

# Tomorrow's Web

(plus a bit more)

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World Wide Web Consortium

World Wide Web Foundation

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<http://www.w3.org/2008/Talks/1009-bratt-WebFoundation/Tomorrows-Web-WF.pdf>

# Outline

- **Path to now**
- **Vision for the future**
- **New help to take us there**

# Early Internet service providers : “walled gardens” = multiple Webs



- Valuable attempt to make the Internet useful to people, but...
- Proprietary solutions
- Lack of Interoperability
- Users stuck in the “ garden”



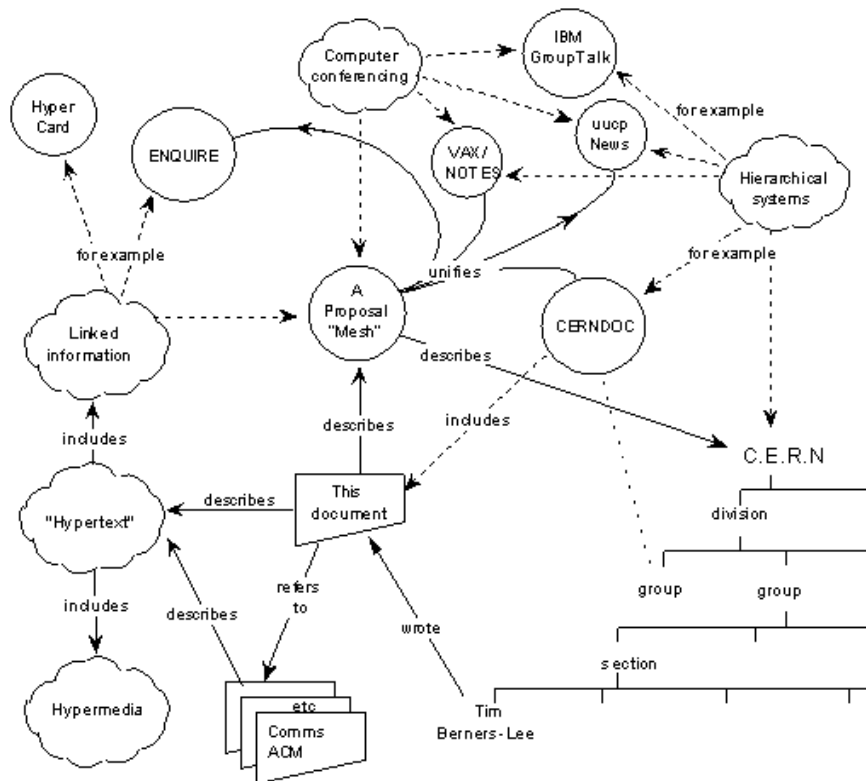
Prodigy  
Communications, L.P.

# The Web -- One Web -- is born

## Killer App for the Internet: Broke down the walls

- ***“Information Management:  
A Proposal”***

By Tim Berners-Lee, March 1989



**HTML, URI  
HTTP**

<http://www.w3.org/History/1989/proposal.html>

# Number of Web pages

**1990: 1**

**1998: 26 million (~26,000,000)**

**2008: 1 trillion (~1,000,000,000,000)**

***... about same as number of  
neurons in the human brain***

<http://googleblog.blogspot.com/2008/07/we-knew-web-was-big.html>

# 1.4 billion served (by region)

## WORLD INTERNET USAGE AND POPULATION STATISTICS

World Regions	Population ( 2008 Est.)	Internet Users Dec/31, 2000	Internet Usage, Latest Data	% Population ( Penetration )	Usage % of World	Usage Growth 2000-2008
<a href="#">Africa</a>	955,206,348	4,514,400	51,065,630	5.3 %	3.5 %	1,031.2 %
<a href="#">Asia</a>	3,776,181,949	114,304,000	578,538,257	15.3 %	39.5 %	406.1 %
<a href="#">Europe</a>	800,401,065	105,096,093	384,633,765	48.1 %	26.3 %	266.0 %
<a href="#">Middle East</a>	197,090,443	3,284,800	41,939,200	21.3 %	2.9 %	1,176.8 %
<a href="#">North America</a>	337,167,248	108,096,800	248,241,969	73.6 %	17.0 %	129.6 %
<a href="#">Latin America/Caribbean</a>	576,091,673	18,068,919	139,009,209	24.1 %	9.5 %	669.3 %
<a href="#">Oceania / Australia</a>	33,981,562	7,620,480	20,204,331	59.5 %	1.4 %	165.1 %
<b>WORLD TOTAL</b>	<b>6,676,120,288</b>	<b>360,985,492</b>	<b>1,463,632,361</b>	<b>21.9 %</b>	<b>100.0 %</b>	<b>305.5 %</b>

NOTES: (1) Internet Usage and World Population Statistics are for June 30, 2008. (2) CLICK on each world region name for detailed regional usage information. (3) Demographic (Population) numbers are based on data from the [US Census Bureau](#) . (4) Internet usage information comes from data published by [Nielsen//NetRatings](#), by the [International Telecommunications Union](#), by local NIC, and other reliable sources. (5) For definitions, disclaimer, and navigation help, please refer to the [Site Surfing Guide](#), now in ten languages. (6) Information in this site may be cited, giving the due credit to [www.internetworldstats.com](http://www.internetworldstats.com). Copyright © 2001 - 2008, Miniwatts Marketing Group. All rights reserved worldwide.

