

Introduction: the Web

Course Details

- **Course Name:** Web Engineering
- **Course Lecturers :** Dr. Nour Eldeen Mahmoud.
- **Blackboard Course Code :** 212201.FCI.SCS451
- **Enroll Code:** 190738

Learning

I hear and I forget.

I see and I remember

I do and I understand. {this course is about doing}

Confucius

Chinese philosopher & reformer (551 BC - 479 BC)

Agenda

- **World Wide Web (Web 1.0)**
- Social Web (Web 2.0)
- Semantic Web (Web 3.0)
- Web Science

World Wide Web



- The **World Wide Web** ("**WWW**" or simply the "**Web**") is a system of interlinked, hypertext documents that runs over the Internet. With a Web browser, a user views Web pages that may contain text, images, and other multimedia and navigates between them using hyperlinks.
- The Web was created around 1990 by Tim Berners-Lee and Robert Cailliau working at CERN in Geneva, Switzerland.

WWW: Basic Ideas

- Hypertext/hyperlink:
- Resource Identifiers
 - unique identifiers used to locate a particular resource (computer file, document or other resource) on the network
 - URI (Uniform Resource Identifier)/URL (Uniform Resource Locator): http or ftp
 - `http://somehost/absolute/URI/with/absolute/path/to/resource.txt`
 - `ftp://somehost/resource.txt`
- Markup language:
 - characters or codes embedded in text which indicate structure, semantic meaning, or advice on presentation

WWW – Web 1.0

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Theses

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Details

Next Web Generation

The course is an introduction to a set of new technologies for building Next Web Generation. In the first two parts we will discuss mechanisms for representing, manipulating and querying structured data (XML) respectively semantic data (RDF, OWL) on the Web. In the third, and last part of the course we will discuss how to build and integrate distributed applications using Web services.

Catalogue
VU3 (703219)

Lecturer(s)
Ying Ding

Tutor(s)
Joan Toma

Language
English

Time
Gr.0: Mi 10-12:00 HS 10;
Gr.1: Di 16-17:00 rr 15

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DERI Locations
DERI Innsbruck

Events

- Ubicomp07**
September 16-19, 2007
Innsbruck, Austria
- ICEC 2007**
August 19-22, 2007
Minneapolis, Minnesota, US
- ICEC 2008**
August 1, 2008
Innsbruck, Austria

