



Presented at the Ontolog Forum:

Joint OpenOntologyRepository–OntologySummit2008

Panel Discussion Session - February 28, 2008

# **A Hardware and Network Infrastructure for Open Ontology Community Support**

by

**Peter P. Yim** <[peter.yim@cim3.com](mailto:peter.yim@cim3.com)>

**CEO, CIM Engineering, Inc. (dba. “CIM3”)**

( v 1.08 )



# Outline

- Who are we (CIM3)?
- Answering the same 3 questions:
  - What are we doing, that is pertinent to OOR?
  - What can we bring to the table?
  - How would that fit with what everyone else is bringing?



# Introducing CIM

- CIM Engineering, Inc. (dba. “CIM3”)
  - San Mateo, California, USA
- Incorporated in California – Jan. 1989
- CIM: Computer Integrated Manufacturing (with our origin in manufacturing and manufacturing systems)
- CIM3:
  - originally (1990), “Computer Integrated-Man-Machine Manufacturing”
  - now, “Collaboration In huMan-Methodology-Machines”
  - Effectively, we are about optimizing systems of: **People, Process & Tools**

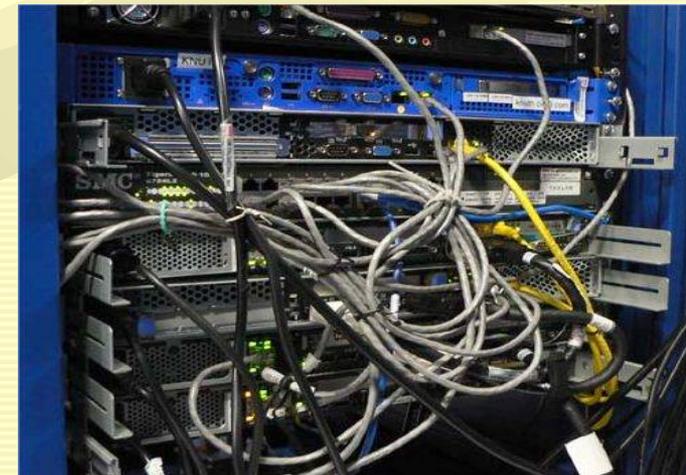


# What Does CIM3 Do?

- Mission: to enable more effective distributed collaboration and virtual enterprise through bootstrapping collective intelligence over the Internet
- Doing business as:
  - “cim3.com”, “cim3.net” and “cim3.org”
  - cim3.com – the business arm of the company
  - cim3.net – the collaborative work environments where client Communities of Practice and distributed team workspaces are hosted
  - cim3.org – the research arm, and holder of the company’s open technology, content and other intellectual properties
- Products/Services: providing an ISP/ASP based Collaborative Work Environment (“CWE”) infrastructure that enables distributed project teams, virtual enterprise partners and communities of practice to work effectively over the Internet.



# CIM3 Hosting Facility





# CIM3 Hosting Infrastructure

- Collaborative Work Environment (CWE) product Line-up:
  - “Open” CWE & “Community-only” CWE
- Network Facility:
  - Tier-1 IPv4 Internet hosting facility (IPv6 ready)
  - 100Mbps bandwidth into the Internet backbone (upgradable to 1Gbps in short order)
  - Backbone: multiple OC192 & Gige self-healing fiber-ring (among the top 10 networks in the world as measured by connectivity to the rest of the Internet.)
- Linux Servers (mainly on IBM 1u boxes)
  - Triple redundant storage (in 2 locations)
  - Locked-down system environment, with spam-filtering and content filtering capabilities