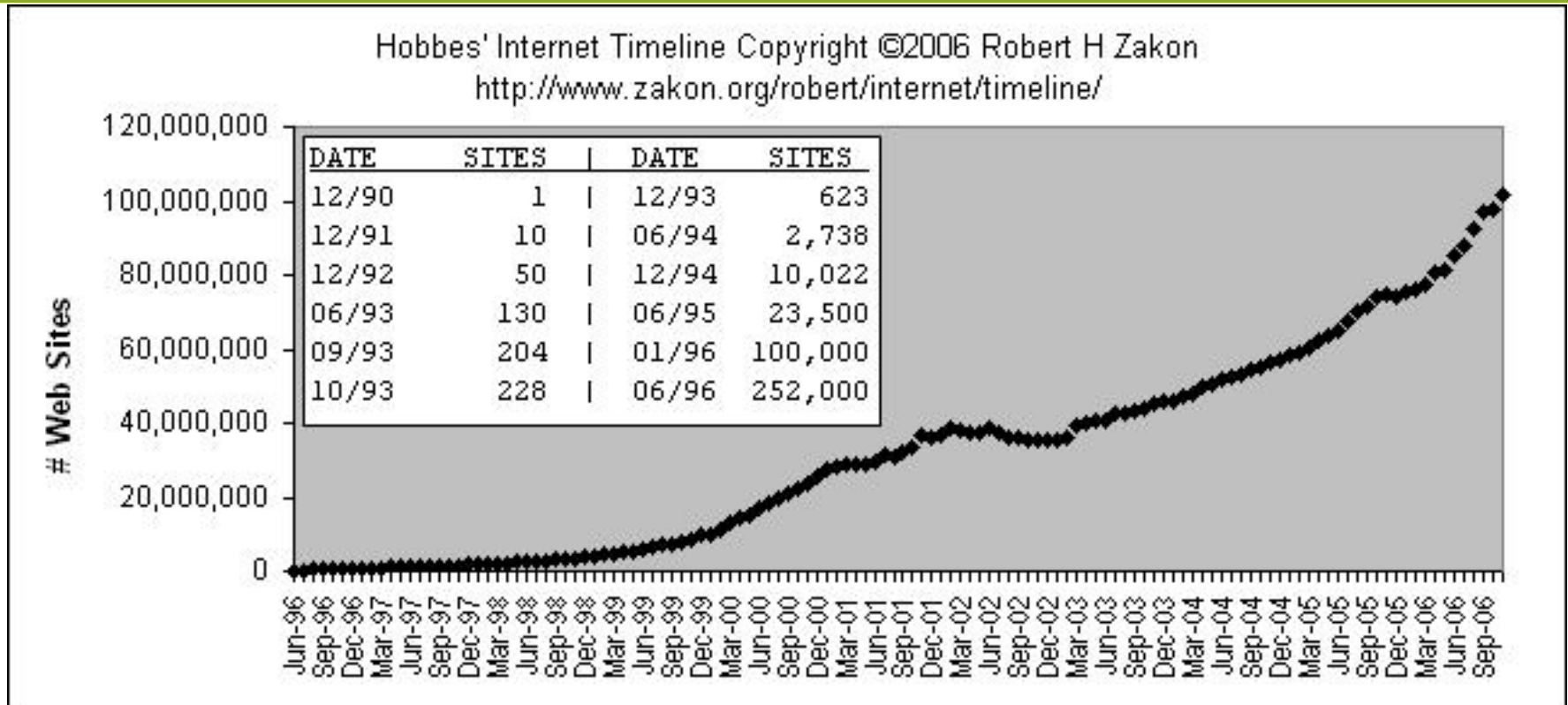


# 1.4 billion served (by language)

<b>Top Ten Languages Used in the Web</b> ( Number of Internet Users by Language )					
TOP TEN LANGUAGES IN THE INTERNET	% of all Internet Users	Internet Users by Language	Internet Penetration by Language	Language Growth in Internet ( 2000 - 2008 )	2008 Estimated World Population for the Language
<a href="#">English</a>	29.4 %	430,802,172	21.1 %	203.5 %	2,039,114,892
<a href="#">Chinese</a>	18.9 %	276,216,713	20.2 %	755.1 %	1,365,053,177
<a href="#">Spanish</a>	8.5 %	124,714,378	27.6 %	405.3 %	451,910,690
<a href="#">Japanese</a>	6.4 %	94,000,000	73.8 %	99.7 %	127,288,419
<a href="#">French</a>	4.7 %	68,152,447	16.6 %	458.7 %	410,498,144
<a href="#">German</a>	4.2 %	61,213,160	63.5 %	121.0 %	96,402,649
<a href="#">Arabic</a>	4.1 %	59,853,630	16.8 %	2,063.7 %	357,271,398
<a href="#">Portuguese</a>	4.0 %	58,180,960	24.3 %	668.0 %	239,646,701
<a href="#">Korean</a>	2.4 %	34,820,000	47.9 %	82.9 %	72,711,933
<a href="#">Italian</a>	2.4 %	34,708,144	59.7 %	162.9 %	58,175,843
<b>TOP 10 LANGUAGES</b>	<b>84.9 %</b>	<b>1,242,661,604</b>	<b>23.8 %</b>	<b>278.3 %</b>	<b>5,218,073,846</b>
Rest of the Languages	<b>15.1 %</b>	<b>220,970,757</b>	<b>15.2 %</b>	<b>580.4 %</b>	<b>1,458,046,442</b>
<b>WORLD TOTAL</b>	<b>100.0 %</b>	<b>1,463,632,361</b>	<b>21.9 %</b>	<b>305.5 %</b>	<b>6,676,120,288</b>

(\*) NOTES: (1) Internet Top Ten Languages Usage Stats were updated for June 30, 2008. (2) Internet Penetration is the ratio between the sum of Internet users speaking a language and the total population estimate that speaks that specific language. (3) The most recent Internet usage information comes from data published by [Nielsen//NetRatings](#), [International Telecommunications Union](#), [Computer Industry Almanac](#), and other reliable sources. (4) World population information comes from the [U.S. Census Bureau](#). (5) For definitions and navigation help in several languages, see the [Site Surfing Guide](#). (6) Stats may be cited, stating the source and establishing an active link back to [Internet World Stats](#). Copyright © 2008, Miniwatts Marketing Group. All rights reserved worldwide.

# Over 100 million serving



**Users:Servers ratio=> 1996 ~ 150:1.    2000 ~ 50:1.    2006 ~ 10:1**

<http://www.zakon.org/robert/internet/timeline/>

<http://www.internetworldstats.com/stats.htm>



# Vision for the future of the Web

Expanding from a Web of  
linked documents (1.0),  
to ***One Web:***

- of **Creators** and **Consumers** (2.0)
- of **Linked Data** and **Services** (3.0)
- on **Everything**
- for **Everyone**



# What do you mean, “One Web”?

**... providing the same  
information and services to  
users, regardless of who  
they are, where they are,  
what systems they use, or  
how they are connected.**

# Announcing the creation of the World Wide Web Foundation

- 14 Sep 2008
- \$5 million seed grant from [John S. and James L. Knight Foundation](#)
- [Press release](#)
- Launch planned for early 2009

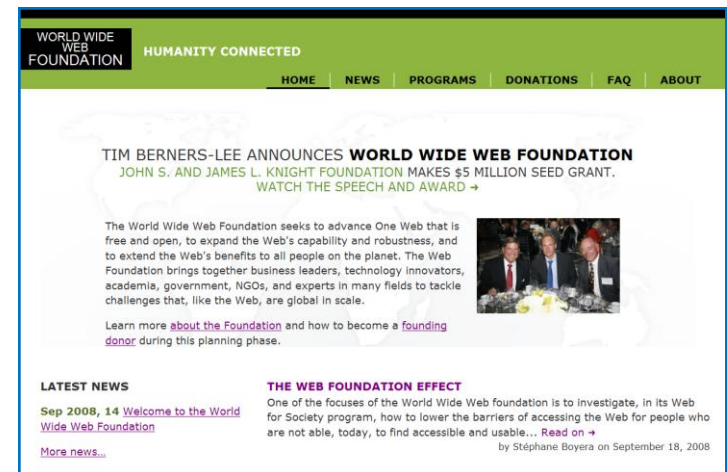


# World Wide Web Foundation

*Seeks to:*

- advance **One Web** that is **free** and **open**,
- **expand** the Web's **capability** and **robustness**,
- extend the Web's **benefits** to **all people** on the planet.

<http://webfoundation.org/>



# A Community Foundation

- Human and financial support
  - Major donations: Seeking \$50 – 100 million capital
  - Friends of the Web: grass roots
  - Social entrepreneurship
- Grant making
  - Leverage community and Web
  - Multiplicative impact
  - \$5-15 million per year



