the open discussion on how to combine efforts in addressing this serious shortcoming.

Poster Session

Automatic Topic Map Generation from Free Text using Linguistic Templates

Ann Houston

This work reports on the formulation and use of linguistic templates to identify and extract Topic Maps components (topics, occurrences, associations) from free English text that represents a coherent discourse domain, e.g., travel guides. A topic map is automatically created using these extractions, and the resulting map is evaluated for utility and accuracy. The linguistic templates are refined and extended, based on the initial topic map. This approach hopes to provide a rapid and efficient way of bootstrapping useful topic maps through an interactive cycle of free text extraction, topic map generation and template enhancement.

Towards holistic knowledge creation and interchange Part II: Examples, theory and strategy

Dino Karabeg, Roy Lachica

Meta-information development, and more generally creation and organization of knowledge and insights within and across communities and disciplines, will not be the result of simple automation of current practices, but of systematic re-design involving technology, theory and practice. WiKeyPoDia.org here serves both as prototype example and as symbol of this approach, showing how familiar Web 2.0 techniques can be applied to grow information in a new, ‘vertical’ direction, namely towards structure and insight rather than volume. A theoretical basis that supports this approach is outlined, as well as examples of application in several areas including education, academic communication and democratic decision making. Our results allow us to make progress towards our projected Holoscopia platform for holistic knowledge creation and interchange.

Why aren't Topic Maps ruling the world yet?*Tobias Redmann, Hendrik Thomas, Bernd Markscheffel*

Half a decade ago Eric Freese asked “So why aren't Topic Maps ruling the world?”. Till today, many progress where made, e.g. the finalization of the ISO Topic Map standardization process. However, unfortunately Topic Maps still do not rule the world. Asking for reasons, we must note that many problems Freese mentioned are still insufficiently solved and new emerged, preventing Topic Maps from unleashing its full potential. Many things had been promised and prototypically implemented but the breakthrough in using and accepting Topic Maps as a powerful knowledge managing concept in science and business is still missing. Our poster will point out these problems, in order to start a new fruitful discussion process in the Topic Map community. In regard to Eric Freese's call from 2002: “Let's get to work”, there is still a lot of things to do.

Ontology Driven Strategy for Inference of Learning Object Metadata*Reidar Bratsberg, Jan Schreiber, Terje Syversen*

Considering a system with a large number of learning objects represented in a topic map, the work involved in markup of detailed metadata is prohibitively complex and time consuming. In this poster we discuss a method for placing metadata and inference strategies into the topic map to allow reuse based on structures defined in the ontology.

Design Principles for a Topic Maps Wiki – The Wiki Way of Knowledge Management with Topic Maps*Tobias Redmann, Hendrik Thomas*

Wikis have proven how fast and easy knowledge management can be. In the following

paper, we will discuss similarities between Topic Maps and the wiki concept. Based on the conclusions we will present design principles for a Topic Maps based Wiki. The objective is to provide a ‘wiki way’ of Topic Map creation in order to enhance semantic knowledge management.

Information Integration with Topic Maps**Knowledge-Oriented Middleware Using Topic***Robert Barta*

In this work we present an architectural overview over a knowledge-based middleware based on Topic Maps. In that, we exploit the Topic Maps paradigm as much as possible trying to solve typical middleware-specific tasks. Hereby we use the concept of virtualization to homogenize the data landscape, the Topic Maps query language for semantic transformations and a dedicated, RESTful protocol for Topic Maps fragment interchange.

Large Scale Knowledge Representation of Distributed Biomedical Information*Volker Stümpflen, Karamfilka Nenova, Thorsten Barnickel*

Within the last years the Web dramatically influenced biomedical research. Although it allows for almost instantaneous access to a huge amount of distributed information the problem how to retrieve useful information still persist. With semantic technologies (especially Topic Maps) the solution becomes tangible. We will discuss in this talk concepts and a technical realization for knowledge representation within the biomedical domain. This includes not only the semantic access of distributed and heterogeneous resources based on state-of-the-art enterprise integration technologies (J2EE, Web

Abstracts

Services) but also an approach for Topic Maps based views on unstructured information from scientific publications. We will furthermore present the implementation of an information portal based on the seamless semantic integration of ~500 genome databases and ~16,000,000 abstracts.

