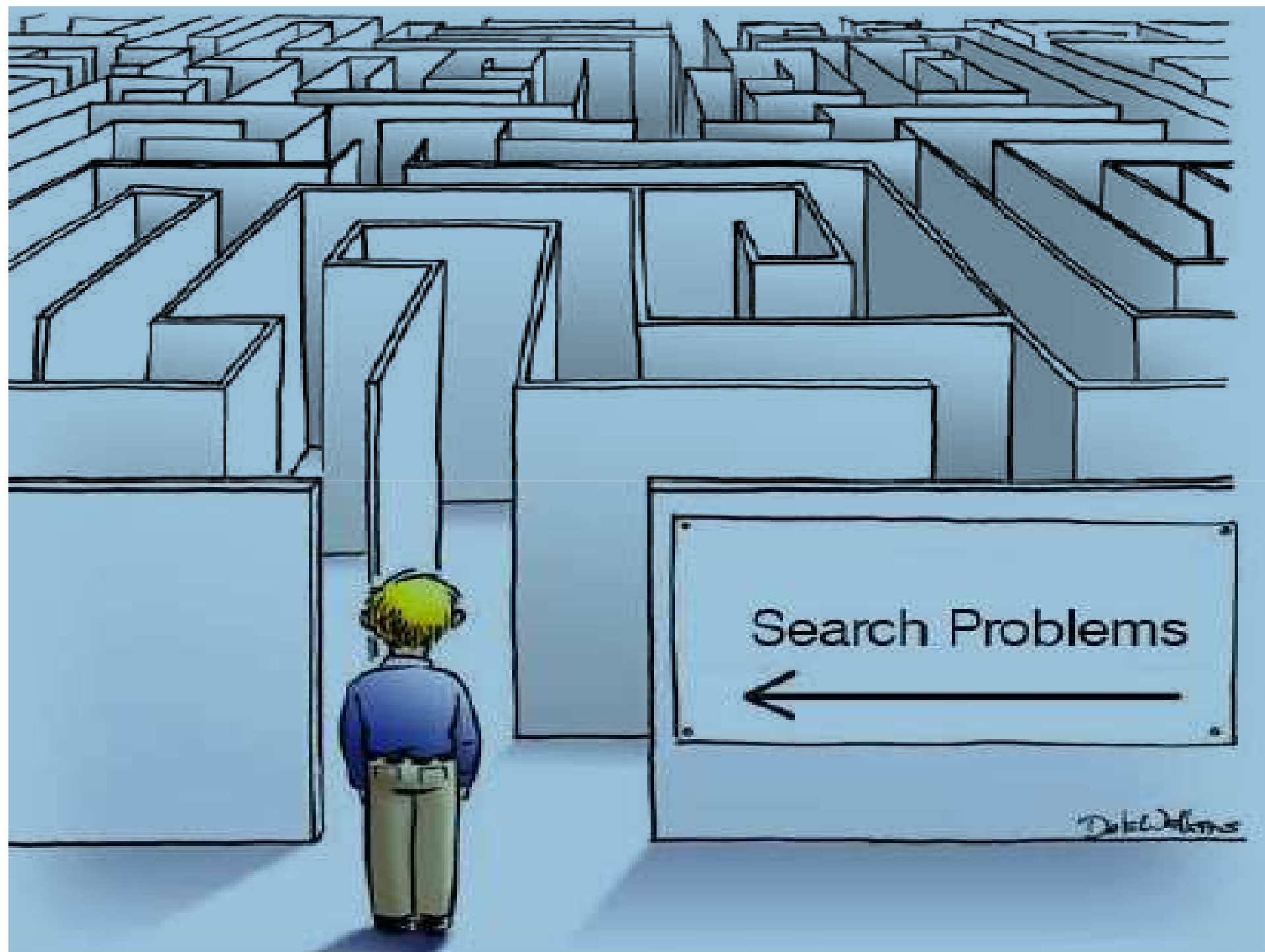




# The role of Multimedia Search in the Future Internet

**Dr Joao Schwarz Da Silva**  
**European Commission**  
CHORUS Conference  
**Brussels, 26 May 2009**



# Search Capabilities

**Kumo** search results for "taylor swift".

**ISEEK** search results for "taylor swift".

**Newsift** FROM THE FINANCIAL TIME

**Article Sources**

- Online News (196)
- Newspapers (38)
- The Financial Times (3)
- Research (37)
- Blog (31)
- Magazine (24)
- Newsires (16)
- News Portals (13)
- Television & Radio (3)

**Top Organizations**

- European Commission (80)
- North Atlantic Treaty Organization (NATO) (69)
- Pentagon, Inc. (64)
- International Monetary Fund (50)
- American International Group, Inc. (AIG) (50)

**Mobile internet to be bigger than TV and PC combined**

SiliconRepublic.com, May 15, 2009

15.05.2009 With more than three billion out of the world's six billion people carrying mobile devices, and operators in China signing up 10 million new subscribers a week, the mobile internet could soon tower over the computer-based internet we know today, the head of DotMobi Trey Harvin told siliconrepublic.com... What you are...