# Web Foundation's Program Areas

- **Web Science**
- **Web Standards**
- **Web for Society**

# Web Science

# Web Science

## Goals

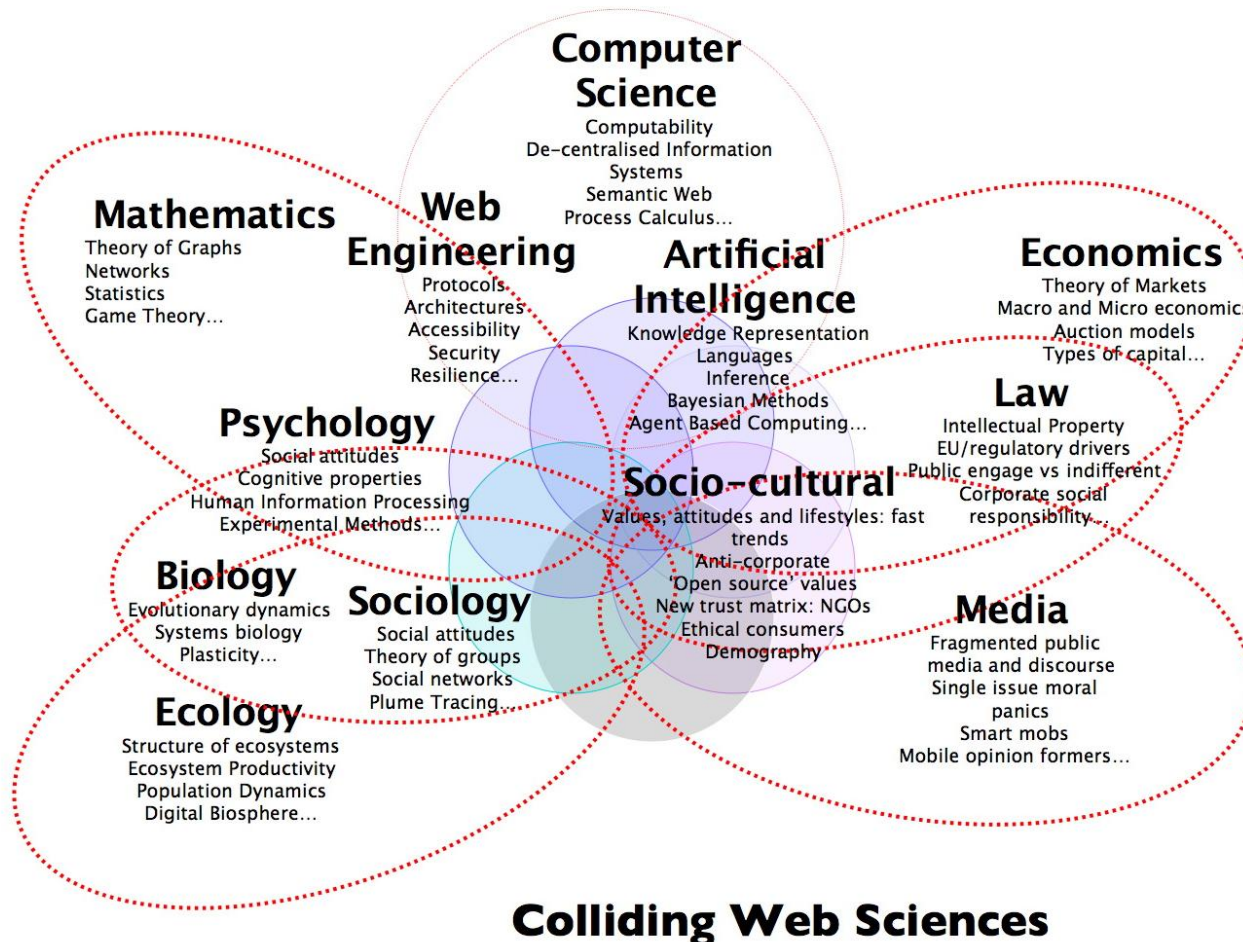
- Understand how the Web works
- Address technical and non-technical issues
- Take the Web to new levels

## Activities. Fund:

- Promotion of Web Science as a new field of study
  - Curricula, degree programs, conferences, journals
- Web Research
- Technology transfer

# Web Science

- **Web =  
Humanity  
Connected  
by  
Technology**



<http://webscience.org/>

# Sample Questions

- **How has/will the Web evolve?**
- **How has/will it work?**
- **How could it break?**
- **Opportunities / barriers?**
- **Transparency / privacy (Get over it!)"?**
- **Ownership ("I want my data back!")?**
- **Security, phishing, annoyances?**
- **What level of trust can be placed on data?**

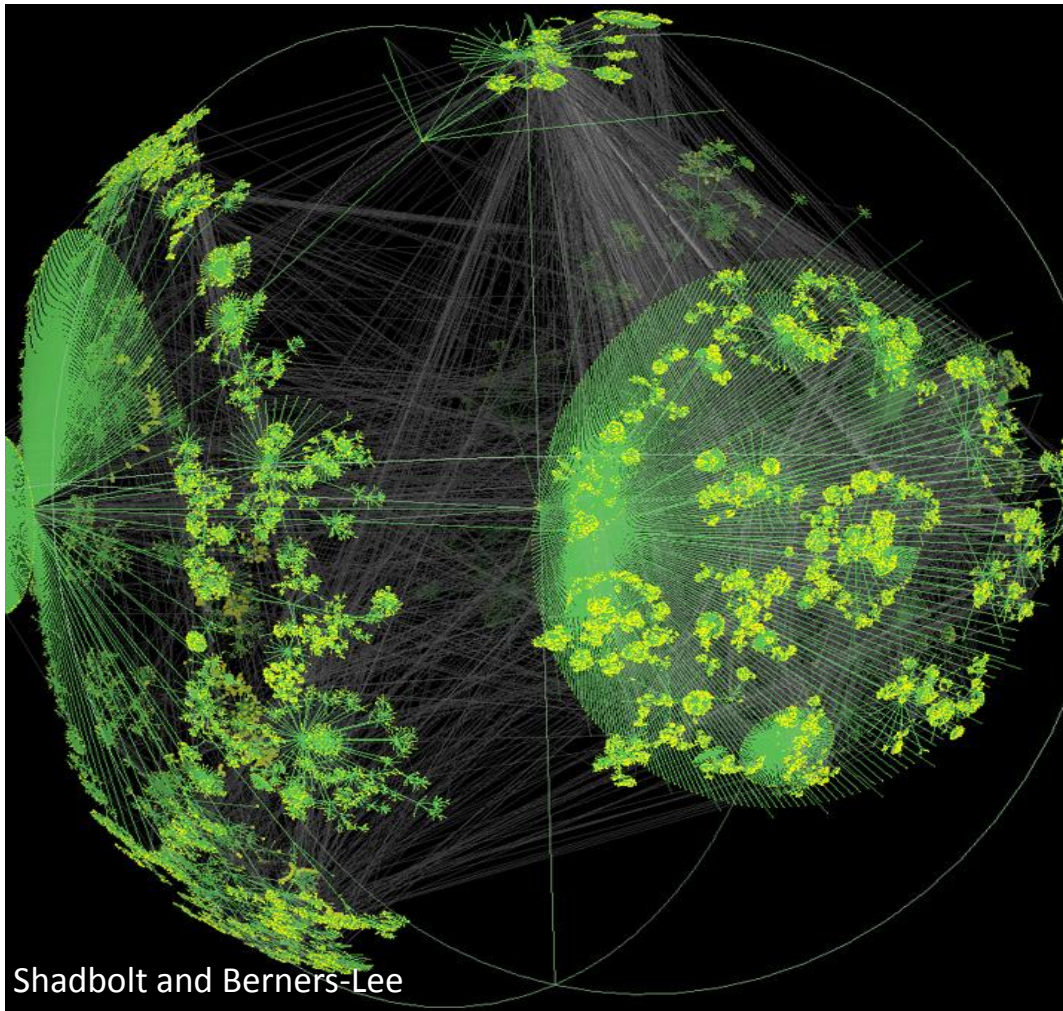


# Cause and effect?

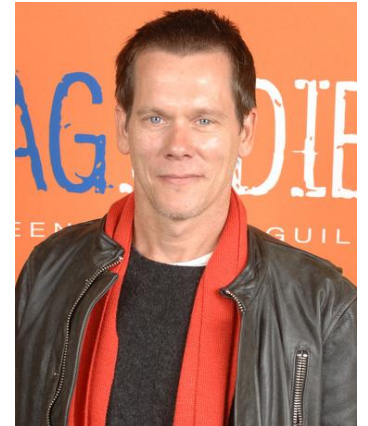
- The **Butterfly Effect** (Lorenz)
  - Flaps wings in Brazil =>  
...Tornado in Texas
- The **Web Effect**
  - Facebook communities => secrets of friends
  - Blog on Job's "death" => Apple stock drops
  - YouTube => 10% of **all** Internet traffic
  - Political rumor => drop in polls



