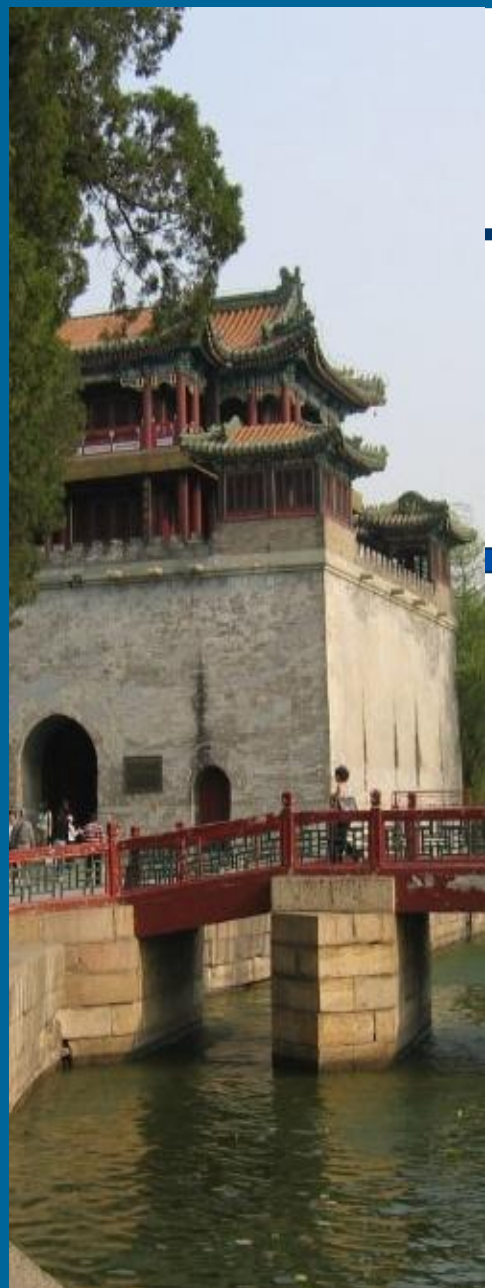


World Wide Web Consortium's

Now and Future Web Technologies

http://www.w3.org/2007/Talks/1128-sb-W3CemergingTech/Bratt-W3CemergingTechp.pdf

Presented by

Steve Bratt (steve@w3.org)

Chief Executive Officer

World Wide Web Consortium (http://www.w3.org)

30 November 2007

Outline

- *Growth of the Web*
- *World Wide Web Consortium*
- *One Web …*
  - *for Everyone*
    - *Accessibility*
  - *of Creators and Consumers*
    - *Web 2.0, Video*
  - *of Data and Services*
    - *Semantic Web*
  - *on Everything*
    - *Mobile*
- *W3C in China*