Versioning of Topic Map Templates and Scalability

Markus Ueberall, Oswald Drobnik

Major issues for development environments are version management and scalability support. In this contribution, we discuss design guidelines for building a scalable, Topic Maps based prototype for software development process support, based on our work presented at the previous TMRA conferences. Particular attention is paid to the versioning of both Topic Map Templates, i.e., patterns used for making multiple copies of a set of Topic Map objects, and their instances. In combination with faceted classification of the resulting hierarchical structures and a generic meta process model, it is shown that the intrinsic traits of Topic Maps can be used to reduce the complexity of the management of large topic maps, e.g., by filtering.

Topic Maps based Social Software**Toward a Topic Maps Amanuensis**

Jack Park

The CALO project at SRI International provides unique opportunities to explore the boundaries of knowledge representation and organization in a learning environment. A goal reported here is to develop methods for assistance in the preparation of documents through a Topic Maps framework populated by combinations of machine learning and

recorded social gestures. This work in progress continues the evolution of Tagomizer, our social bookmarking application, adding features necessary for annotations of websites beyond simple bookmark-like tagging, including the creation of new subjects in the topic map. We report on the coupling of Tagomizer with a Java wiki engine, and show how this new framework will serve as a platform for CALO's DocAssist application.

Cooperative Building of Multi-Points of view Topic Maps with Hypertopic

L'Hédi Zaher, Jean-Pierre Cahier, Claude Guittard

In this talk, we present 'socio-semantic Web' applications based on Hypertopic. Hypertopic is a knowledge representation model for co-constructing multi-viewpoints topic maps, expressing multiple actors' points of view in communities. New approaches are required nowadays for co-building large shared indexes and collective Knowledge Management artefacts. In particular, the co-building of socio-semantic Web applications requires the use of methods which can be finely adapted to the case of each focused community. Organizational rules have to be chosen, depending on whether the semantic decision-making process takes place under centralized or distributed conditions: i.e., on whether it is a top-down, bottom-up (or mixed) process, whether (or not) a moderator or facilitator is involved, etc. Since 2002, several communities have been using Hypertopic-based groupware tools (such as 'Agoræ' which was developed by the Tech-CICO Team) to co-build socio-semantic Web applications. In these experiments, many pragmatic methods have been used to 'bootstrap' Hypertopic maps including multiple points of view. Three examples are presented showing how different co-building methods ('top-down', 'bottom-up', mixed) can be used to construct such Hypertopic maps.

Abstracts

03

Friday
October 12

Abstracts

**Towards holistic knowledge creation and interchange Part I:
Socio-semantic collaborative tagging***Roy Lachica, Dino Karabeg*

Fuzzzy.com is a social bookmarking website with a simplified loose ontology for categorization of hyperlinks. In a shared online space users of Fuzzzy continuously create metadata in a bottom-up approach. The semantic network of tags created by users evolves into a people's fuzzy common ontology ('folktology'). We discuss several issues related to the social aspects of Topic Maps and scalability by analyzing the use of the system. We further argue that holistic knowledge creation and interchange is highly needed and feasible with Topic Maps and Web Services. Our results from Fuzzzy suggest that connecting distributed and well-defined communities of dedicated users can help to realize holistic knowledge creation and interchange.

Topic Maps Engines**Ruby Topic Maps** – *Benjamin Bock*

Ruby Topic Maps (RTM) is a Topic Maps engine created in and for the Ruby programming language. Its focus is an intuitive and easy to use interface, or, as the creators of Ruby would express it: RTM aims to be the Topic Maps programmer's best friend. The development of this library is the first step to enable Ruby programmers to work with Topic Maps technology. The library is considered to be useful on its own but also as the basis for higher level tools, e.g. a Ruby on Rails plug-in with an ActiveRecord like interface.

ZTM – a TMDM Management System for the Web*Stian Danenbarger, Arnar Lundesgaard*

The Topic Maps paradigm has caught on in Norway. As active, long time concept and software developers in the middle of all of this, we believe it could be of interest to TMRA attendees to hear a few thoughts on what we perceive to be an important factor behind this success – a factor that has not yet been given as much attention outside of Norway as we believe it deserves. Most Topic Maps admin UIs and textual languages appear to be oriented towards the single Topic Maps expert maintainer, particularly at the type and schema level. Furthermore and possibly as a consequence of this mindset current TM(DM) based software architectures appear to be built on an extensive set of design time assumptions about a particular Topic Maps structure. Few - if any - current system designs can handle run time type level or schema changes, and even if they do, the consequences can be hard to predict for contributors. This challenges ownership, and will tend to render a particular Topic Maps structure and its semantics less relevant over time. Ideally, we'd like to see realized the vision of distributed, collaborative sharing of human knowledge, representing multiple, subjective viewpoints. We believe important voices are never heard, because the tools tend to expose complex interfaces, and provide very limited support for real world users. Unless the tools improve, the vision of large scale, bottom up sharing of human knowledge may never get off the ground. Much work is needed, but we feel a major first step is to handle all Topic Map information items as *managed content*, along the lines of current CMS conventions for handling content. Based on our experiences from the commercially successful ZTM project, we will exemplify and discuss usability and technical issues we find important for the above mentioned vision to be realized.

