Presented at the 3rd Ontolog F2F Workshop
(colocated with the 9th International Protege Conference, July 23~26, 2006)

"Natural, Semi-Formal, and Formal Ontologies: Bridging the Layers, Limits, and Lacunas"

Ontologizing the Ontolog Body of Knowledge

-- Goals, Challenges & Opportunities

by

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Stanford, CA, USA.
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Outline

- What is “Ontolog” (a.k.a. “Ontolog Forum”)
- The “Ontologizing Ontolog” Series of Events
- Purpose & Goals
- Challenges
- Opportunities
- Reflections

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ONTOLOG (aka. Ontolog Forum) est. Apr.2002

- 3 co-conveners - PeterYim; LeoObrst & KurtConrad
- Membership - approx. 160; from 18 different countries
- Hosted on the CIM3 collaborative work environment infrastructure
- Charter - Ontolog is an open, international, virtual community of practice, whose membership will:
  - Discuss practical issues and strategies associated with the development and application of both formal and informal ontologies.
  - Identify ontological engineering approaches that might be applied to the UBL effort, as well as to the broader domain of eBusiness standardization efforts.
  - Strive to advance the field of ontological engineering and semantic technologies, and to help move them into main stream applications.
- Activities:
  - Weekly conference calls of active members
  - Monthly virtual Invited Speaker events
  - Scheduled Technical Discussions
  - Specific Projects: like [CCT-Rep], [Health-Ont], NHIN-RFI response, Upper Ontology Summit, Event podcast, Ontologizing the Ontolog Content ...
  - Resides on a virtual collaborative work environment which serves as a dynamic knowledge repository to the community's collective intelligence
- We welcome your participation – see: http://ontolog.cim3.net/wiki/

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Working as Communities of Practice
What are CoP's anyway?

- small groups of people who have worked together over a period of time. Not a team, not a task force, not necessarily an authorized or identified group. They are peers in the execution of "real work." What holds them together is a common sense of purpose and a real need to know what each other knows.
  (--John Seely Brown / ref: http://ps1.cim3.net/ps.php?theurl=http://www.fastcompany.com/online/01/people.html#purp531)
- a group of professionals, informally bound to one another through exposure to a common class of problems, common pursuit of solutions, and thereby themselves embodying a store of knowledge.
  (--Peter & Trudy Johnson-Lenz / ref: http://community.cim3.net/cgi-bin/wiki.pl?CommunityofPractice)
- groups of people who share a concern or a passion for something they do and who interact regularly to learn how to do it better.
  (--Etienne Wenger / ref: http://www.ewenger.com/theory/index.htm)
- in the case of US eGov folks, it could be groups that work together along lines of business within the government that are dedicated to the support of certain business functions
  (ref: http://colab.cim3.net/cgi-bin/wiki.pl?DataReferenceModel_09_2004/TheGlossary_DRM_Vollv1#nid2K8F)

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CoP's are just the beginning

- **CoP's allow us to bring the right people together, and allow these people to understand, over time, who has the real expertise, who they can work with, who they can trust, …etc.**
- **To do real work, we still need:**
  - streamlined processes, and
  - effective organization
  - ***… the traditional processes and organizations that work in brick-and-mortar settings may not be optimal any more.***