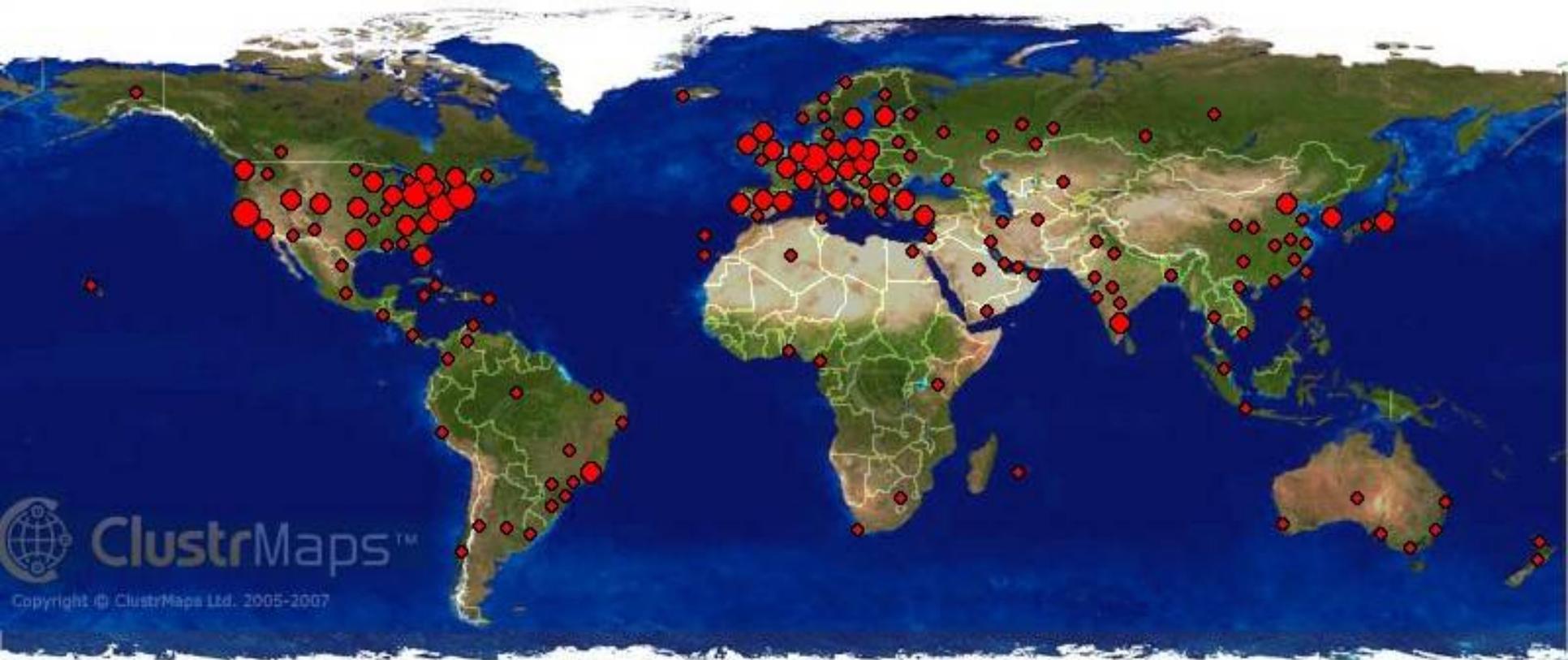
# Ontolog – an open CoP



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

# Ontolog (Visitors) Users

ClustrMaps for <http://ontolog.cim3.net> visits from 18 Jun 2007 to 2 Feb 2008



 ClustrMaps™  
Copyright © ClustrMaps Ltd. 2005-2007



# Case Examples of Communities on the CIM3.NET Collaborative Work Environments (CWE's)

- Ontolog / projects
- CWE-dev
- Bootstrap
- Computer History Museum
- Protégé, CODS
- eGov: COLAB
- eGov: FEA-DRM project work & public forum
- NIST
- IMS-US
- Millennium Pro (WFUNA)
- Digital Art Ontology
- Hosting of: SUMO, SigmaKEE

... (more)

ppy/OOR-Panel\_CIM3-Infrastructure--PeterYim\_200802

**USA Services**  
**COLAB - collaborative work environment**  
 ... Hosted by GSA Intergovernmental Solutions

Community Portal: <http://...>  
 Community Wiki: <http://...>  
 Community Forum:  
 Message Archives: <http://colab.gov/subscribe/>  
 Subscribe/Unsubscribe/Confirm Post: e-mail to [forum-nan@colab.gov](mailto:forum-nan@colab.gov) (substitute *forum-na*)  
 Community Repository