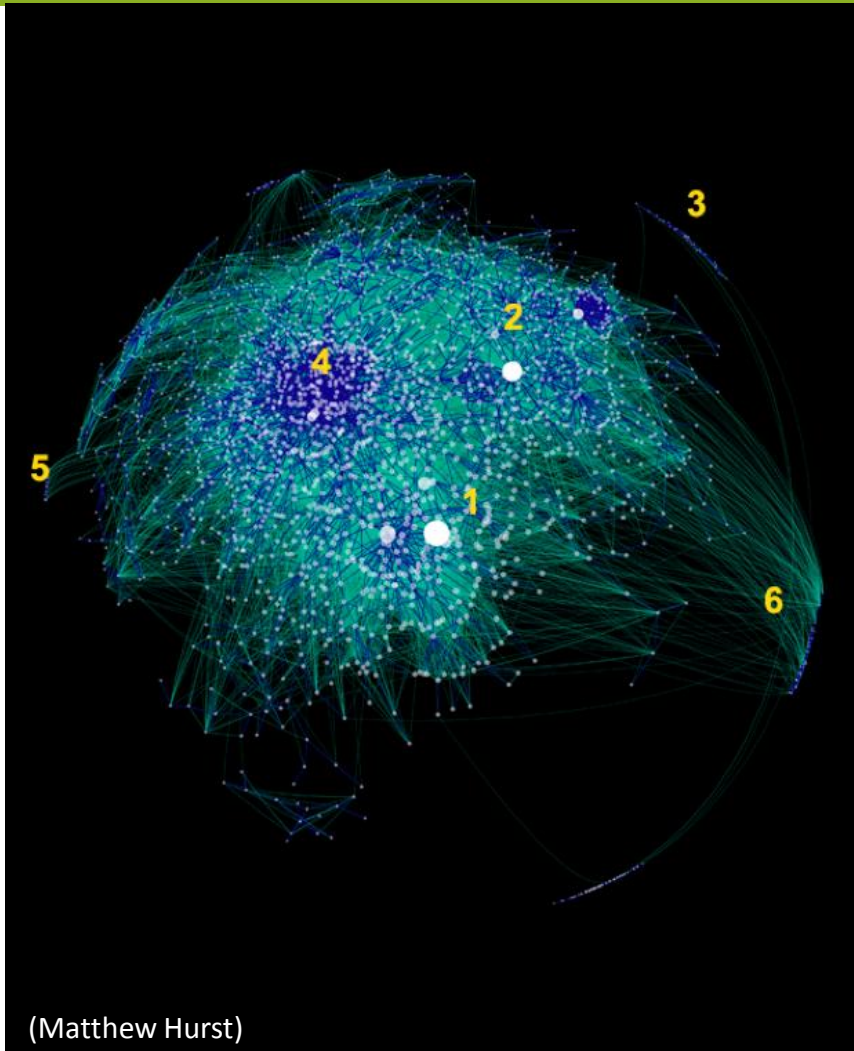
# Structure of the Web



- Scale free
  - Few nodes, many links
  - Hubs, authorities
  - Long-tail, fewer links
- Small world
  - 14 links or less



# The Blogosphere



- Growing
  - 2007: 70 million + 120K/day
- Popular
  - ½ million visits per day
- Fakesters
  - +3-7K created per day
- Revolution
- Trust

# Web Standards

# Web Standards

## Goals

- There is One Web ... and it works
- Web expands
- Web remains free and open

## Activities. Fund:

- Consensus to standardize new Web technologies
- Maintenance of core Web technologies
- Work that ensures that technologies work together
- Work that ensures standards can be and are adopted



## Sets the Standards that Make the Web Work

- Founded in 1994 by Tim Berners-Lee, inventor of the Web (current W3C Director)
- Fair and effective process
- Global focus
- One Web based on free and open standards
  - **Of creators and consumers (2.0), of data and services (3.0), on everything, for everyone**



# Growing International Presence

- [410 Members](#) from 40+ countries [\(largest\)](#)
- Offices in 19 countries
- 1,500 participants in 60+ [Groups](#)
- 30,000 people subscribed to mailing lists
- 8,000,000 hits/day on [www.w3.org](http://www.w3.org)

- **What is it?**



- *Everyone is a creator, as well as a consumer*
- *Dynamic interaction*

- **Web 2.0 @ W3C = Rich Web Clients Activity**

- Updating existing W3C standards
  - HTML5, SVG graphics ([demo org chart](#)), CSS styling, etc.
- Standardizing new technologies
  - AJAX, Widgets, etc.

# New: Video on the Web

- Make video 1<sup>st</sup> class citizen of the Web
- Linking
  - to and from
  - spatial, temporal
- Description
- Best practices



# Social networking

## A chaque continent ses préférences

LES SITES DE RÉSEAUX SOCIAUX LES PLUS FRÉQUENTÉS...

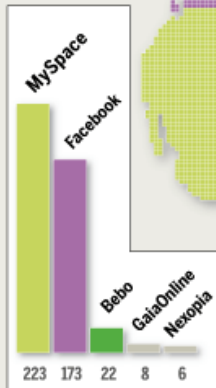
... PAR PAYS	Nom du site	MySpace	Facebook	Bebo	Cyworld	Skyblog	Hi5	Friendster	Orkut	Live Journal
Nationalité de l'entreprise :	Etats-Unis	Etats-Unis	Etats-Unis	Corée du Sud	France	Etats-Unis	Etats-Unis	Etats-Unis	Etats-Unis	Russie

... PAR CONTINENT

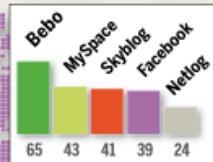
En millions d'heures par mois  
(août 2007)

### AMÉRIQUE DU NORD

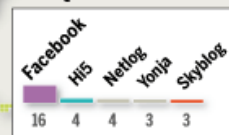
Un quart des inscrits  
dans le monde.



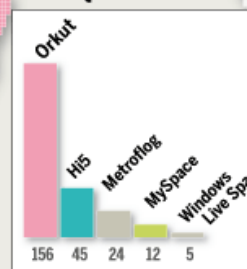
### EUROPE



### AFRIQUE - PROCHE-ORIENT

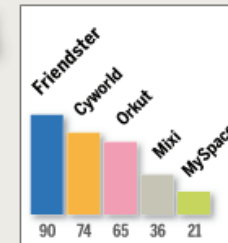


### AMÉRIQUE LATINE



### ASIE - PACIFIQUE

Un tiers des inscrits dans le monde.