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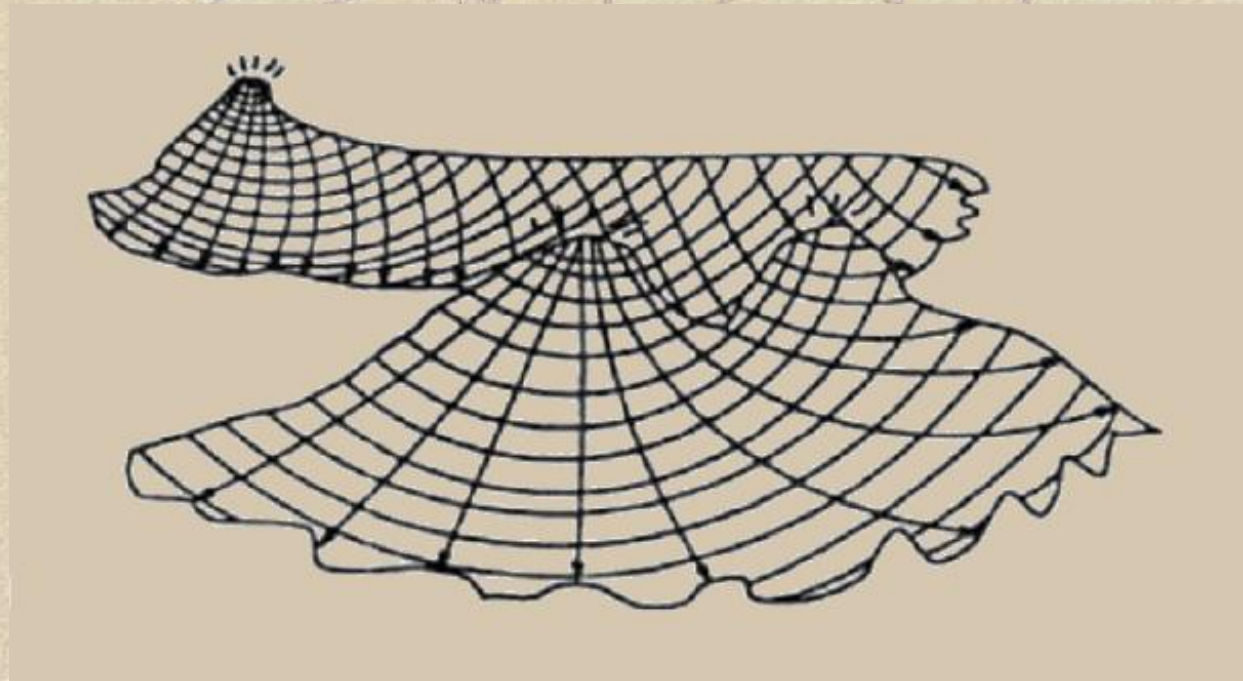
introducing: The Fishnet Organization

An Organizational Form that the CWE aims at Supporting – leading us toward Open Virtual Enterprises

these are temporary (or semi-permanent) hierarchies, that emerge out of the CoP's, which capitalize on distributed capabilities to achieve specific purposes; when those purposes are achieved (or when the opportunities no longer exist), they disband, and the resources (people, knowledge, skill sets) are returned to the CoP's where they come from.



Source: Institute for the Future: *Johansen, R., Swigart, R.* Upsizing the Individual in the Downsized Organization

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Ontolog – an open CoP

Caption: *John McCarthy having a dialog with Doug Engelbart at a tavern ... with 'the fishnet' on the wall*