Growth of the Web

More than 1 Billion Served

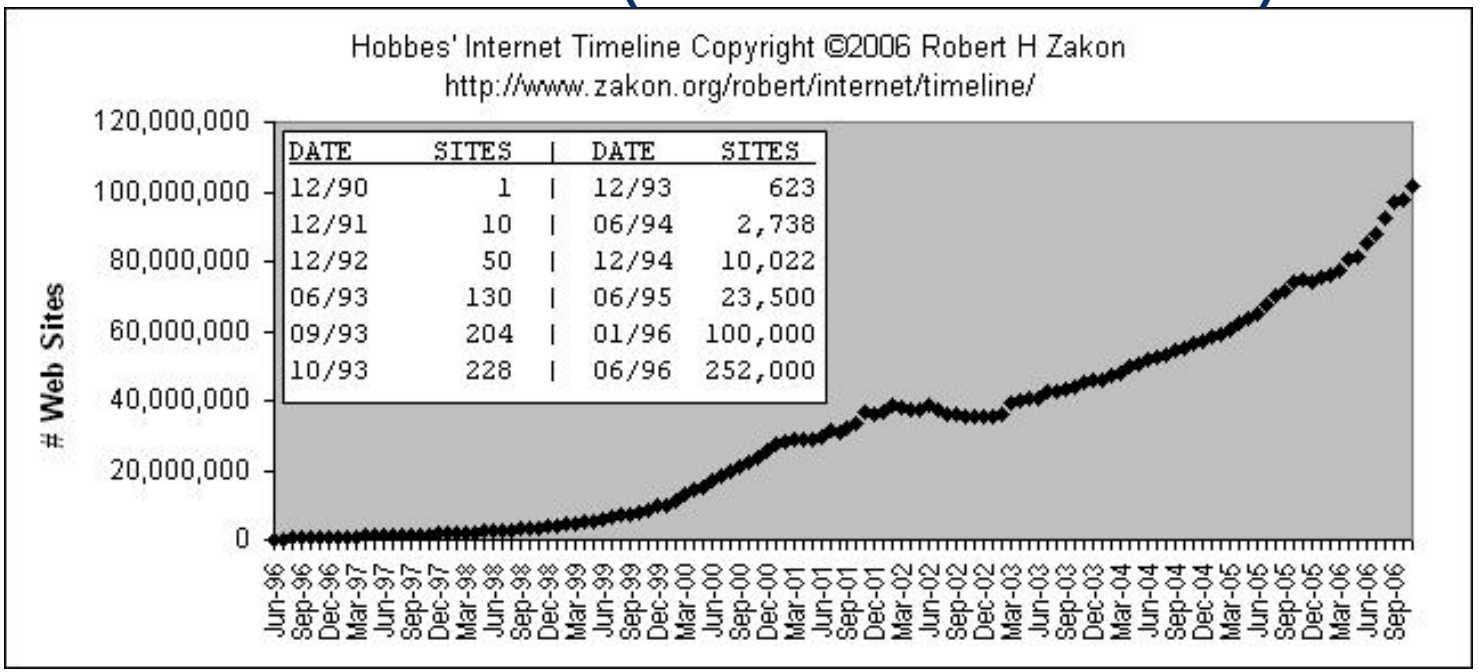
WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2007 Est.)	Population % of World	Internet Usage, Latest Data	% Population (Penetration)	Usage % of World	Usage Growth 2000-2007
Africa	933,448,292	14.2 %	43,995,700	4.7 %	3.5 %	874.6 %
Asia	3,712,527,624	56.5 %	459,476,825	12.4 %	36.9 %	302.0 %
Europe	809,624,686	12.3 %	337,878,613	41.7 %	27.2%	221.5 %
Middle East	193,452,727	2.9 %	33,510,500	17.3 %	2.7 %	920.2 %
North America	334,538,018	5.1 %	234,788,864	70.2 %	18.9%	117.2 %
Latin America/Caribbean	556,606,627	8.5 %	115,759,709	20.8 %	9.3 %	540.7 %
Oceania / Australia	34,468,443	0.5 %	19,039,390	55.2 %	1.5 %	149.9 %
WORLD TOTAL	6,574,666,417	100.0 %	1,244,449,601	18.9 %	100.0 %	244.7 %

In 1995, there were ~16,000,000 Internet users, or 0.4% of global population

Source: http://www.internetworldstats.com/stats.htm

More than 100 Million Serving

Number of Web Sites (domain names and content)