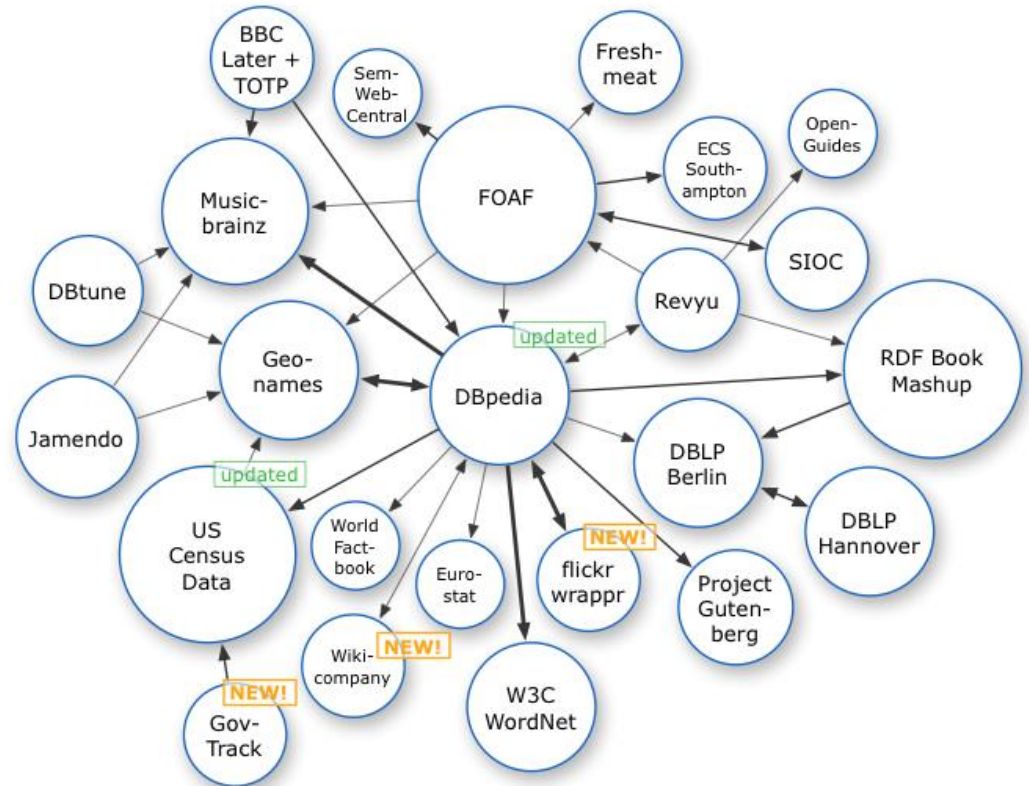


Infographie Le Monde

Sources : ValleyMag août 2007, Datamonitor

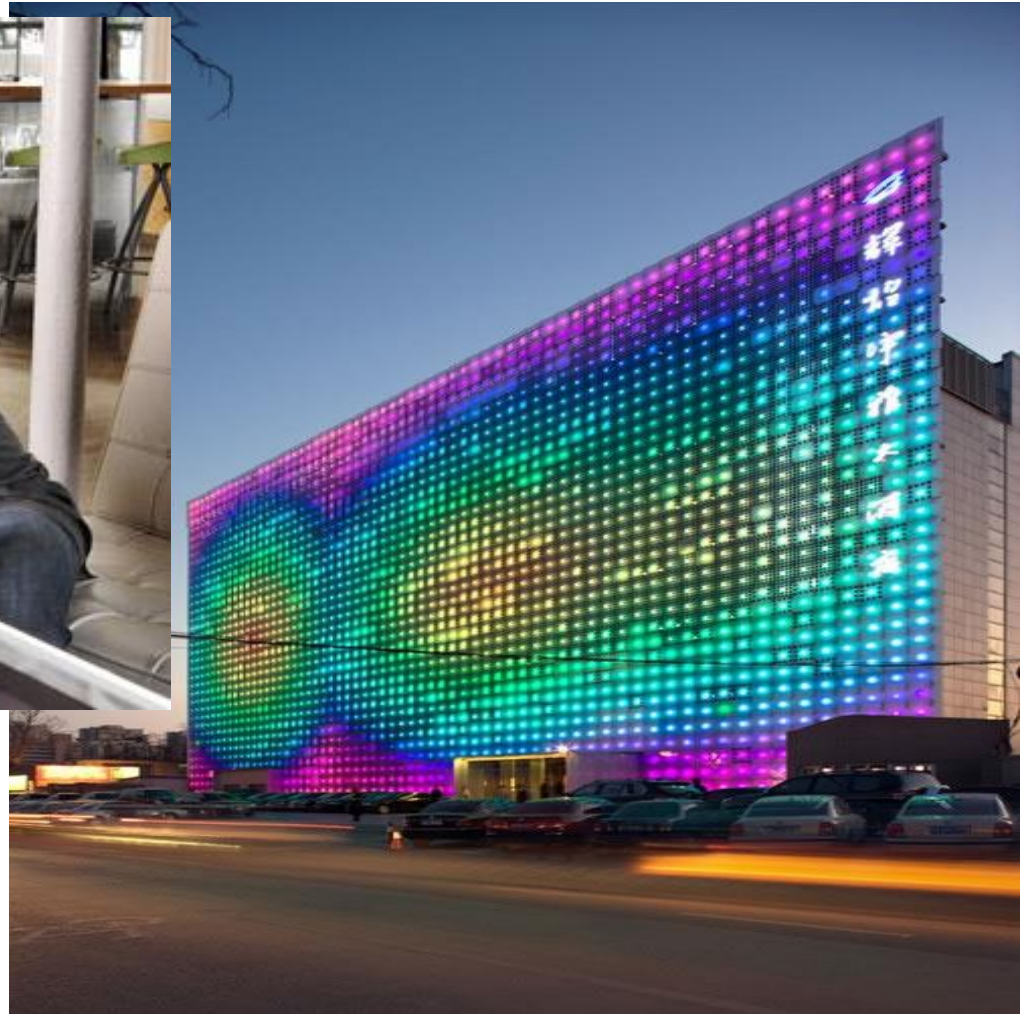


- Web 1.0 = Linked Documents
- **Web 3.0 = Linked Data (Semantic Web)**
  - Web becomes a global, relational database
  - Potential to break down walled gardens of many Web 2.0 applications



\*[New York Times](#), [InternetNews](#)

