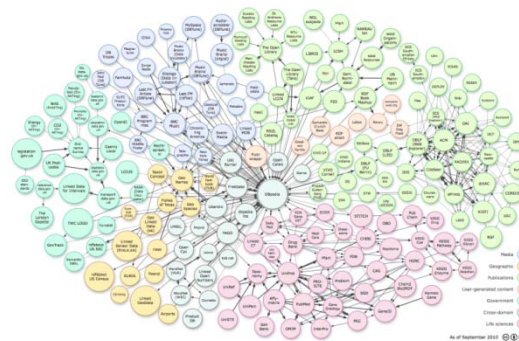


Avoin tieto ja World Wide Web tietoyhteiskunnan palveluksessa

Open Data and the World Wide Web in Service for the Information Society

Aalto University, 5.4.2011



Johdatus päivän ohjelmaan

Eero Hyvönen
professori, tutkimusjohtaja
Semantic Computing Research Group (SeCo)
Aalto-yliopisto ja Helsingin yliopisto

<http://www.seco.tkk.fi/>

Tervetuloa tilaisuuden järjestäjien puolesta

- FinnONTO–tutkimushanke
 - Semanttisen laskennan tutkimusryhmä SeCo
 - » Aalto-yliopiston mediatekniikan laitos
 - » Helsingin yliopiston tietojenkäsittelytieteen laitos
- World Wide Web Consortium (W3C)
 - Suomen toimisto
 - Bostonin päämaja

Yhteistyössä mukana: valtiovarainministeriö ja liikenne- ja viestintäministeriö

Kiitokset: CSC Tieteellinen laskenta Oy, Tieto Oyj, Helsingin Sanomat, Forum Virium, Tekes



Some History 2001-2011

10 Years of Semantic Web Activity
at W3C and in Finland

Semantic Web Activity at W3C Starts 2001

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The Semantic Web

A new form of Web content that is meaningful to computers will unleash a revolution of new possibilities

By [Tim Berners-Lee](#), [James Hendler](#) and [Ora Lassila](#) | [May 17, 2001](#) |  10

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Happy 20th Birthday, World Wide Web

CERN on March 13 celebrates the 20th anniversary of a proposal entitled, "Information Management: A Proposal," by Tim Berners-Lee, which would become the blueprint for the World Wide Web »

[March 12, 2009](#)



Views: desktop mobile print

STANDARDS PARTICIPATE MEMBERSHIP ABOUT W3C

STANDARDS

- Web Design and Applications
- Web Architecture
- Semantic Web
- XML Technology
- Web of Services
- Web of Devices
- Browsers and Authoring Tools
- All Standards and Drafts
- About W3C Standards

W3C » Standards » Semantic Web

SEMANTIC WEB

On this page → technology topics news upcoming events and talks

In addition to the classic "Web of documents" W3C is helping to build a technology stack to support a "Web of data," the sort of data you find in data stores. The Web of data is to enable computers to do more useful work and to develop systems that can support trusted interactions over the network. The technology stack is based on W3C's vision of the Web of linked data. Semantic Web technologies enable people to create data stores on the Web, build vocabularies, and write rules. These data are empowered by technologies such as RDF, SPARQL, OWL, and SKOS.

Linked Data

The Semantic Web is a Web of data — of dates and titles and part numbers and chemical properties and any other data one might conceive of. RDF provides the foundation for publishing and linking your data. Various technologies allow you to embed data in documents (RDFa, GRDDL) or expose what you have in SQL databases, or make it available as RDF files.

Vocabularies

At times it may be important or valuable to organize data. Using OWL (to build vocabularies, or "ontologies") and SKOS (for designing knowledge organization systems) it is possible to enrich data with additional meaning, which allows more people (and more machines) to do more with the data.

Query

Query languages go hand in hand with databases. If the Semantic Web is a global database, then for it to be useful one would need a query language. SPARQL is the query language for the Semantic Web.