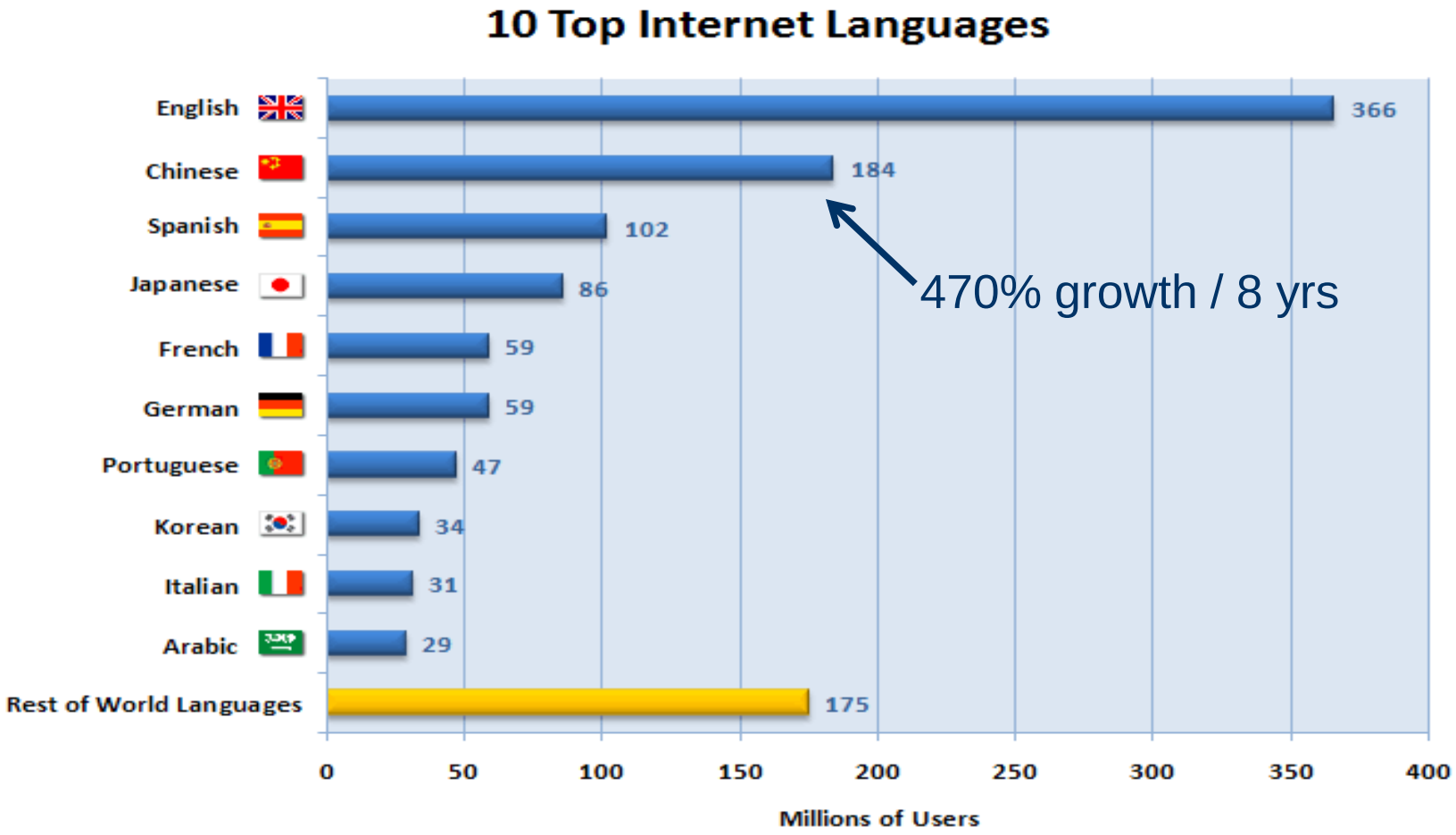


DATE	SITES	DATE	SITES
12/90	1	12/93	623
12/91	10	06/94	2,738
12/92	50	12/94	10,022
06/93	130	06/95	23,500
09/93	204	01/96	100,000
10/93	228	06/96	252,000

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

Sources: *http://www.zakon.org/robert/internet/timeline/*
http://www.internetworldstats.com/stats.htm

Top Languages



http://www.internetworldstats.com/stats7.htm

What Led to the Web's Success?