# Web on every surface

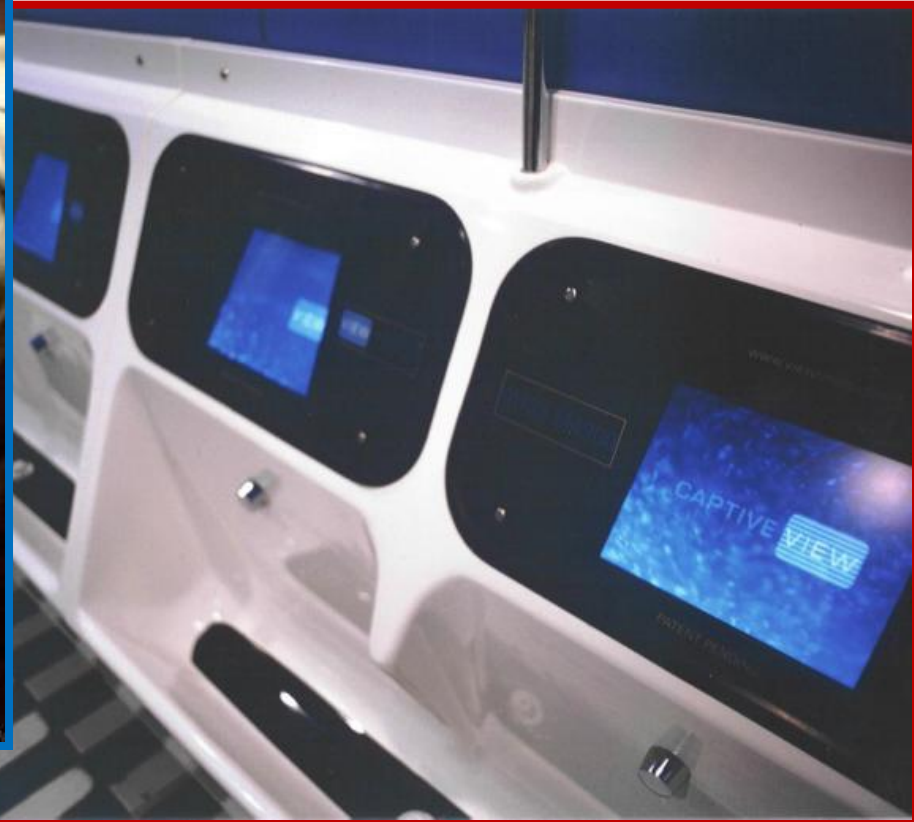




# Web on every thing



# Do we need the Web on *every* thing?





# One Web that works seamlessly across everything



[http://www.efront.com.au/web-design-melbourne/uploaded\\_images/iphone-776924.jpg](http://www.efront.com.au/web-design-melbourne/uploaded_images/iphone-776924.jpg)

# Mobile Web Initiative

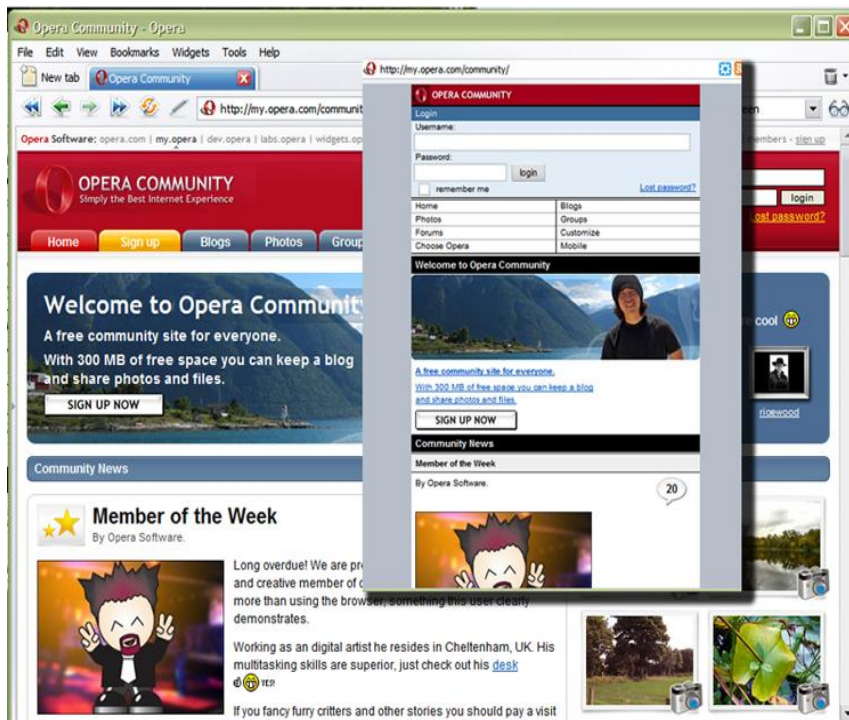




# Mobile Web Initiative

**Make Web access on all devices seamless,  
reliable, cost-effective**

- [Mobile Web Best Practices 1.0](#)



- [Device Description](#)
- [Ubiquitous Web Applications](#)



# MWI Next Generation

- Mobile Web 2.0 applications
- Mobile search, social networking, ads
- Location-based services
- Mobile video



# Mobile Advertising

## Challenges

- Space, standards

## Wildly-varying growth projections

([AccuraCast](#))

- Global now:
    - \$1 to 2B ?
  - Global by 2112:
    - \$1B (Forrester)
- VS.
- \$21B for Google alone (Thomson)



[AdMob Live Map](#)



# Multi-modal interaction



# Web for Society

***“The social value of the Web is that it enables human communication, commerce, and opportunities to share knowledge [and] to make these benefits available to all people, whatever their hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability.”***



# Web for Society

## Goals

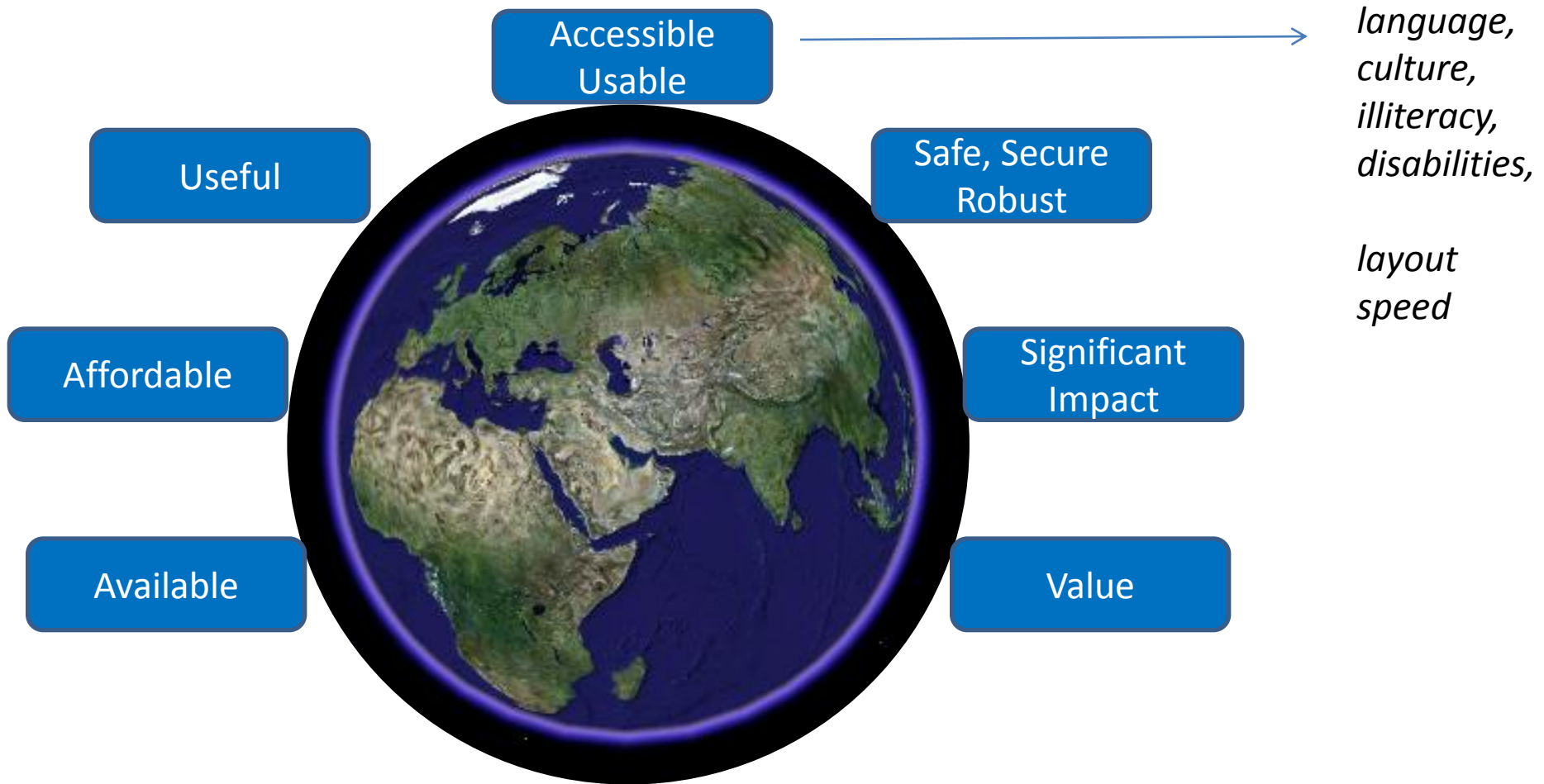
- Understand critical needs of people who are underserved by the Web
- Leverage the Web to bring benefits to all people