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Upper Ontology Summit

Ontolog / NIST - 15-Mar-2006

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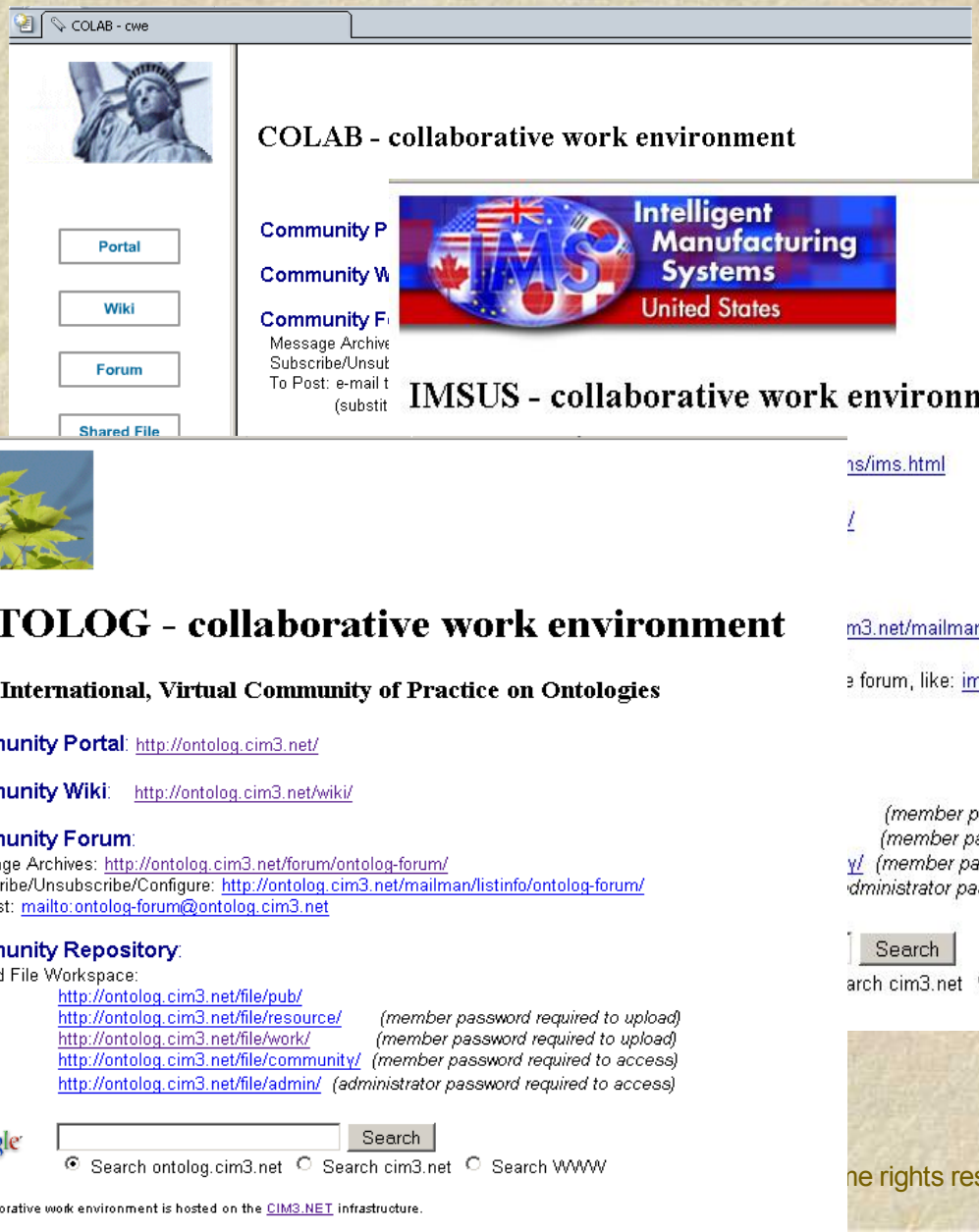
Networking with other Communities on the CIM3.NET

- Ontolog
- Protégé
- CWE-dev
- Bootstrap
- eGov: COLAB
- eGov: DRM project work & public forum
- NIST
- IMSUS: MPOSE
- Millennium Project (AC/UNU)
- Digital Art Ontology
- Hosting of: SUMO, CODS
- … *(more)*