- Simple architecture - HTTP, URI, HTML
- Networked - value grows with data, services, users
- Extensible - from Web of documents to ..
- Tolerant - works with imperfect mark-up, data, links, SW
- Universal - regardless of HW, OS, SW, language, ability
- Free / cheap - browsers, information, services
- Simple (and fun) for users - text, graphics, links
- Powerful - for people (and machines)
- ***Open standards ...***

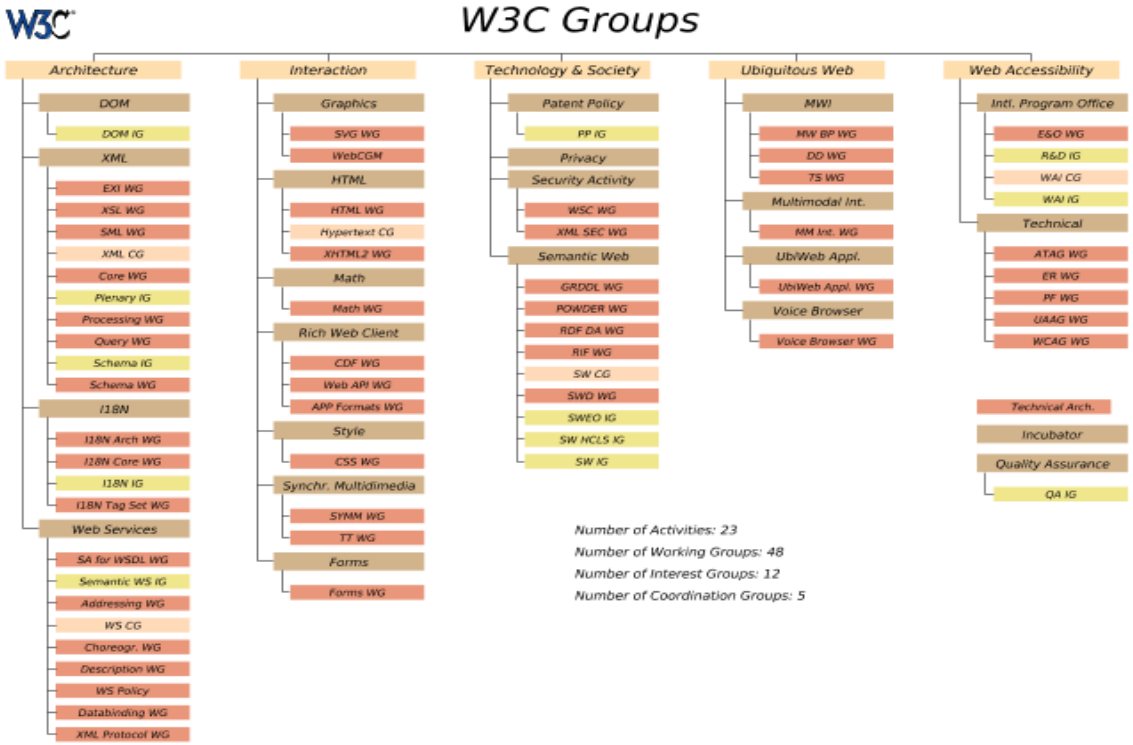
Role of Standards

- Broad industry agreement (if done right)
- Interoperability ...
  - cross-browser, -application, -organization, -data
- Avoids vendor lock-in ... for providers and users
- Open access = no black boxes
- Mandated ... by customers, government
- Royalty-free standards = good business sense

The World Wide Web Consortium

W3C: The Leading Web Standards Organization

- Engineering the Web's foundation
  - 1000+ technologists in 60 groups, developing Web Standards
  - HTML, XML, CSS, Web Services, and tens of emerging standards
- 430 Members
- 40+ Liaisons
- 21 Offices
  - Newest: India, China, S. Africa Brazil



http://www.w3.org/

W3C Working Groups

W3C:
Leading the Web's Change …

.. from a Web of linked **documents**, to

One Web:

- **for Everyone**
- **of Creators and Consumers**
- **of Linked Data and Services**
- **on Everything**

One Web For Everyone

(***Principles, Accessibility***, Internationalization, W3C Offices, Translations, etc.)