start

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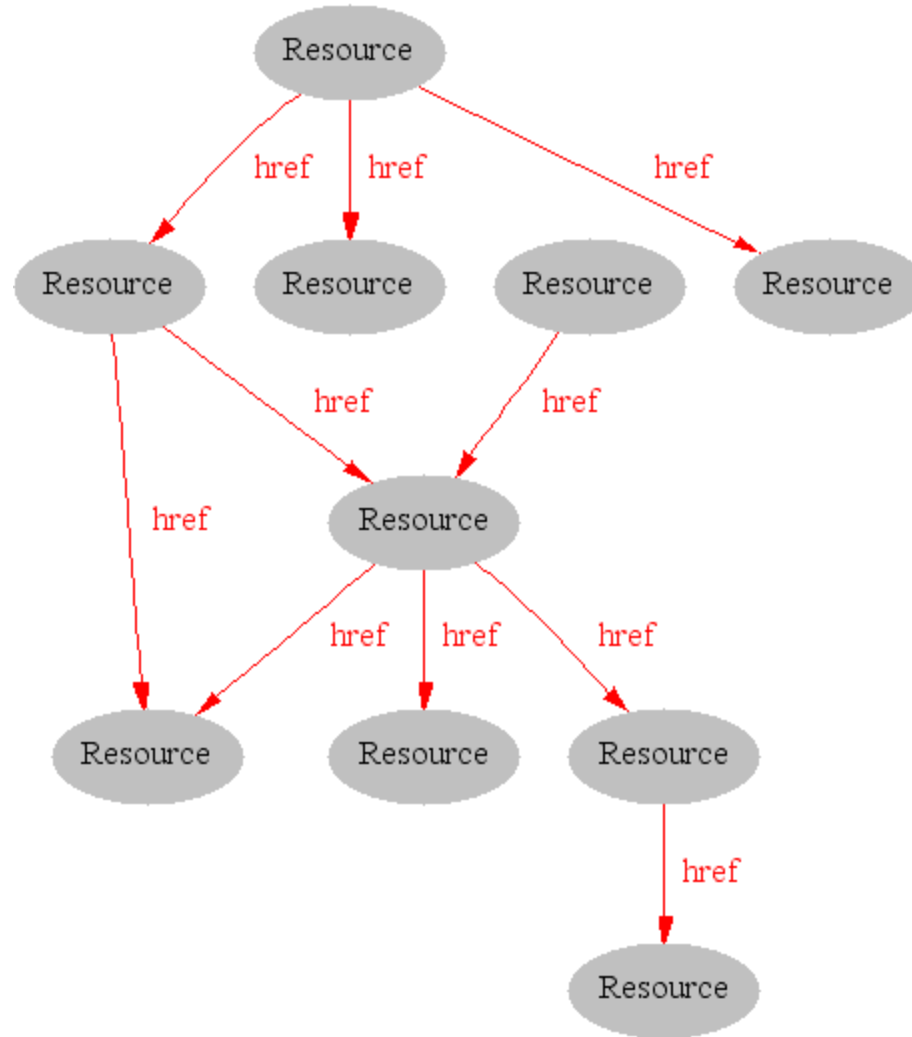
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