**ConferenceCall 2008 01 17**

WikiHomePage | RecentChanges | Page Index

**NASA-Ontolog-KMWG OKMDS mini-series Session-03 - Thu 17-January-2008** (1612)

- Subject: Ontolog in Knowledge Management and Decision Support (OKMDS): Making Better Decisions (1772)
- Panel Session Title: Creating Informational and Virtual Space for Knowledge Sharing (1780)
- Session chair: [Ms. Jeanne Holm](#) (NASA/JPL) (1781)
- Panelists: [Tom Soderstrom](#) (NASA/JPL), [Jeanne Holm](#) (NASA/JPL) and [Marcela Oliva](#) (LATTC Architecture, LACCD Facilities K.M.) (1782)
- Archive: slides: [1-Soderstrom](#), [2-Holm](#), [3-Oliva](#) & audio recording of the session (mp3) (1783)

**WikiHomePage**  
 WikiHomePage | RecentChanges | Page Index

Protege Community of Practice (CoP) is a community of users, researchers, and developers who are using the Protege ontology-development environment. For a more detailed explanation of Protege, please see the overview section of the main Protege Web site. (397)

**Table of Contents** (392)

- **Projects that use Protege:** Tell us what you are doing with Protege
- **Protege Ontologies Library** (3A3)
- **Protege Plug-ins & Applications Library** (3A2)
  - view by topic (3A3)
  - view by type (3A4)
- **Protege How-To** (3A5)
  - Modeling Tips and Tricks (3A4)
  - Programming Tips and Tricks (3A7)
  - Using Protege for your application purpose (3A8)
- **Protege Related** (3A9)
  - Tutorials (3A4)
  - Publications (3A8)
  - ScalabilityAndTuning (3A4)
  - DesignRationale (3A8)

**protégé** secondlife/Explorer%20Island/198/208/22

PeterYim (preferences | logout)

**Your Visited Pages**

- WikiHomePage
- CODS/HostedServerConfiguration
- CODS
- ProtegePluginsLibraryByType

**Version**

This wiki is powered by [MediaWiki](#), copyright (C) 2001-2007 Magnus Manske, Brion Vibber, Lee Daniel Crocker, Tim Starling, Erik Möller, Gabriel Wicke, Evar Amfóð Bjarmason, Niklas Laxström, Domas Mituzas, Rob Church and others. (1)

MediaWiki is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version. (2)

MediaWiki is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details. (3)

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA, or read it online (4)

- [MediaWiki](#) 1.11.0 (1A)
- [PHP](#) 5.1.6 (apache2handler) (1B)
- [MySQL](#) 5.0.45 (1C)

**Extensions** (1D)

Parser hooks		
<a href="#">PurpleMediaWiki</a> (version 0.5.05) (1E)	<a href="http://project.cim3.net/wiki/PMWX">http://project.cim3.net/wiki/PMWX</a> (1E)	<a href="#">Tejas Panik</a> , <a href="#">Viral Gupta</a> , <a href="#">Jonathan Cheyer</a> , <a href="#">Peter Yim</a> , <a href="#">Kenneth Baclawski</a>
<a href="#">Semantic MediaWiki</a> (version 1.0.1) (1F)	Making your wiki more accessible – for machines and humans. View online documentation (1F)	<a href="#">Klaus Lassleben</a> , <a href="#">Markus Krötzsch</a> , <a href="#">Denny Vrandečić</a> , <a href="#">S Page</a> , and others. Maintained by <a href="#">AFB Karlsruhe</a> (1F)

**Extension functions**

• Expe  
• Dial

# Upper Ontology Summit

## Ontolog / NIST - 15-Mar-2006





## The CODS Team Up

- Stanford-BMIR (previously SMI) & CIM3 – (started in Fall 2005) teamed up to develop and host an open Collaborative Ontology Development Service (CODS) and Ontology Repository for all
- the CODS platform is based on the BMIR Protégé tools and CIM3 infrastructure