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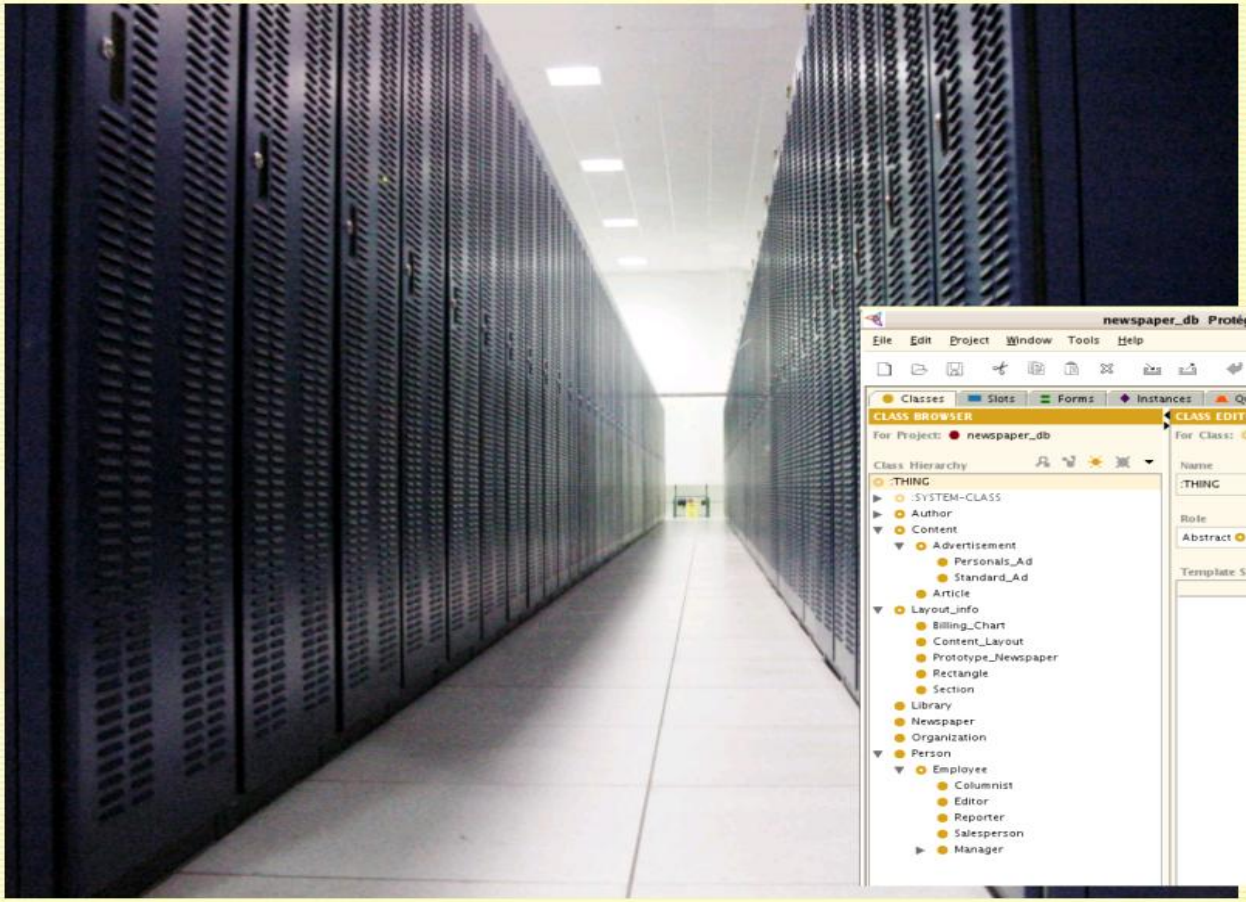
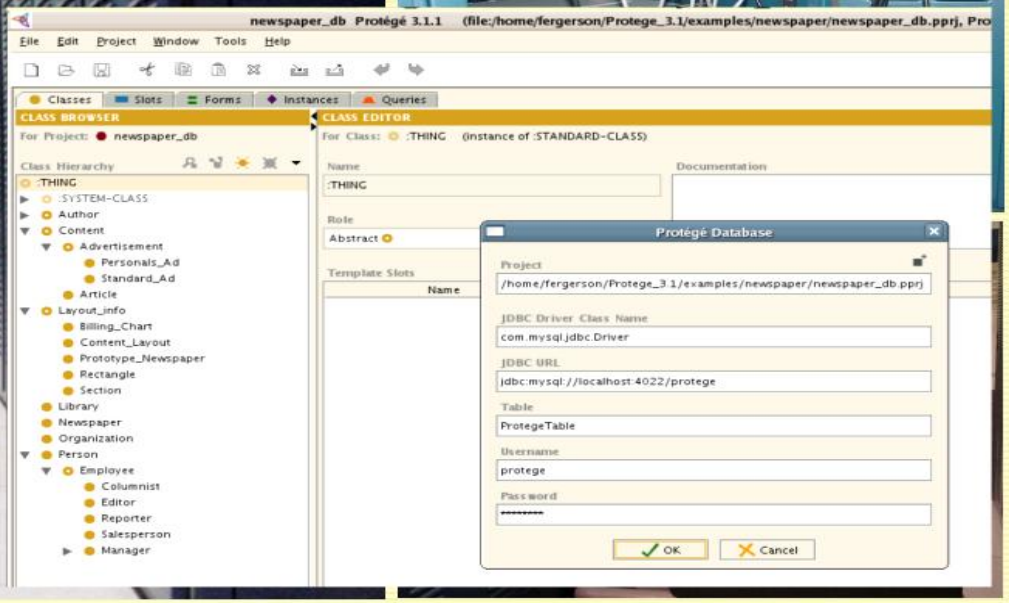
CODS – a CIM3/SMI Collaboration