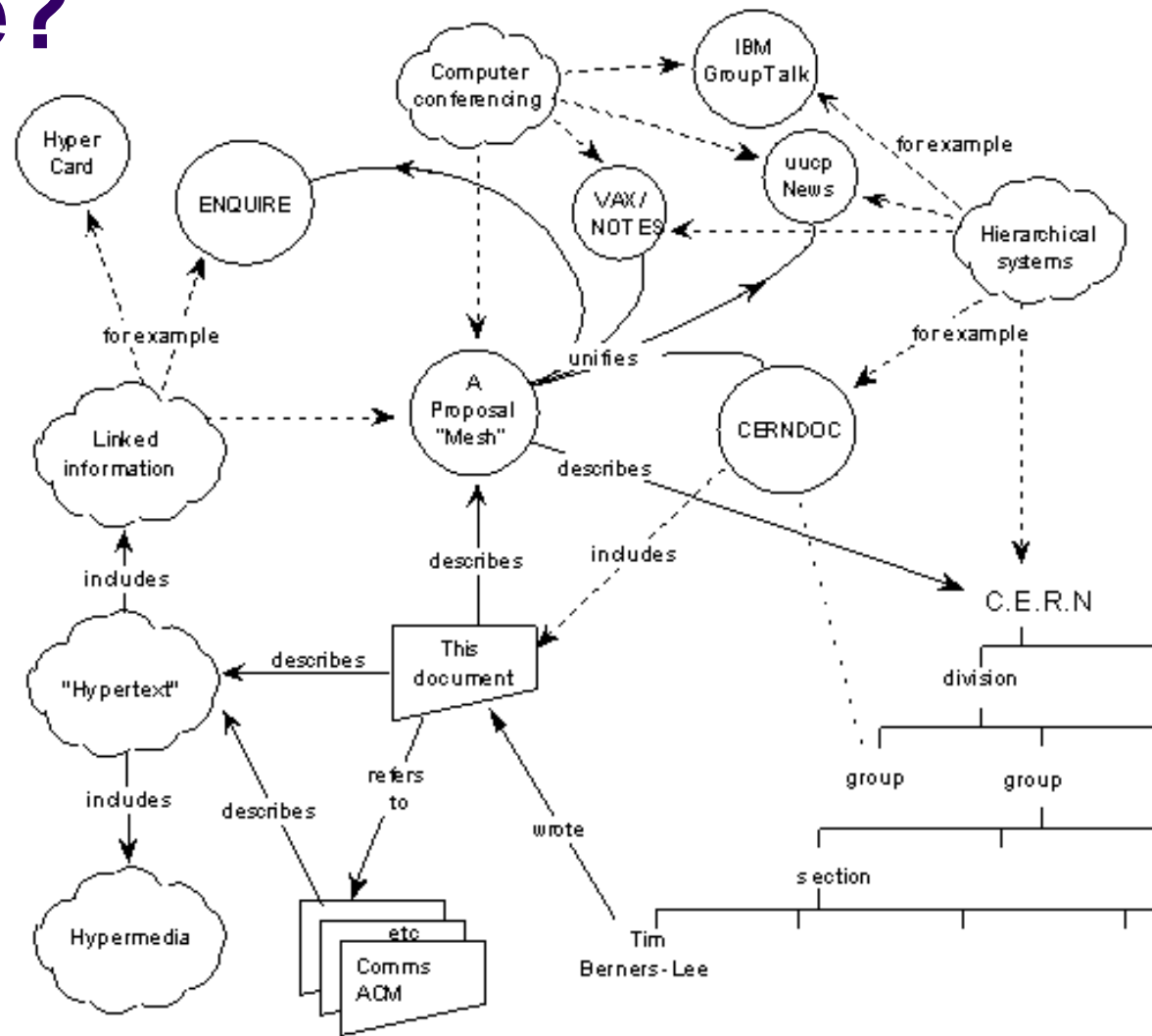
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The current (syntactic / structural) Web