## Software Featured in CODS

- Protégé Multiuser Server
- RDBMS backend (MySQL or Oracle)
- Subversion Repository server & client (w/ ViewVC GUI and TortoiseSVN client for Windows)
- PomptTAB (Protégé plugin)
- Tomcat application server, Apache web server & WebDAV server
- Linux platform
- Augmentation of the team collaboration with the CWE suite of open source collaboration tools (for portal, archived discussion, wiki & file-sharing workspace)



# Subversion Repository Access (via the Web Browser with ViewVC)

ontology - Mozilla Firefox  
 File Edit View History Bookmarks Tools Help  
 http://protege1.cim3.net/svn1/ontology/

CODS Subversion Repository

Top

Revision 8  
 /ontology

[Parent Directo  
 biocaster/  
 biopaz/  
 cctont/  
 cosmo/  
 edxl/  
 fearmo/  
 huml/  
 nci\_thesaurus/  
 smqcc/  
 sofi/  
 urnls/

[svn] / ontology Repository: svn Go

## Index of /ontology

Files shown: 0  
 Directory revision: 8 (of 8)  
 Sticky Revision:  Set

File	Rev.	Age	Author	Last log entry
Parent Directory				
biocaster/	8	5 weeks	vimpp	
biopaz/	[svn] / ontology / smqcc			
cctont/				
cosmo/				
edxl/				
fearmo/				
huml/				
nci_thesaurus/				
smqcc/				
sofi/				
urnls/				

Repository: svn

## Index of /ontology/smqcc

Files shown: 3  
 Directory revision: 3 (of 8)  
 Sticky Revision:  Set

File	Rev.	Age	Author	Last log entry
Parent Directory				
SMQCC002.pins				
SMQCC002.pont				
SMQCC002.pprj				

CIM3 Administrator  
 Powered by ViewVC 1.0.4

[svn] / ontology / smqcc / SMQCC002.pprj

## Log of /ontology/smqcc/SMQCC002.pprj

Parent Directory

Links to HEAD: (view) (download) (annotate)  
 Sticky Revision:  Set

Revision 3 - (view) (download) (annotate) - [select for diffs]  
 Added Thu Dec 1 04:51:21 2005 UTC (2 years, 2 months ago) by vimpp  
 File length: 345564 byte(s)

This form allows you to request diffs between any two revisions of this file. For each of the two

Diffs between 2 and 3  
 Type of Diff should be a Colored Diff  Get Diffs

Sort log by: Commit date  Sort

CIM3 Administrator  
 Powered by ViewVC 1.0.4

Powered by CIM Engineering and ViewVC 1.0.4

ppy/OOR-Panel\_CIM3-Infrastructu



# Subversion Repository Access (via TortoiseSVN)

The screenshot displays the TortoiseSVN interface. On the left, a tree view shows a project structure with folders like 'PhysicalQuantity', 'ConstantQuantity', 'TimeMeasure', 'LengthMeasure', 'MassMeasure', and 'AreaMeasure'. The main pane shows a file explorer view of the local path 'F:\work\CODServer\committed\umls'. The file list includes:

Name	Size	Type	Modified
.svn		File Folder	11/30/2005 8:49 PM
UMLS004.pins	10 KB	Protege Instances	11/30/2005 8:46 PM
UMLS004.pont	149 KB	Protege Ontology	11/30/2005 8:46 PM
UMLS004.pprj	21 KB	Protege Project	11/30/2005 8:47 PM
umls004_1a.owl	360 KB	OWL File	2/5/2006 12:08 PM
umls004_1a.pprj	280 KB	Protege Project	2/5/2006 12:08 PM

A context menu is open over the file explorer, showing various actions. The 'TortoiseSVN' option is highlighted, and its sub-menu is visible, containing:

- SVN Update
- SVN Commit...
- TortoiseSVN
- Add to archive...

Other menu items include 'Show Log', 'Repo-Browser', 'Check for Modifications', 'Revision Graph', 'Resolved...', 'Update To Revision...', 'Rename...', 'Delete', 'Revert...', 'Clean Up', 'Get Lock...', 'Release Lock', 'Branch/Tag...', 'Switch...', 'Merge...', 'Export...', 'Relocate...', 'Add...', 'Create Patch...', 'Apply Patch...', 'Help', 'Settings', and 'About'.