Inference

Near the top of the Semantic Web stack one finds inference — reasoning over data through rules. W3C work on rules, primarily through RIF and

Vertical Applications

W3C is working with different industries — for example in Health Care and Life Sciences, eGovernment, and Energy — to improve

Tim Berners-Lee gets the 1MEUR Millenium Prize in Finland 2004

10 VUOTTA SEMANTTISEN WEBIN SEMINAAREJAMME

- **2001 Semantic Web Kick-off in Finland**, Helsingin yliopisto
- 2002 Towards the Semantic Web and Web Services, Marina Center
- 2004 Web Intelligence – älyä verkossa, Tiedekeskus Heureka
- 2005 FinnONTO - kohti suomalaista semanttista webiä, TKK
- 2006 Digital Content across Cultures, Louvre, Paris
- 2008 Semanttinen web kansalliseksi voimavaraksi, TKK
- 2008 TerveSuomi - terveystieto semanttisessa webissä. TKK
- 2008 Kulttuurisampo - suomalainen kulttuuri semanttisessa webissä, TKK
- 2008 Kansallinen ontologiapalvelu ONKI, TKK
- 2010 Yhteisöllinen semanttinen web 2.0, TKK
- 2010 Yhdistetty avoin tieto Suomessa – Linked Open Data in Finland
- **2011 Avoin tieto ja World Wide Web tietoyhteiskunnan palveluksessa**



FinnONTO (2003-2011) Vision in Short

Preventing Interoperability Problems Instead of Solving Them

05/06/2010 -
16:37

Paper Title:

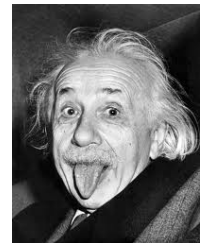
Preventing Interoperability Problems Instead of Solving Them

Authors:

Eero Hyvönen

Abstract:

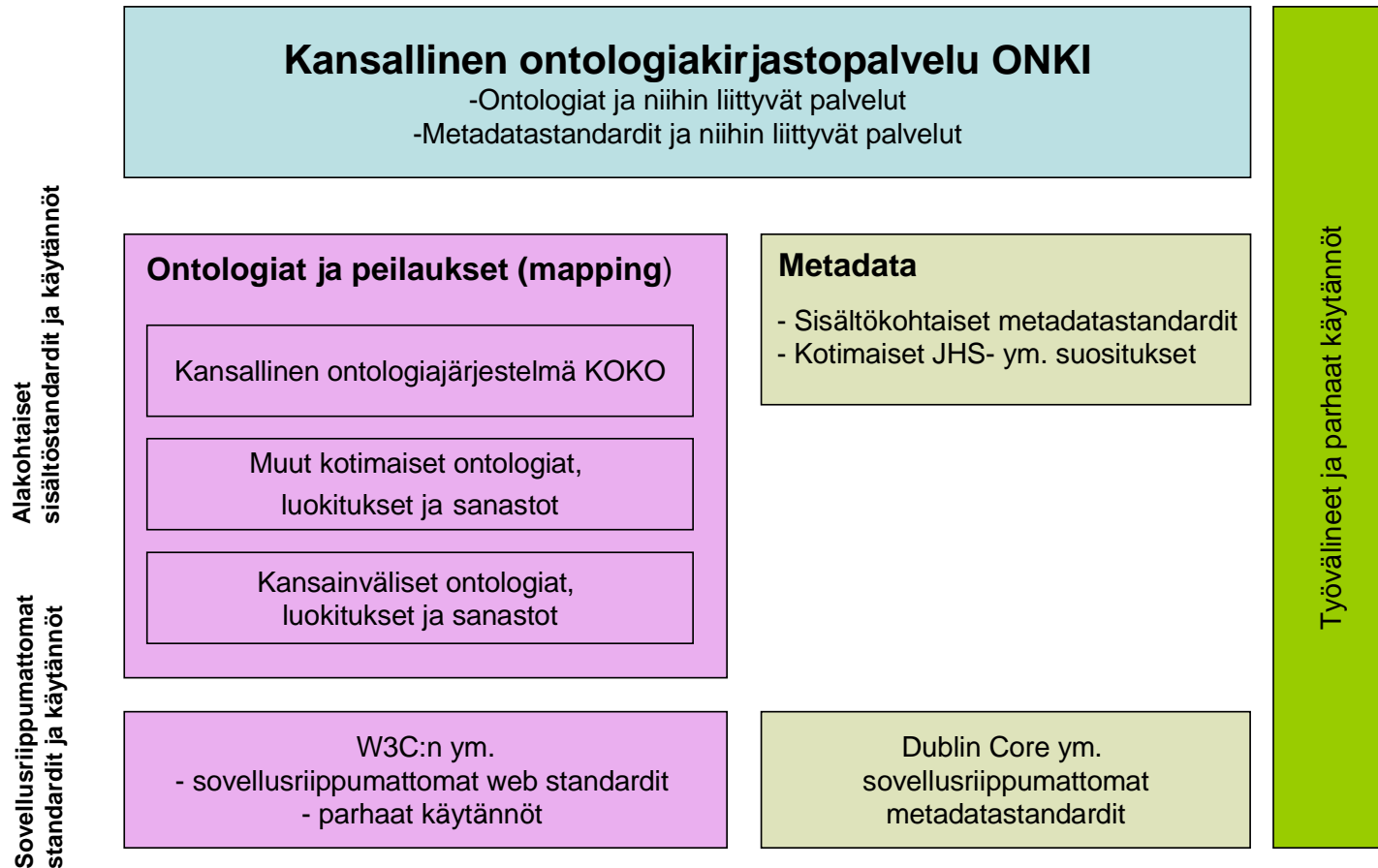
A major source of interoperability problems on the Semantic Web is the different vocabularies used in metadata descriptions. This paper argues that instead of solving interoperability problems we should focus more effort on avoiding the problems in the first place, in the spirit of Albert Einstein's quote "Intellectuals solve problems, geniuses prevent them". For this purpose, coordinated collaborative development of open source vocabularies and centralized publication of them as public vocabulary services are proposed. Methods, guidelines, and tools to facilitate this have been developed on a national level in the Finnish FinnONTO initiative, and are now in pilot use with applications and promising first results.