"CODS" –
a Collaborative Ontology Development Service & Infrastructure

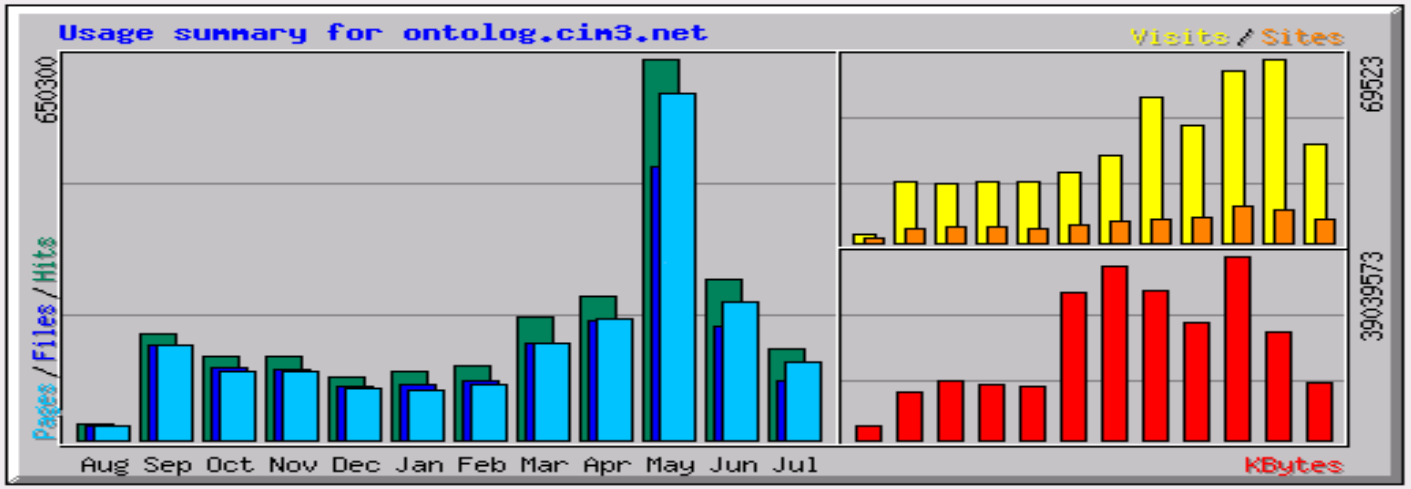




Ontolog Usage Stat

Usage Statistics for ontolog.cim3.net

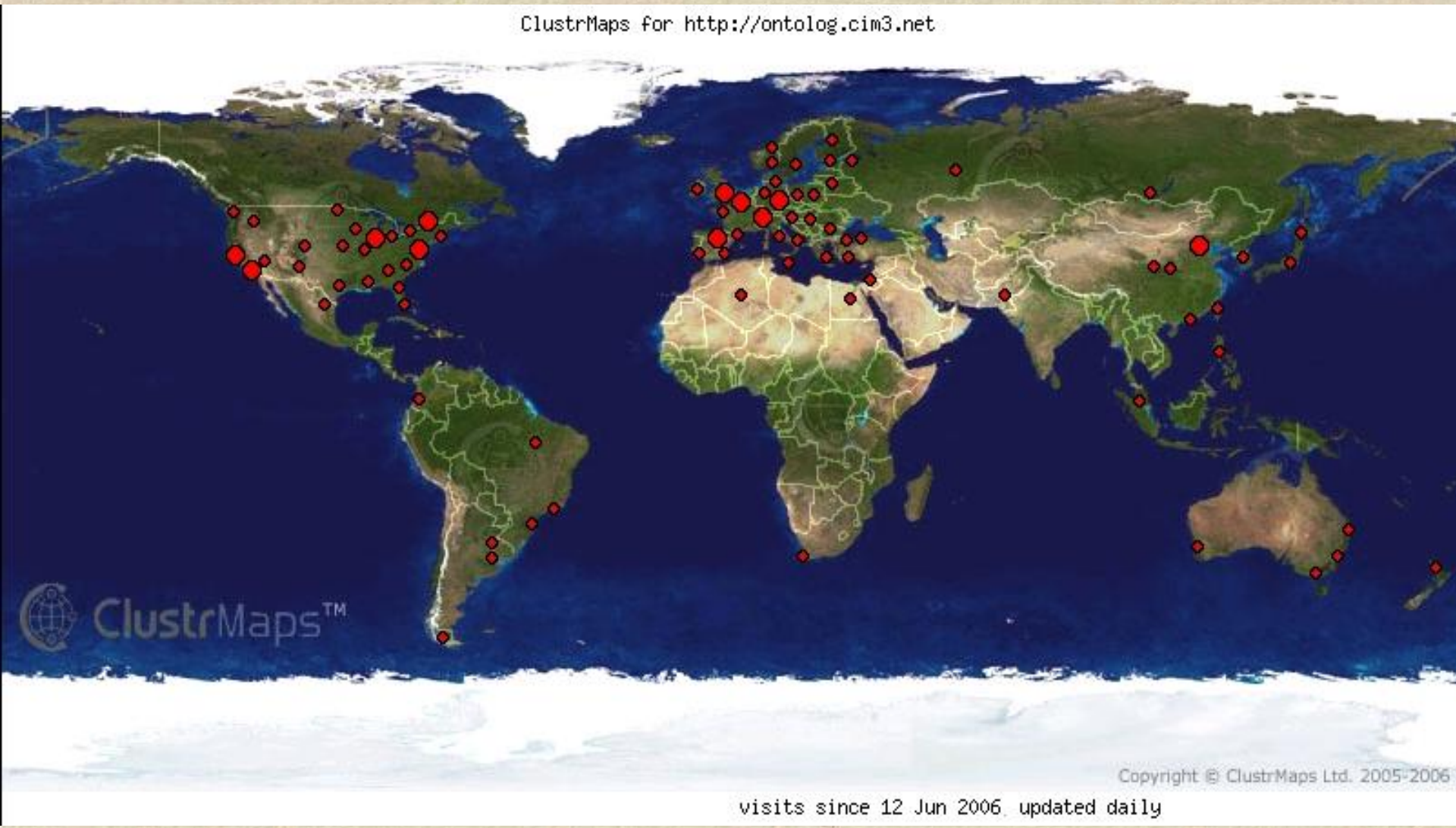
Generated 22-Jul-2006 02:00



Summary by Month

Month	Daily Avg				Monthly Totals					
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Jul 2006	7010	4627	5992	1680	8847	11997394	36979	131840	101809	154227
Jun 2006	9173	6427	7891	2317	12160	22724042	69523	236738	192829	275216
May 2006	20977	15003	19116	2098	13943	39039573	65042	592598	465116	650300
Apr 2006	8128	6739	6905	1470	9510	24809570	44113	207173	202198	243868
Mar 2006	6757	5316	5308	1776	9191	31734428	55077	164576	164820	209481
Feb 2006	4476	3597	3376	1177	7955	36668169	32961	94554	100726	125343
Jan 2006	3720	3047	2774	868	6840	31195842	26923	86019	94487	115328
Dec 2005	3460	2971	2808	736	5607	11532284	22839	87060	92116	107261
Nov 2005	4743	4056	3907	770	6222	11932825	23108	117210	121708	142299
Oct 2005	4588	3993	3773	717	6322	12538472	22239	116987	123805	142255
Sep 2005	5985	5427	5344	757	5562	10184280	22739	160332	162820	179570
Aug 2005	3958	3467	3435	494	1560	2971480	3458	24050	24273	27708
Totals						**247328359**	**425001**	**2019137**	**1846707**	**2372856**

Ontolog (Visitors) Users



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Ontologizing Ontolog

-- Purpose (for this series of events)

- 1) Providing better access to the Body of Knowledge
  - knowledge artifacts
  - tools
  - process
  - people
- 2) Using the opportunity to explore the landscape and the state-of-the-art for both technologies and approaches, on how this could actually be done