Was the Web meant to be more?



Overview

- World Wide Web (Web 1.0)
- **Social Web (Web 2.0)**
- Semantic Web (Web 3.0)
- Web Science

Social Web – Web 2.0

- The term *Web 2.0* was made popular by Tim O'Reilly:
 - <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- http://en.wikipedia.org/wiki/Web_2.0
 - *“Web 2.0 ... has ... come to refer to what some people describe as a second phase of architecture and application development for the World Wide Web.”*
- The Web where “ordinary” users can meet, collaborate, and share using **social software** applications on the Web (tagged content, social bookmarking, AJAX, etc.)
- Popular examples include:
 - Bebo, del.icio.us, digg, Flickr, Google Maps, Skype, Technorati, orkut, 43 Things, Wikipedia...

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[Cloudie](#) [pro](#)ys:

Thanks!

Posted 18 months ago. ([permalink](#))



[Campin' Guy](#) [pro](#)ys:

Nice shot!! I see a lot of Yosemite picture and I can honestly say, "THIS is a nice

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Embed `<object width="425" height="350"><param name="`

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Features / principles of Web 2.0

<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>

1. The Web as platform
2. Data is the next “Intel Inside”
3. End of the software release cycle
4. Lightweight programming models
5. Software above the level of a single device
6. Rich user experiences



Overview

- World Wide Web (Web 1.0)
- Social Web (Web 2.0)
- **Semantic Web (Web 3.0)**
- Web Science

Semantic Web – Web 3.0

- Tim Berners-Lee has a vision of a Semantic Web which
 - has machine-understandable semantics of information, and
 - millions of small specialized reasoning services that provide support in automated task achievement based on the accessible information

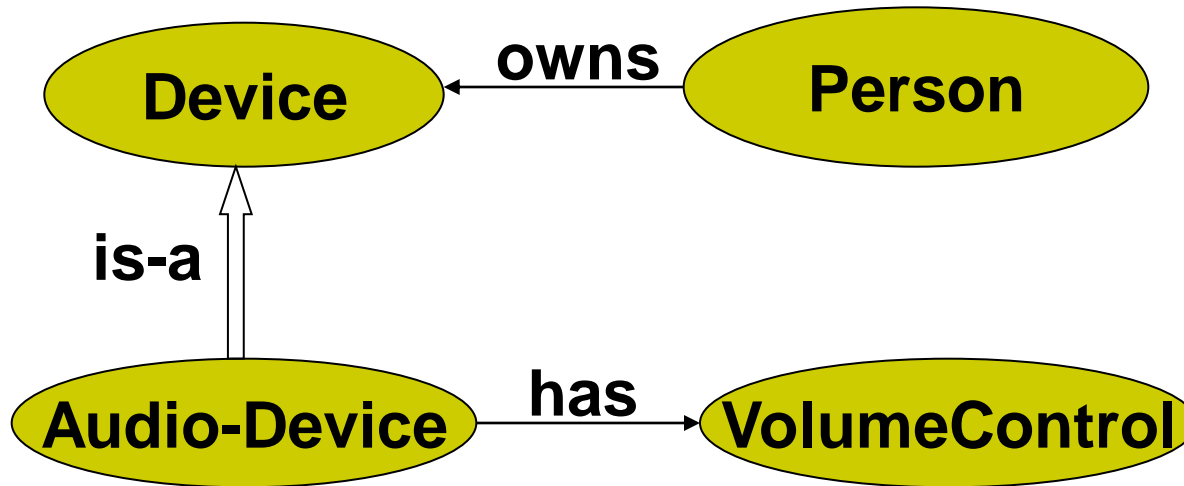
What is the Semantic Web?