Semantic Web – Interoperability, Usability, Applicability, IOS Press, 2010.

FinnONTO-infrastruktuuri perustuu W3C:n semanttisen webin standardeihin

Kansallinen semanttisen webin sisältöinfrastruktuuri FinnONTO



Miksi tilaisuus järjestettiin

- Web on tietoyhteiskunnan selkäranka
 - Tärkein tietotekniikan innovaatio tietokoneen jälkeen
- Mihin ollaan menossa?
 - Webin **teknisen infrastruktuurin** kehitys?
 - Webin **tietoinfrastruktuurin** kehitys?
- Kansainvälinen keynote koko web-infran kehityksestä
- Kotimaiset esitykset suomalaista tietoinfrastruktuurista

Avoin tieto ja World Wide Web

- Kansainväliset avaukset
 - Britannian hallitus <http://data.gov.uk>
 - USA:n hallitus <http://www.data.gov>
 - Linked Data <http://linkeddata.org>
- Entäpä Kalevalassa?
 - FinnONTO – Semanttisen webin ontologiainfrastruktuuri ja pilotit
 - Valtiovarainministeriö / ValtIT: valtiotason tietoarkkitehtuurihanke ja uusi tietohallintolaki ("FinnONTO-laki")
 - Liikenne- ja viestintäministeriö: valtioneuvoston periaatepäätös
 - Opetusministeriö: tieto käyttöön –tiekarttahanke
 - Tivit Oy: Data to Intelligence –ohjelma
 - Linked Data Finland –suunnitelma...
 - ...
- Yritysmaailman näkökulma avoimeen tietoon?
- Median näkökulma avoimeen tietoon?
- Tietotekniikan näkökulma avoimeen tietoon?

Britanniassa: <http://data.gov.uk>

Unlocking innovation
Working with UK
Public Sector
information and data

Advised by Sir Tim Berners-Lee and Professor Nigel Shadbolt and others, government are opening up data for reuse. This site seeks to give a way into the wealth of government data and is under constant development. We want to work with you to make it better.