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Topic Maps and Dublin Core

Expressing Dublin Core in Topic Maps – Steve Pepper

The Dublin Core Metadata Initiative is an open organization engaged in the development of interoperable online metadata standards that support a broad range of purposes and business models. Its most important standard is the Dublin Core Metadata Element Set. This and other vocabularies developed by Dublin Core are defined as abstract models which may be expressed in any number of different syntaxes. This talk presents a proposal for expressing such metadata using Topic Maps and describes the benefits this brings.

Mapping between the Dublin Core Abstract Model and the TMDM

Lutz Maicher

Dublin Core is the one of the most used metadata vocabularies. Although it is heavily used in RDF, XML and HTML, this vocabulary is defined independently of any particular encoding syntax. The Dublin Core Metadata Initiative recommends the DCMI Abstract Model (DCAM) as metamodel for the usage of the DC vocabulary. This information model should provide a clear understanding of the kinds of description which are encoded and should facilitate the development of better mappings and cross-syntax translations. For enabling the desired Topic Maps encoding guideline this talk proposes a mapping between the DCAM and the TMDM, as information model of Topic Maps. Having this mapping, DCAM instances can be serialized as topic maps and topic maps using DC vocabulary can be deserialized into DCAM instances. Due to the different terminological expressivity, an isomorphic mapping between DCAM and TMDM is not possible. As consequence, two directed mappings are introduced.

Information Management with Topic Maps

On Path-Centric Navigation and Search Techniques for Personal Knowledge Stored in Topic Maps

Jens Heider, Julian Schütte

Leveraging interconnections across stored personal knowledge is a novel concept to find desired information by context and structure. This talk introduces a combined navigation and search interface for these homogeneous knowledge representations based on path and set calculation. It uses graph theory providing a more intuitive way of supplying search criteria and retrieving related information.

KAIFIA: Knowledge Assisted Intelligent Framework for Information Access

Chattun Lallah, Atta Badii, Oleksandr Kolomiyets, Meng Zhu, Michael Crouch

Accessing information, which is spread across multiple sources, in a structured and connected way, is a general problem for enterprises. A unified structure for knowledge representation is urgently needed to enable integration of heterogeneous information resources. Topic Maps seems to be a solution for this problem. The Topic Maps technology enables connecting information, through concepts and relationships, and their occurrences across multiple systems. In this talk, we address this problem by describing a framework built on Topic Maps, to support the current need of knowledge management. New approaches for information integration, intelligent search and Topic Maps exploration are introduced within this framework.

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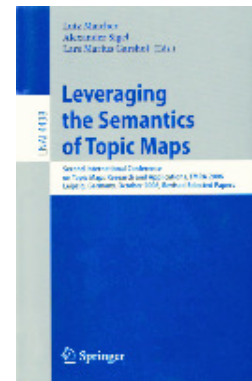
Moving Topic Mapping beyond the Hype Cycle

Peter F. Brown

The Garter Group's 'hype cycle' is well known to anyone involved in observing information technology trends: after an initial inflated 'peak of expectations', many technologies go through a 'trough of disillusion' before either fizzling out or coming through to a 'plateau of productivity'. In this closing talk, Peter will argue that Topic Maps as a standard has probably passed the dangerous phase of disillusion but will need further work and support in order to spark the phase towards long-term acceptance and productivity. Using his own experience working with Topic Maps over the last seven years and examples from the conference, he will underline some of the key issues that the Topic Map community should address in the year ahead.

Proceedings

The proceedings of TMRA 2007 will be published by Springer in the LNAI series.
You will receive your copy by mail in early 2008.



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Leveraging the Semantics of Topic Maps.
LNAI 4438. Springer, Berlin 2007.
ISBN 978 - 3 - 540 - 71944 - 1



Maicher, L.; Park, J.:
Charting the Topic Maps Research and Applications Landscape.
LNAI 3873. Springer, Berlin 2006.
ISBN 978 - 3 - 540 - 32527 - 1

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