- *“An extension of the current Web in which information is given well-defined meaning, better enabling computers and people to work in cooperation.”*
 - Sir Tim Berners-Lee et al., Scientific American, 2001: tinyurl.com/i59p
- *“...allowing the Web to reach its full potential...”* with far-reaching consequences
- *“The next generation of the Web”*

Ontology

- The semantic Web is essentially based on ontologies
 - *ontologies* are *formal* and *consensual* specifications of conceptualizations...
(e.g. by OO Models, or Entity Relationship model)
 - providing a *shared and common* understanding of a domain that can be communicated across people and application systems
(not application specific, but consensual for a domain)

A very simple Ontology

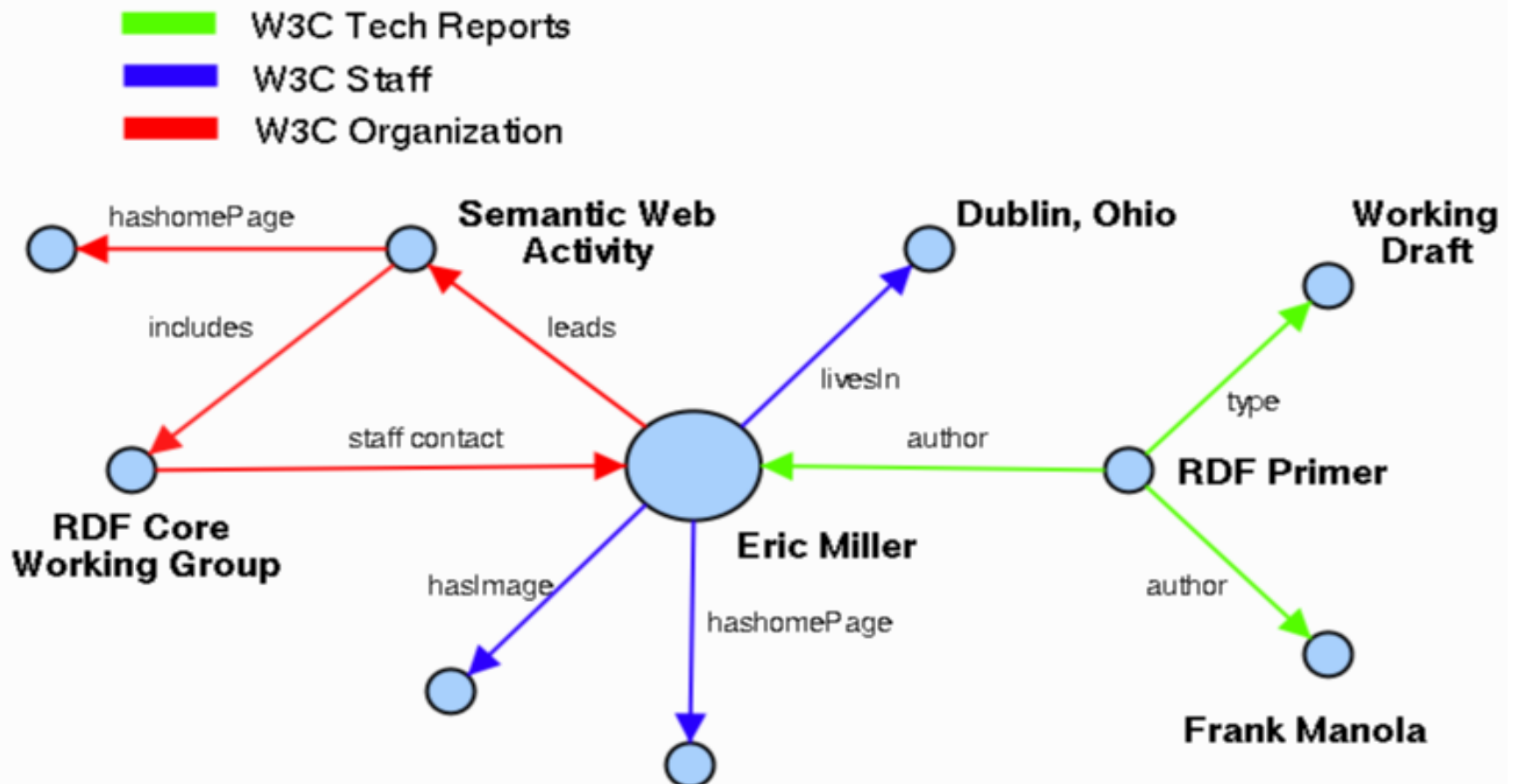


Ontologies describe *concepts* and their *Relations*.

What is Semantic Web for?

- Integrating - trying to solve the problem of data and service integration
- Searching - Providing better communication between human and computers by adding machine-processable semantics to data.

Semantic Searching



Semantic Searching

Text Search Results



Semantic Search Augmentation



Related Activities:

[W3C Semantic Web Activity](#)

Related Recommendations:

[Resource Description Framework \(RDF\) Model and Syntax Specification](#), 22 February 1999 - Ralph Swick, Ora Lassila

Related W3C Working Drafts:

[RDF Model Theory](#), 14 February 2002 - Patrick Hayes
[RDF Primer](#), 19 March 2002 - Frank Manola, Eric Miller
[RDF Test Cases](#), 15 November 2001 - Art Barrow, Dave Beckett
[Semantic Interpretation for Speech Recognition](#), 16 November 2001 - Luo Van

Related Mailing Lists:

[www.rdf.org](#)
 Sep 2001 to April 2002 (197 msgs)

Information from AllMusic

Top Albums:

[Seed of the Tango](#)
[Appalachia Waltz](#)
[Simply Baroque](#)
[Transcriptions](#)
[Portrait of Yo-Yo Ma](#)

Biography:

Yo-Yo Ma was the cello's foremost contemporary proponent; while primarily a classical performer, he also made a number of highly successful crossover recordings. Born October 7, 1955 to Chinese parents living in Paris, he began playing

[See full bio.](#)

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Concert tickets from TicketMaster

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 On 5/14/02 at Seattle, WA
[Silk Road Project With Yo-Yo Ma-Cello](#)
 On 5/15/02 at Seattle, WA
[Seattle Symphony Silk Road Project...](#)
 On 5/16/02 at Seattle, WA