## Activities. Fund:

- Studies to understand needs
- Lowering of barriers to critical services
- Empowerment people using the Web

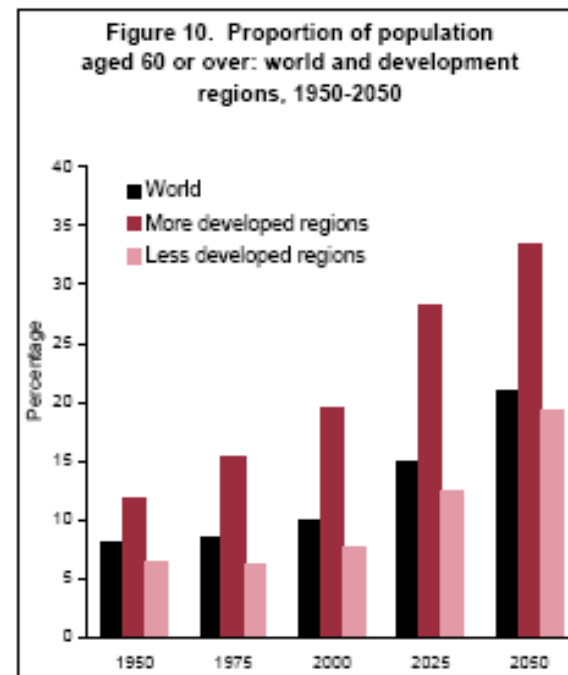
# Lowering Barriers

## Understanding, Improving, Deploying



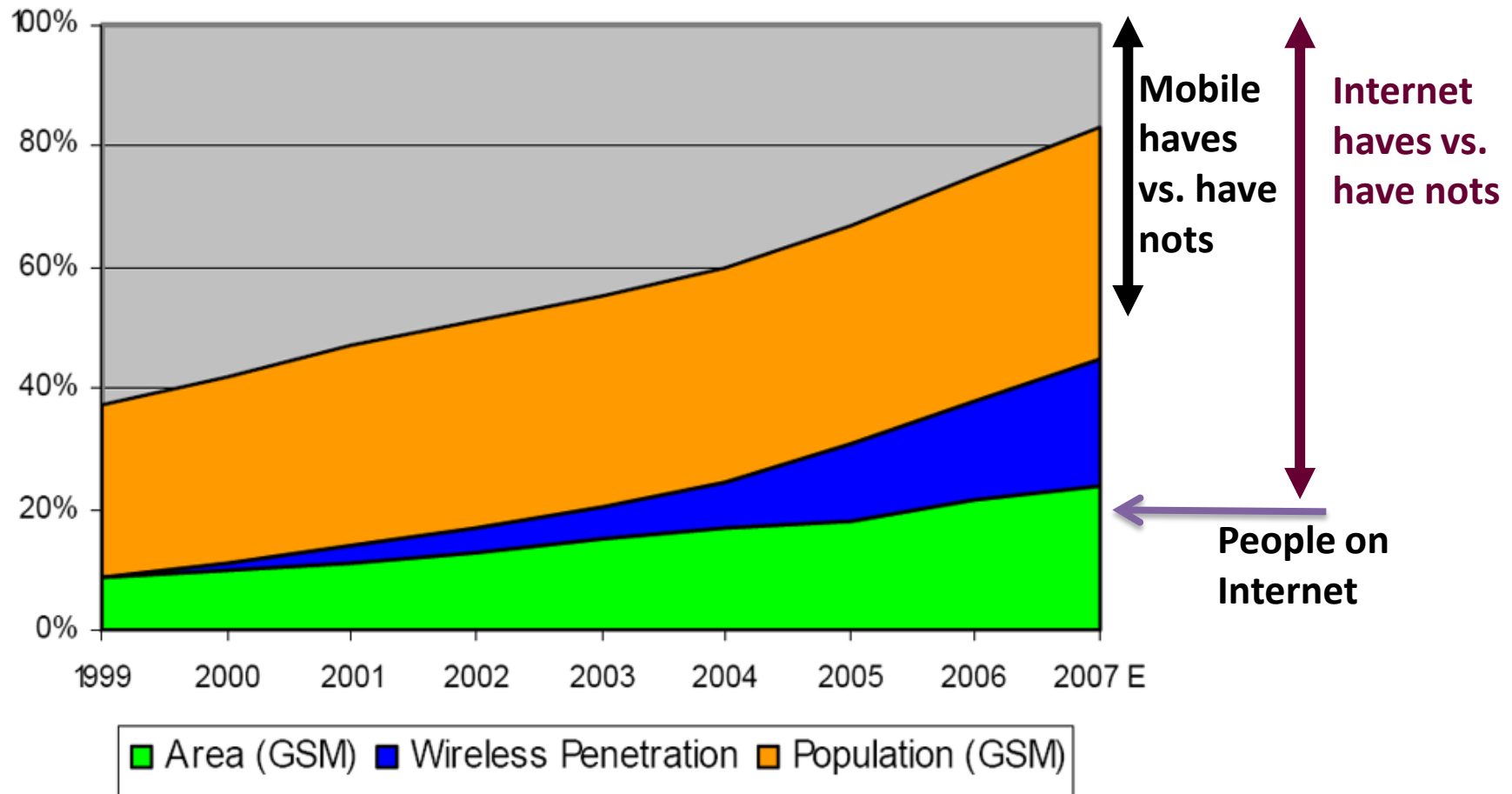
# Access for people with disabilities and an aging population

- Millions with disabilities
- Aging population
- Increasingly required
- Carry-over benefits ([business case](#))
- [W3C Web Accessibility Initiative](#)
  - New [Web Content Accessibility Guidelines 2.0](#)