- 3) Employing the kinds of formal and informal semantic technologies and ontological engineering approaches that we've been 'talking about '
- 4) Plan to develop an ontology-based application to achieve the purpose, both as a proof of concept, and also to provide open example of a 'working application' and the process that people can look at, and
- 5) Build up enough interest and momentum to really do it -- funded, if at all possible, but on an open/voluntary-basis, if we have to.

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Ontologizing Ontolog -- Goals

- the hope is that we can engage the proponents of various approaches - OntologTaxoThesaurus, Concept Extraction & Clustering, Subject Maps, openIRIS, UIMA, Folksonomy, Semantic Web, Common Upper Ontology-extensions on a controlled Defining Vocabulary, ...- to showcase their solutions, using the "Ontologizing of the Ontolog Body of Knowledge" as their test case.
- ... even better, come up with some ways and means to allow these methodologies to be "integrated" into something that REALLY make sense (i.e. NOT just for the sake of the exercise), and is more comprehensive than any of the individual solutions.
- ... I believe that is what community members like BobSmith, DeniseBedford, EMichaelMaximilien, JackPark, PatrickDurusau, AdamCheyer, DavidFerrucci, MatthewWest, PeterMika, PatCassidy, etc. have all alluded to, all along ... more importantly, these experts are ALL telling us that we can already do a lot of whatever available technology NOW!
- ... No one has actually taken the project on, though. This series of event may hopefully, create that opportunity.