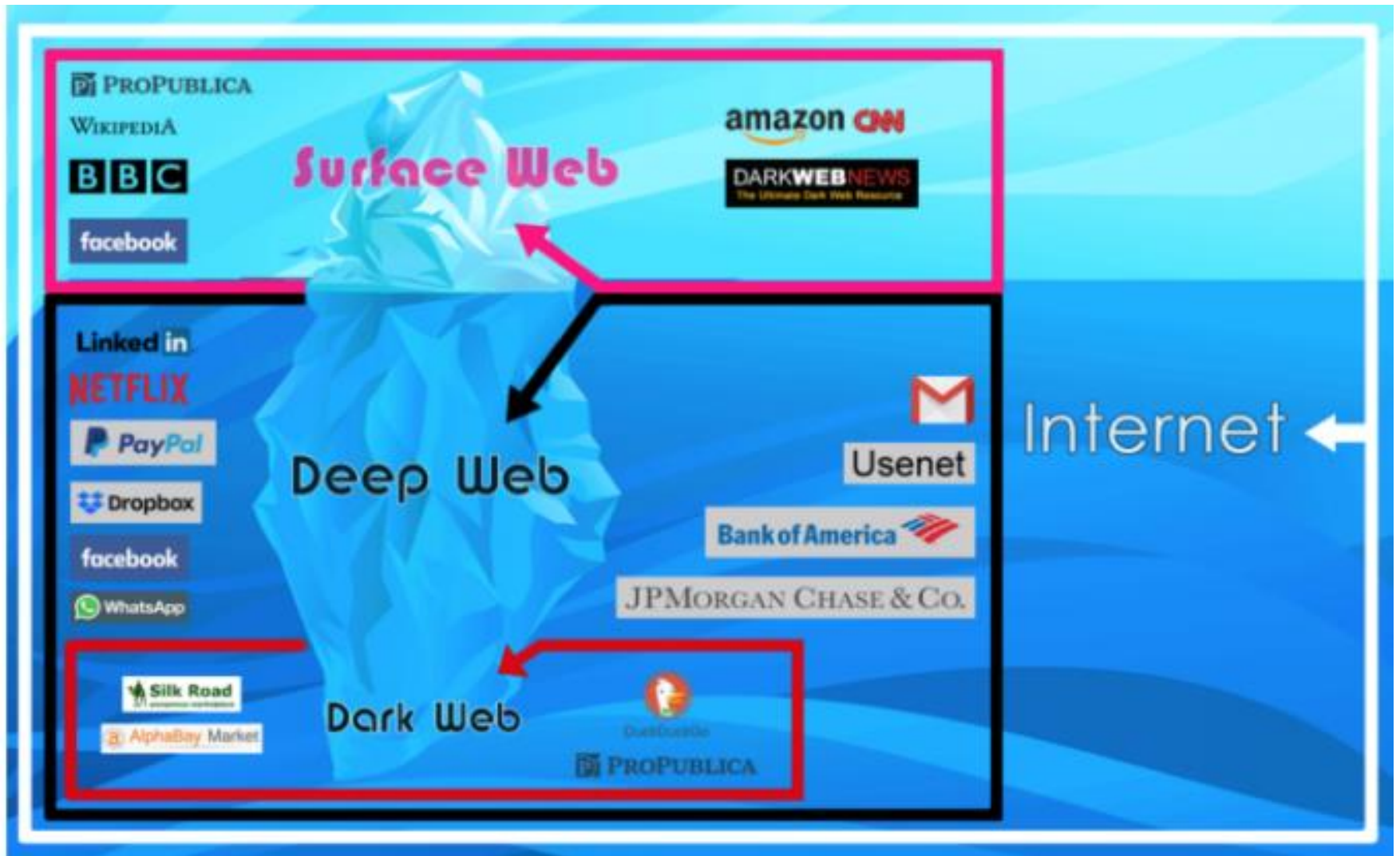
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The World Wide Web as a social Phenomenon

- On the order of 10^8 users
 - Used in **every** country on Earth
 - On **every** continent (incl. Antarctica), **Mars link is in transit!**
 - A tiny percentage is “trained” in any way
- On the order of 10^{10} indexed web resources (text) in Google etc
 - 500x bigger when including the “hidden Web”
- Massively distributed and open
 - **Anyone** can play -- To someone on the Web, *you're* the nut
- A set of protocols and languages driven by a strong standards approach
 - Implementation and platform independence crucial
 - World Wide Web Consortium the most prominent



From Web 1.0 to Web 3.0

Web 1.0 / 2.0 / 3.0 Summary

Crawl	Walk	Run
Web 1.0	Web 2.0	Web 3.0
Mostly Read-Only	Wildly Read-Write	Portable & Personal
Company Focus	Community Focus	Individual Focus
Home Pages	Blogs / Wikis	Lifestreams / Waves
Owning Content	Sharing Content	Consolidating Content
Web Forms	Web Applications	Smart Applications
Directories	Tagging	User Behavior
Page Views	Cost Per Click	User Engagement
Banner Advertising	Interactive Advertising	Behavioral Advertising
Britannica Online	Wikipedia	The Semantic Web
HTML / Portals	XML / RSS	RDF / RDFS / OWL

Some videos to share

- <http://www.youtube.com/watch?v=6gmP4nk0EOE>