*More developed regions have relatively high proportions of older persons*

# Mobile Growth and Web Potential



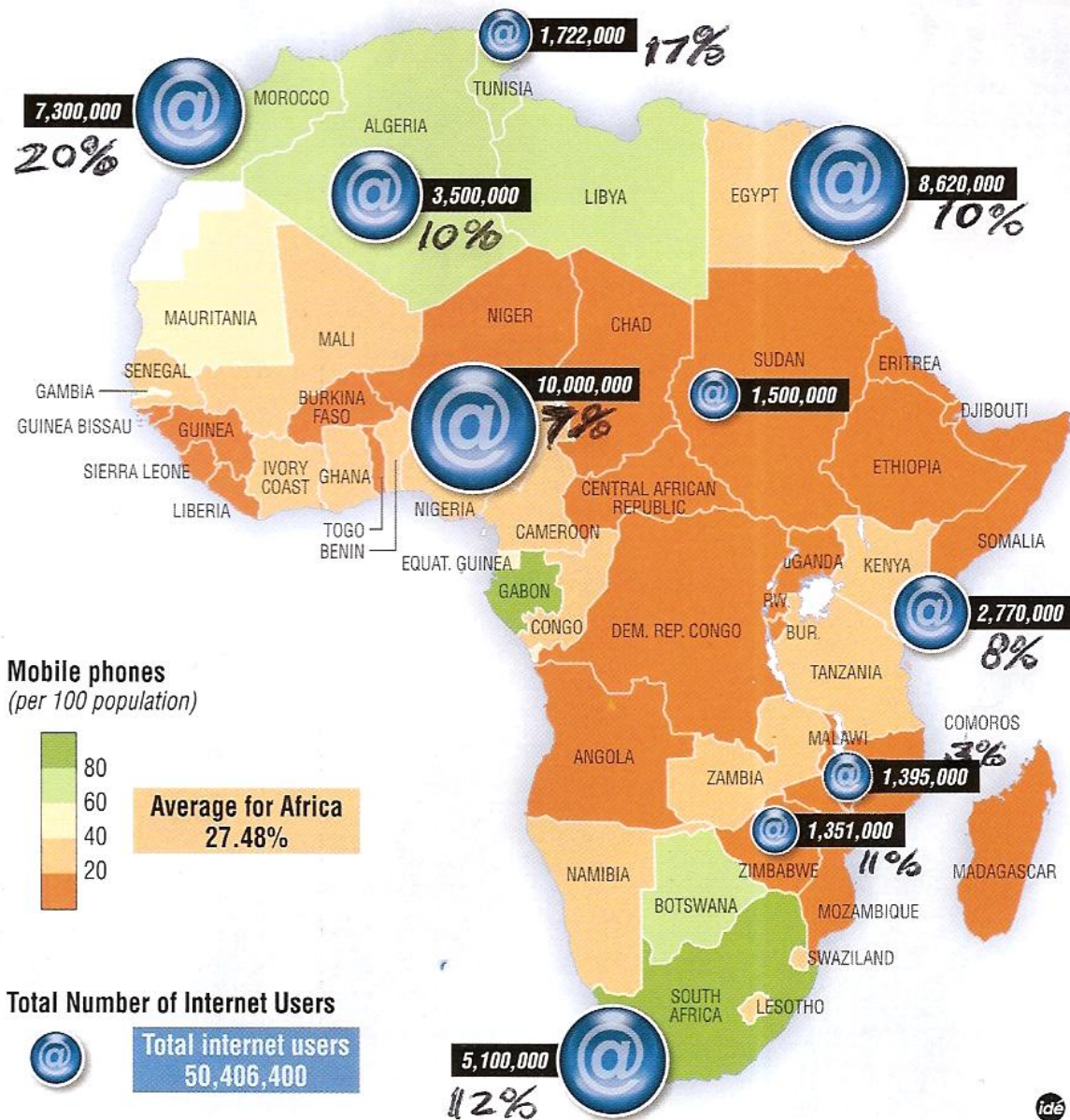
[http://www.gsmworld.com/documents/universal\\_access\\_full\\_report.pdf](http://www.gsmworld.com/documents/universal_access_full_report.pdf) (2006)

# Internet Users and Mobile Phone Owners in Africa



(2008 Sep/Oct) *Africa Report*

## Mobile phone density and top ten countries in internet use





# Web for Society Critical Services

- Nutrition
- Healthcare
- Education
- Commerce
- Communication





# Mobile Web 4 Social Development

- [W3C Interest Group](#)
- Workshops
  - [Bangalore December 2006](#)
  - [Sao Paulo June 2008](#)
- Stories that give hope
  - [How mobile phones helped a fishing community in India](#)
  - [Impact of mobile phones on grain markets in Niger](#)
  - [Text messages empowering poor farmers](#)



# Web for Society Critical Challenges

- Government & politics
- War & peace
- Natural & un-natural disasters
- Energy & climate change
- Healthcare & disease
- Prosperity & poverty



# Wrap Up!

# Tomorrow's Web

- Not just machines
- Not just Web pages and browsers
- Not just technical specifications
- It's about people
- **Humanity Connected by Technology**  
... and what that technology and those connections can do to make life better for everyone on the planet



# Your Contribution to Tomorrow's Web

- **Learn about the Web**
  - **Be a responsible citizen of the Web**
  - **Become a Web scientist**
  - **Become a Web standards geek (*right*)**
  - **Help leverage the Web to empower others**
- 
- **Look for launch of the World Wide Web Foundation in early 2009, and look for ways to participate and contribute**

# Thanks!

World Wide Web  
Foundation



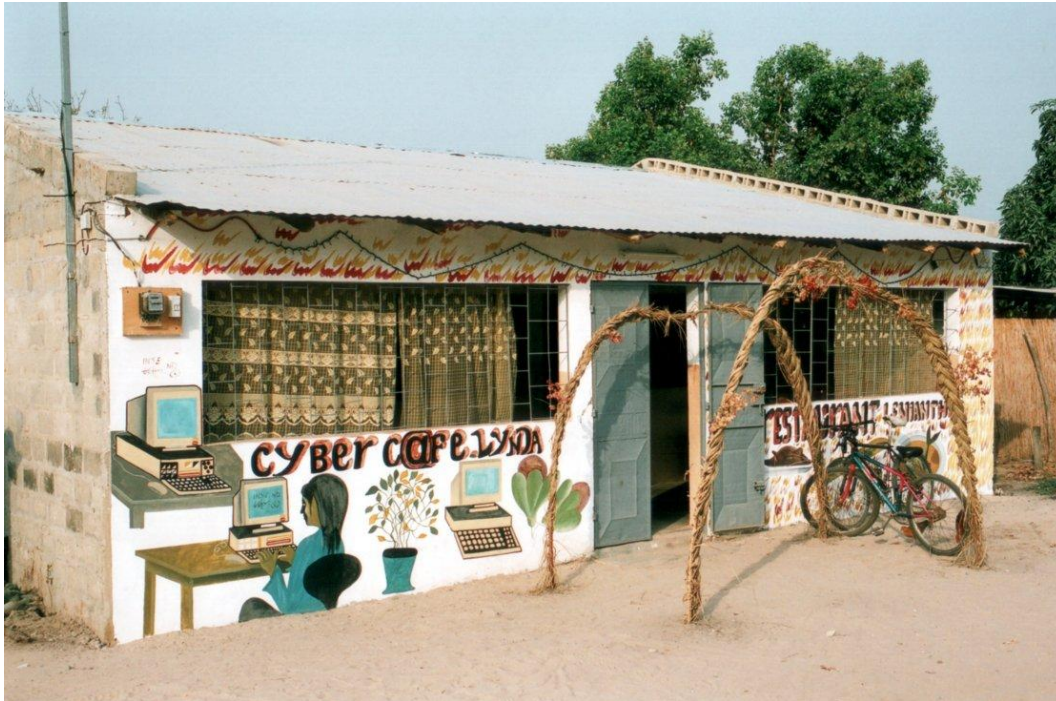
<http://webfoundation.org/>

<http://w3.org/>

<http://webscience.org/>







Senegal (left): <http://www.thesmith.org.uk/places/senegal/kafoontine/ROO17-CyberCafe.jpg>

Thailand (right): [http://lh3.ggpht.com/\\_k5HhvAHdNiA/Rf-YAUzu6rI/AAAAAAAAABPY/4xUHU0KT38w/DSC03358.JPG](http://lh3.ggpht.com/_k5HhvAHdNiA/Rf-YAUzu6rI/AAAAAAAAABPY/4xUHU0KT38w/DSC03358.JPG)



# Ubiquitous Web Applications

- Enabling Web applications to interact across wide diversity of devices:
  - Computers, equipment, media, appliances, mobile devices, physical sensors, effectors, consumer electronics



[Working Group homepage](#)