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Challenges

- Timing
  - how soon do we want the solution?
  - is the technology even here, or ready for prime time?
- Are we doing this for people? for machines? or BOTH?
- there should be no "value judgement" associated with more or less formality, upper or lower ontology
  - ... the "value proposition" and “metrics” should be "does it solve my problem?"
- Be precise, be holistic!
  - ... culturally, we actually aren't very good at either!

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Challenges
-- The “Knowledge” Gap

- "know-what" - understand your problem
  - What is your semantic application for?
  - Reference standards
  - Transaction process
  - Information Mapping or Harmonization
  - Machine-to-machine interoperation
  - Machine inference
  - Human Learning & Knowledge Discovery
    - improved search
      - recall
      - discovery
  - Natural Language Understanding (by machines)
  - … others
- "know-how" - understand the alternative solutions, and which approach would be most relevant
- "know-where" & “know-who” - putting together the right resources (esp. a team with the right combined skill set; and then, of course, the funding)

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(Ontology Enabled) Opportunities

- **for the Scientists**
  - visions from the likes of Engelbart, McCarthy, Lenat, Berners-Lee, Hendler, etc. will finally come to fruition
  - decades of research can be realized in real, non-trivial implementations
- **for the Engineers**
  - we'll actually be able to build next generation machines (systems, networks, ...) that will off-load from humans, tasks (albeit simple ones) that requires some 'reasoning' and 'thinking'
  - these application can actually affect (hopefully benefit) the lives of many millions
- **for the Marketeers**
  - a multi- multi- billion dollar market is right around the corner ...
  - please don't kill it by “Hyping it up!”

... this is NOT a “zero-sum game”!

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“Nothing Replaces Anything”

… Richard Dalton, IFTF

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the DAO of it all

- **Live with the 'Duality' around us:**
  - the Cathedral vs. the Bazaar
  - the Form vs. Free-form
  - Discipline vs. Creativity
  - Transaction Process vs. Collaborative Process
  - Classic AI vs. Augmentation approaches
  - the small 'o' vs. the big 'O' in Ontology
  - Planned vs. Emergent behavior
  - The reductionist vs. the holistic approach
- we are not bound to choose *one* OR *the other*
- *Lao Zi had this figured out, circa 500 BC*

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Ancient Wisdom

As for the Way ("Tao")
the Way that can be spoken of is not the constant Way

As for names
the name that can be named is not the constant name

The nameless is the beginning of the ten thousand things

The named is the mother of the ten thousand things

"Tao Te Ching" - Lao Tzu (circa 500 B.C.)

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Ontolog's key Differentiation

Activities are community driven; we are neutral, open, and we are not answerable to any authority or institutional structure, except for (explicitly) our charter & IPR policy, and (implicitly) our professional integrity.

We are adamant about collaboration, sharing and open knowledge
... and are trying to spur organic or emergent behaviour in the community and our project teams

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Will we be able to make the best of these opportunities?

one last conjecture:

… it might just depend on

'our attitude toward sharing'

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Reference

- The Ontolog Website: http://ontolog.cim3.net/wiki/
- (this event) 3rd Ontolog F2F Meeting: http://ontolog.cim3.net/cgi-bin/wiki.pl?OntologWorkshop_July_2006
- "Ontologizing the Ontolog Body of Knowledge" Series of Events: http://ontolog.cim3.net/cgi-bin/wiki.pl?OntologizingOntolog
- Ontolog activities & projects http://ontolog.cim3.net/cgi-bin/wiki.pl?WikiHomePage#nidF
- Upper Ontology Summit (2006): http://ontolog.cim3.net/cgi-bin/wiki.pl?UpperOntologySummit
- Noteworthy Ontolog Past Events: http://ontolog.cim3.net/cgi-bin/wiki.pl?WikiHomePage#nidZ
- The Ontolog Charter: http://ontolog.cim3.net/cgi-bin/wiki.pl?WikiHomePage#nidB
- The Ontolog Membership Information: http://ontolog.cim3.net/cgi-bin/wiki.pl?WikiHomePage#nid1J

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