One Web for Everyone

"The social value of the Web is that it enables human communication, commerce, and opportunities to share knowledge. One of W3C's primary goals is to make these benefits available to all people, whatever their hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability."

Sir Tim Berners-Lee

W3C Director and Inventor of the World Wide Web

Worldwide Participation in the World Wide Web Consortium

One Web …

… providing the same information and services to users, regardless of the device they are using.

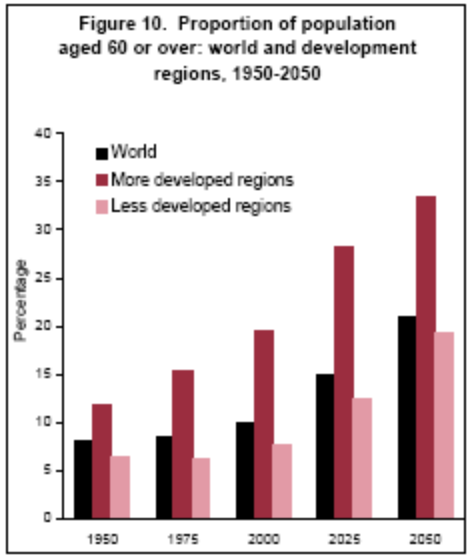
Accessibility

Access for people with disabilities and an aging population ...

- Web usage continues to expand
- Barriers for millions with disabilities
- Aging population = more disabled with age
- Often required
- Huge carry-over benefits

  Developing a Web Accessibility Business Case

- Web Accessibility Initiative @ W3C
  - New Web Content Accessibility Guidelines 2.0 soon



More developed regions have relatively high proportions of older persons

One Web of Creators and Consumers

(***Web 2.0***, ***Video***, CSS, SVG, etc.)

Web 2.0

- What is Web 2.0?
  - Users are authors
  - Dynamic interaction
- Web 2.0 @ W3C = Rich Web Clients Activity
- Starting with existing W3C standards & javascript
  - New HTML5 WG bringing most important spec up to date
  - DOM, CSS, SVG, are critical elements
- Plus new standardization of work in the field
  - AJAX (XMLHTTPRequest object) and other JS features
  - Widget packaging and delivery format, etc.
  - Considering security, especially re: javascript use

Video on the Web

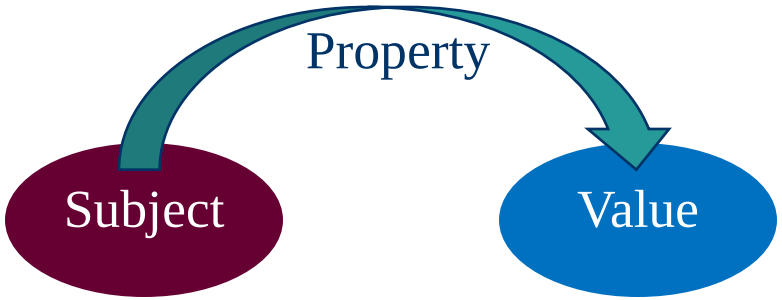
- W3C Workshop: 12-13 December
- Objectives: What can W3C do to help to …
  - make video a first-class citizen of the Web?
  - develop standards to support the platform-independent
    - Creation
    - Authoring
    - Encoding/decoding
    - Description
    - Linking
  - … of video?

One Web of Data and Services

(***Semantic Web***, XML, Web Services, etc.)