# Project Example: Ontolog “CCT-Representation”

## Suggested Upper Merged Ontology (SUMO)

### Mapping the Core Component Types to the Suggested Upper Merged Ontology

Reference: ebXML Core Component Technical Specification v2.01 dated 2003-11-15

Version 0.4 dated 2004-10-25 (updated as v0.4.1 dated 2005-08-21)

Ref#	[CCT/SC] CCT Name	Definition	Primitive	Remarks	SUMO Mapping (AdamPease-2004.06.20)	Comments (PeterYim - 2004.06.16~20)
01-000 CCT	Amount. Type	A number of monetary units specified in a currency where the unit of	data-type		this would be a <a href="#">CurrencyMeasure</a> expressed using <a href="#">MeasureEn</a> in the second argument being a	

02-000 CCT

**Sigma** knowledge engineering environment  
Browsing Interface

[ Home | Graph | ]  
KB: SUMO Language: EnglishLanguage

KB Term: TimeMeasure Show  
English Word: Noun Show

**TimeMeasure** (time measure) [bimillennial, temporal, time](#)

**appearance as argument number 1**

(documentation [TimeMeasure](#) [EnglishLanguage](#) "The class of temporal durations (instances of [TimeDuration](#)) and positions of [TimePoints](#) and [TimeIntervals](#) along the universal timeline (instances of [TimePosition](#))." )

(subclass [TimeMeasure](#) [ConstantQuantity](#))

[Merge kif 1584-1586](#) %3  
[Merge kif 1583-1583](#) time measure is a subclass of [constant](#) quantity

**appearance as argument number 2**

(subclass [TimeDuration](#) [TimeMeasure](#)) [Merge kif 1588-1588](#) time duration is a subclass of [time](#) measure

(subclass [TimePosition](#) [TimeMeasure](#)) [Merge kif 1592-1592](#) time position is a subclass of [time](#) measure

(termFormat [EnglishLanguage](#) [TimeMeasure](#) "time measure") [english\\_format kif 553-553](#)

**consequent**

(=> [Mid-level-ontology.kif 1027-1033](#)

(and  
(instance ?MEASURE [Measuring](#))  
(result ?MEASURE ?QUANTITY)  
(instrument ?MEASURE ?CLOCK)  
(instance ?CLOCK [Clock](#))  
(instance ?QUANTITY [TimeMeasure](#)))

• if a process is an [instance](#) of [measuring](#) a process and an object is an [instrument](#) for an [instance](#) of [clock](#)  
• then entity is an [instance](#) of [time](#) measure

Show full definition with tree view  
Show simplified definition (without tree view)  
Show simplified definition (with tree view)

[v](#) | [About](#)

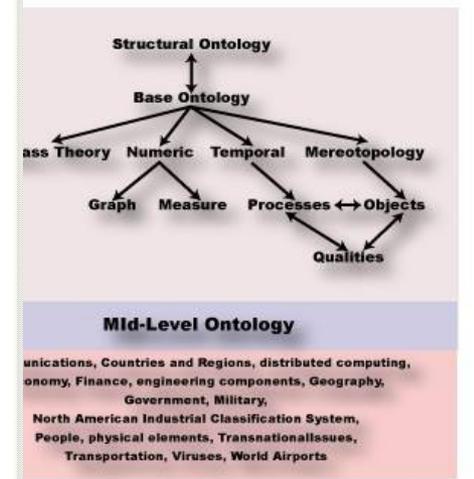
English word and its corresponding formal term in

able Noun Show

guess this would be something like an electronic message, electronic file, electronic document, digital data stream or digital data in general

n is just rail, and the would be up rmation using ssary.

an older version of the





# What can we bring to the table, for OOR?

- A robust hardware and network infrastructure
- familiarity with community process management and distributed collaboration
- rapport with the Ontology community



## CIM3's potential role in OOR

- provide the “plumbing” (the bottom layer of the technology stack) - a robust hosted (hardware and network) infrastructure for OOR
- provide a collaborative work environment for the OOR team
- help facilitate the distributed teamwork - project coordination and management
- How does that fit in with what everyone else is bringing to the table? ... that's what we'll discuss in the next segment of this session