We're very aware that there are more people like you outside of government who have the skills and abilities to make wonderful things out of public data. These are our first steps in building a collaborative relationship with you.

Search Data Browse for Data

What is the Semantic Web?
Combining different

OHJELMA

12:15-12:25	Eero Hyvönen , professori, tutk.joht. Aalto-yliopisto ja Helsingin yliopisto	Johdatus päivän ohjelmaan
12:25-13:25	Jeffrey Jaffe , CEO W3C Consortium	Leading the World Wide Web to its Full Potential Using Open Web Platform
13:25-13:30	Discussion	
13:30-14:00	Kahvitauko	
14:00-14:15	Ossi Nykänen , toiminnanjohtaja, TKT W3C Suomen toimisto	W3C:n toiminta Suomessa
14:15-14:30	Taru Rastas , neuv. virkamies Liikenne- ja viestintäministeriö	Valtioneuvoston periaatepäätös tiedon avaamiseksi Suomessa
14:30-14:45	Jukka Uusitalo , neuv. virkamies Valtiovarainministeriö	Millainen julkinen tietoarkkitehtuuri Suomessa tarvitaan?
14:45-15:00	Pirjo-Leena Forsström , johtaja CSC Tieteen tietotekniikan keskus Oy	Tieto käyttöön – opetusministeriön tiekartta-hankkeen suositukset tutkimuksen sähköisten tietoaaineistojen hyödyntämiseksi
15:00-15:15	Lasse Akselin , johtava konsultti Tieto Oyj	Avoin tieto ICT-palveluyrityksen näkökulmasta
15:15-15:30	Samuli Leivonniemi , uutispäällikkö Helsingin Sanomat	Avoimen tiedon mahdollisuudet ja uhat media-alalla
15:30-15:45	Ville Meloni , projektipäällikkö Forum Virium	Case Helsinki Region Infoshare: pääkaupunkiseudun tiedot avoimiksi
15:45-16:00	Eero Hyvönen , prof., tutk. johtaja Aalto-yliopisto ja Helsingin yliopisto	Miten avoin yhdistetty tieto saadaan verkkoon: Kansallinen Linked Data Finland –hanke-ehdotus
16:00-16:05	Loppukeskustelu	

Keynote

- "Leading the World Wide Web to its Full Potential Using Open Web Platform"



Dr. Jeffrey Jaffe, W3C CEO



Dr. Jeff Jaffe is Chief Executive Officer of the World Wide Web Consortium. In this role he works with Director Tim Berners-Lee, staff, and membership, and the public to evolve and communicate the W3C's organizational vision. He is responsible for all of W3C's global operations, for maintaining the interests of all of W3C's stakeholders, and for sustaining a culture of cooperation and transparency, so that W3C continues to be the leading forum for the technical development and stewardship of the Web.

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[CEO Blog](#) 

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Bio

After receiving a Ph.D. in computer science from MIT in 1979, Jeff joined IBM's Thomas J. Watson Research Center. During his tenure at IBM, he held a wide variety of technical and management positions, including vice president, Systems and Software Research, corporate vice president of technology, and general manager of IBM's SecureWay business unit, where he was responsible for IBM's security, directory, and networking software business.

Jeff then served as president of Bell Labs Research and Advanced Technologies, where he established new facilities in Ireland and India, and served as chairman of the board of the New Jersey Nanotechnology Consortium.

Most recently, Jeff served as the Executive Vice President and Chief Technology Officer for Novell. He was responsible for Novell's technology direction, as well as leading Novell's product business units.

Jeff was appointed by President Bill Clinton to serve on the Advisory Committee for the Presidential Commission for Critical Infrastructure Protection. He has also chaired the Chief Technology Officer group of the Computer Systems Policy Project, and has served on the National Research Council's Computer Science and Telecommunications Board. He is a Fellow of ACM and the IEEE.

Dr. Jaffe holds a BS in Mathematics and an MS in Electrical Engineering and Computer Science in addition to his Doctorate from the Massachusetts Institute of Technology.