Semantic Web

- Web 1.0 = Linked Documents
- Semantic Web = Linked Data (Web 3.0*)

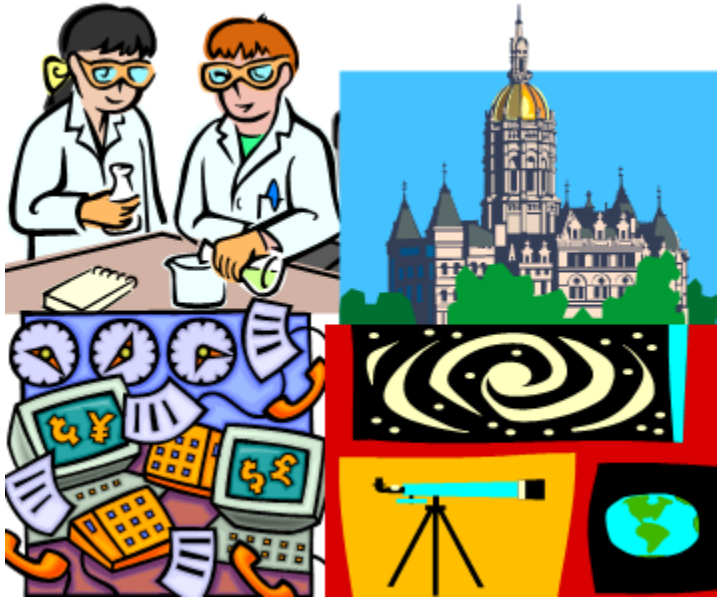


Where Subjects, Properties, Values can each have their own URLs, and thus are universally unique and linkable across the Web

- Web becomes a global, relational database
- Semantic Web Activity @ W3C
  - Query, Rules, Content Labeling, Case Studies and Use Cases