# Backup Slides



# The CIM3 Focus: Communities & Distributed Teams

- People as an integral part of the system
- The Community Spectrum [Kaplan/iCohere]
  - Affinity Networks
  - Learning Communities
  - Communities of Practice (CoP's)
  - Project Teams
- We optimize our infrastructure, tools and process for CoP's and Distributed Project Teams



# CIM3's Approach

- Augmentation - human-machine interaction - collaboration - communities
- Openness - we use open-source software & comply with open standards as much as we can; we open-source our technology and content, and participate in open standards development
- Capitalizing on the Internet technology: taking it
  - from the research and academic network
  - to the current form as publishing media
  - to Transactions and Web Services
  - onto being its future as knowledge media in the Semantic Web
- Providing Enterprise performance, quality, robustness, security & fault tolerance
- Providing platform neutrality: supporting machines on PC's, Mac's, Linux, Unix, ...
- System built upon a knowledge architecture optimized for distributed teamwork
- Emphasis on effectiveness and strategic value - not technology
- Supporting entire user spectrum: from the everyday users to the power users
- While we do open-source work, we believe in properly remunerating our contributors, and in helping create a viable economic model for open work

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

our "*dialog in ontology*"



- **Membership** - ~500; from over 26 different countries (as at Jan-2008)
- **Users** - from 150 cities globally, generating ~133K visits and ~1.8 million hits on our site per month
- **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, Ontology-driven Applications Inventory, Database & Ontology, Ontology Measurement & Evaluation, [ONION], OKMDS ... OpenOntologyRepository, OntologySummit2008, etc.**
  - **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/>
- **Questions? talk to any of our 3 co-conveners** - PeterYim; LeoObrst & KurtConrad



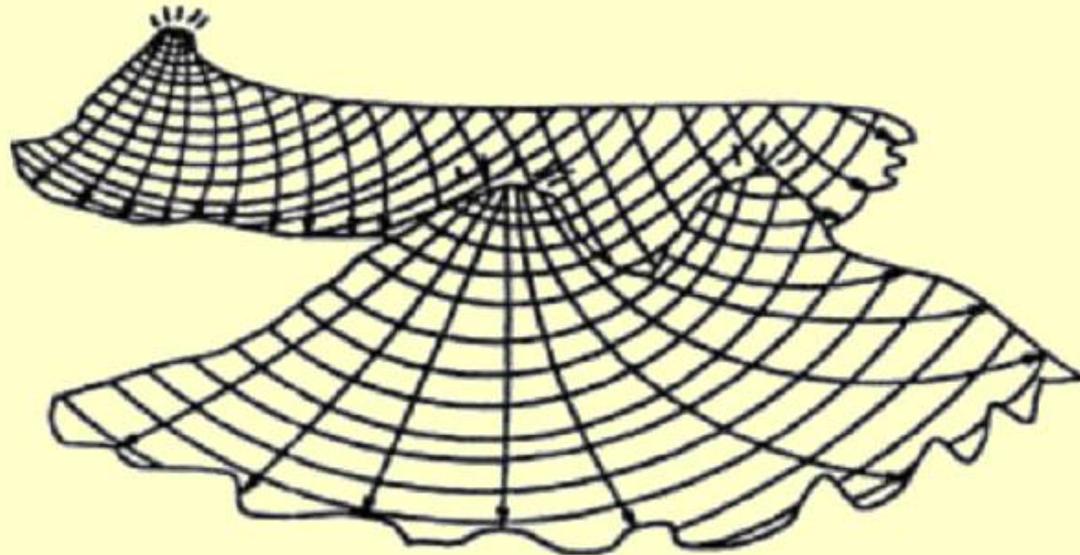
# Ontolog's key Differentiation

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 behavior  
in the community and our project teams*

## 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.



## The Fishnet Organization

Source: Institute for the Future: Johansen, R., Swigart, R. [Upsizing the Individual in the Downsized Organization](#)