*New York Times, InternetNews

Semantic Web Applied

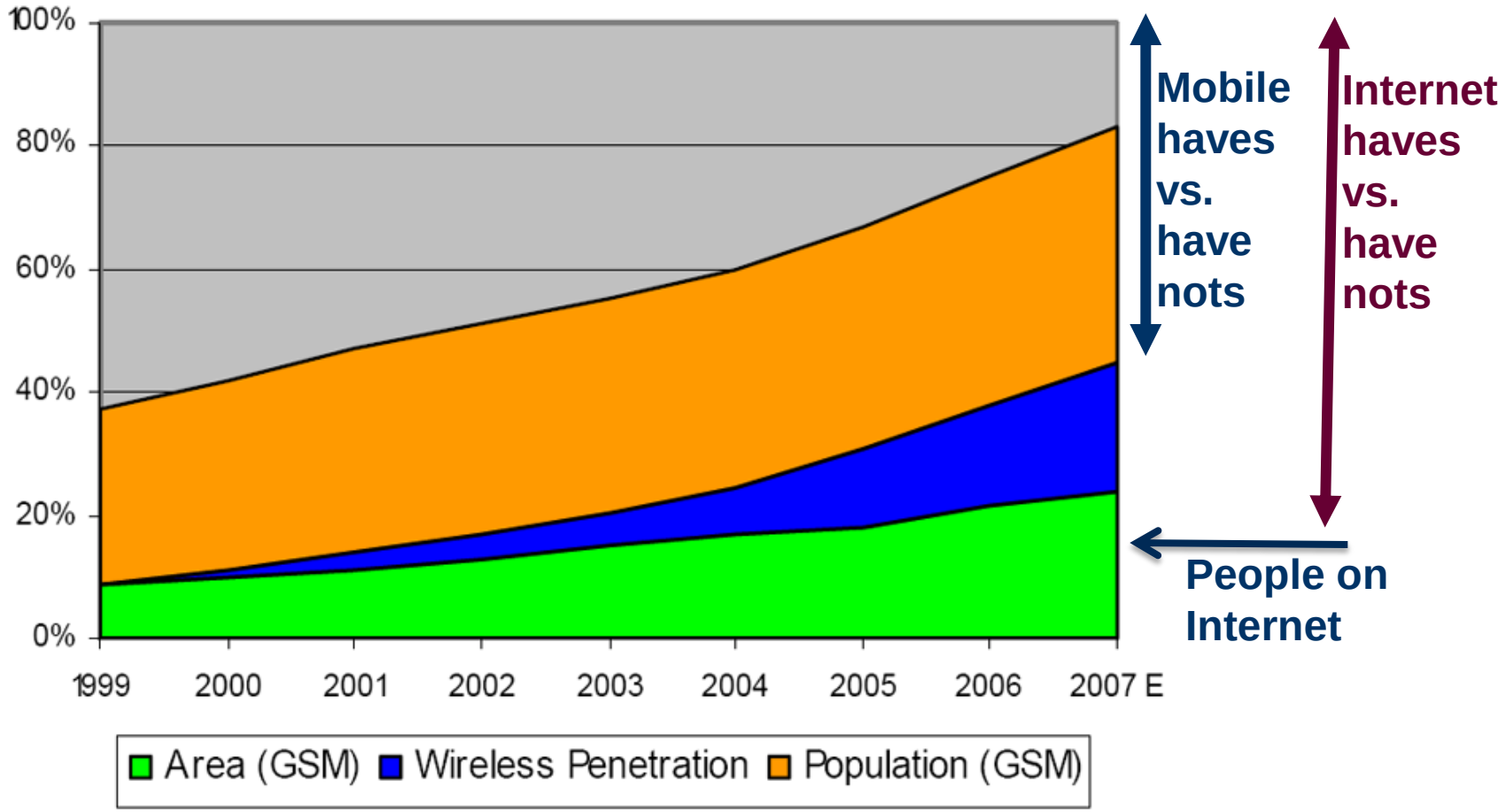


- **Increasing focus on end users**
  - Supports application of standards to real, important problem
  - Improves standards: Use cases, requirements, implementation, testing
- **Health Care and Life Sciences**
  - "use of Semantic Web technologies ... to improve collaboration, research and development, and innovation adoption"
  - Agfa, AstraZeneca, Cleveland Clinic, Eli Lilly, HL7, Merck, Partners, Pfizer (60+ participants)
- **Interest in other applications spaces …**
  - Financial services, eGov, energy, etc.

One Web on Everything

(***Mobile Web***, Voice, Multimodal Interaction, Ubiquitous Web, etc.)

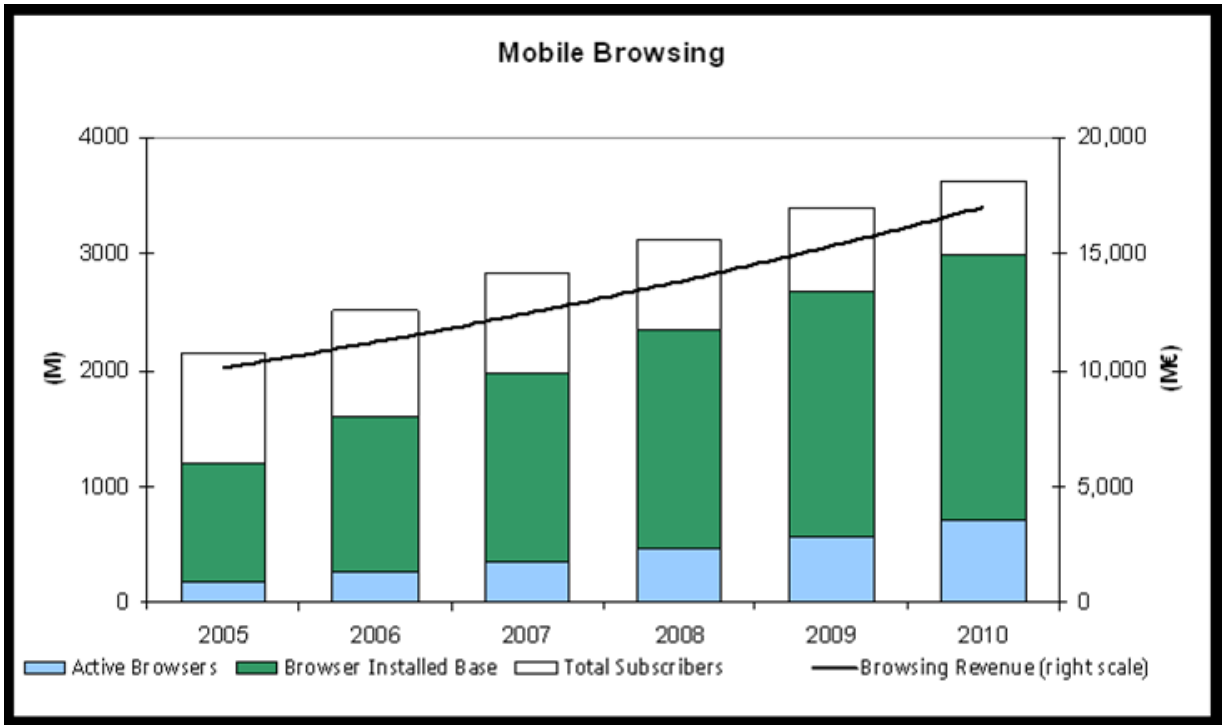
Mobile Growth and Potential



http://www.gsmworld.com/documents/universal_access_full_report.pdf (2006)

Challenges for Mobile Web

- 2 billion people own mobile phones with Web browsers
  - ***300-400 million are actively used***
- 2-3 million new mobile phones sold / day
  - ***Most new phones will continue to include simple Web browsers***
- *Potential for bringing the Web to more people is huge*



Graphic: Nokia

Mobile Web Initiative

- Mobile Web Best Practices 1.0 (Summary)
  - Authoring content for **good user experience**
  - Effective delivery to and display on all mobile devices
  - Leveraging existing Web standards
  - Checker: http://www.w3.org/Mobile/check

- Related Working Groups
  - Device Description
  - Ubiquitous Web Applications
  - Developing Countries

World Wide Web Consortium in China

Why Participate in W3C?

"Third-class companies make products; second-class companies develop technology; first-class companies set standards."

- **Leadership**
  - Introduce ideas for new standards
  - Influence standards through working groups and reviews
- **Early insight into market trends**
  - Access world's foremost Web technologists
  - Plan for new technologies & markets through Member access
- **Promoting image as innovator**
  - Participate in int'l media activities
  - Display logo on W3C site (300K visits/day)

(Membership / Benefits / How to join W3C / "At a Glance" brochure)

Welcoming and Servicing the Web Community in China

- W3C's China Office
  - Beihang University
  - Office manager:
    Prof. Huai Jinpeng
- Providing a home for the Web community in China

For more information

http://www.w3.org/

- W3C Membership:

  http://www.w3.org/Consortium/membership

Selected References

- W3C: http://www.w3.org/
- HTML: http://www.w3.org/html/
- CSS: http://www.w3.org/Style/CSS/
- XML: http://www.w3.org/XML/
- Mobile Web: http://www.w3.org/Mobile/
- Ubiquitous Web: http://www.w3.org/2006/10/uwa-activity-proposal.html
- Labeling: http://www.w3.org/2007/powder/
- Voice: http://www.w3.org/Voice/
- Multimodal: http://www.w3.org/2002/mmi/
- Accessibility: http://www.w3.org/WAI/
- Internationalization: http://www.w3.org/International/
- Developing Countries: http://www.w3.org/2006/12/digital_divide/public.html
- Security: http://www.w3.org/Security/
- Web Services: http://www.w3.org/2002/ws/
- Semantic Web: http://www.w3.org/2001/sw/

Global Standards = Global Enablers

- W3C's Open Web standards
  - Provide ***interoperability*** between data and applications across the Internet and across the Globe
- Foundation of today's Web
  - e.g., HTML, CSS, XML, Architecture
- Foundation for the Web of tomorrow
  - e.g., Web 2.0, Web services, semantics, mobile, ubiquity
- Key efforts focus on universality, in particular:
  - Web Accessibility Initiative, Internationalization, Mobile Web, Security/Privacy, Offices, Emerging economies