**U.S. Stock-Index Futures Decline in European Trading;**

Bloomberg News-1, May 13, 2009, By Daniela Silberstein

May 13 (Bloomberg) -- U.S. stock futures dropped, indicating the Standard & Poors 500 Index will fall for a third day, on concern valuations are stretched after U.S. stocks climbed to the highest prices relative to earnings in seven months... Intel Corp. dropped 1.1 percent in Germany after the worlds biggest chipmaker was...

**Viviane Reding Member of the European Commission**

European Commission, May 11, 2009

It's a pleasure to be with you today to share my views on 'The Future Internet'... This year, the number of mobile users in the world has passed the 4-billion level... An ever richer content and media environment.....

**EU seeks overhaul of internet governance**

**Summary:**

total	289
highest	42. (G)
lowest	93 (V)

**Distribution plots:**

12

**Australian Terrier**

"Dedicated to the Advancement of Quality, Purebred Australian Terriers". Founded

12 - 14 lb

10 in

Terrier



# ***Search and Computing Power***

- ❑ Remarkably expensive to build and market a search engine that has a chance in the mass market
- ❑ Growth and processing needs of increasingly large data sets such as the web, books, pictures and video will pose huge problems.
- ❑ Unprecedented availability of computing power
- ❑ About 20 percent of all the server computers being sold in the world "are now being bought by a small handful of internet companies," including Microsoft, Google, Yahoo and Amazon.
- ❑ Total worldwide server sales have been running at around 8 million units a year i.e over one million servers annually serving the search giants

# ***Some Multimedia Challenges***

- ❑ Information representation (multimedia plus things plus context and device type)
- ❑ Extract everything from the web on a particular person, place, or thing to auto create a wikipedia entry (e.g., extract and interpret all the graphics, audio, video on a topic such as crime, disease, art)
- ❑ Summarize and/or provide real time alerting on given types of pollution on all European TV, cable, monitoring video sensors
- ❑ Extract (in real time) and interpret multimedia and multiparty communication (speech, posture, gesture)



# Sensing the City

## Where is everybody

- How busy is the city? Know when to go out
- See the top nightlife hotspots in real-time
- Find out what's there in one click
- Find out where everyone's going next

>> More info

## BlackBerry



## BlackBerry



<http://www.citysense.com/home.php>

# Location sharing world-wide



## Introducing Google Latitude



*Fred wants to hang out with his friends, and checks to see where they are.*

### See where your friends are on a map

Enjoy Google Latitude on your phone, computer, or both.

### Start using it on your phone

See your friends' locations and status messages and share yours with them.

Enter your number or visit [google.com/latitude](http://google.com/latitude) on your mobile web browser.

United States ▼

**Send a link to my phone**

Will it work with my phone?

### View it on your computer

See your friends' locations and status messages on a full screen even without a compatible phone or data plan.


[Add Latitude to iGoogle »](#)



<http://www.youtube.com/watch?v=rXGEB82oI0s>



# ***Context-Awareness from Mobile Sensors***



Microphone	⇒	audio
Cell Radio	⇒	location (100m-10km)
Bluetooth	⇒	location (10-50m)
WiFi	⇒	location (25-100m)
GPS	⇒	location (3-10m)
Camera	⇒	video
Light	⇒	light
Accelerometer	⇒	motion/force
Gyroscope	⇒	angular motion
Temperature	⇒	temperature
Pressure	⇒	altitude
Carbon Monoxide	⇒	air quality

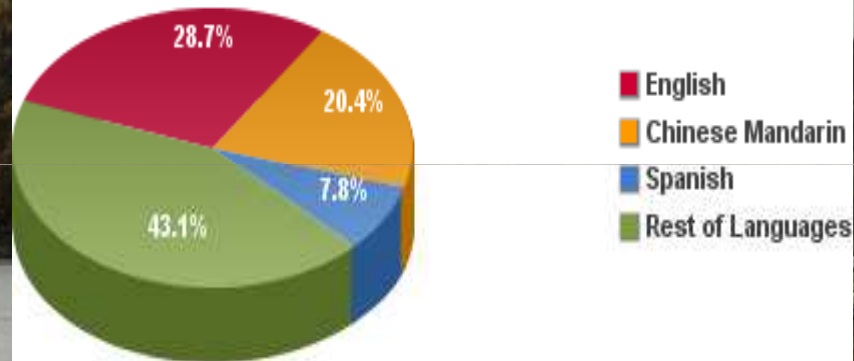


## *Some illustrations of the Internet “size”*

- ❑ Google indexed **26 Million** pages in 1998 – today it indexes **1 Trillion** pages
- ❑ There are currently **210 billion** emails per day
- ❑ In October 2008, **12.6 total billion** searches (US alone) were made
- ❑ Facebook has over **200 million** users (search within will gradually replace search outside)
- ❑ **Every minute**, 15 hours worth of video are uploaded to YouTube — the equivalent of 86,000 new full length movies every week.
- ❑ **3.7 Million** pictures uploaded every day in Flickr

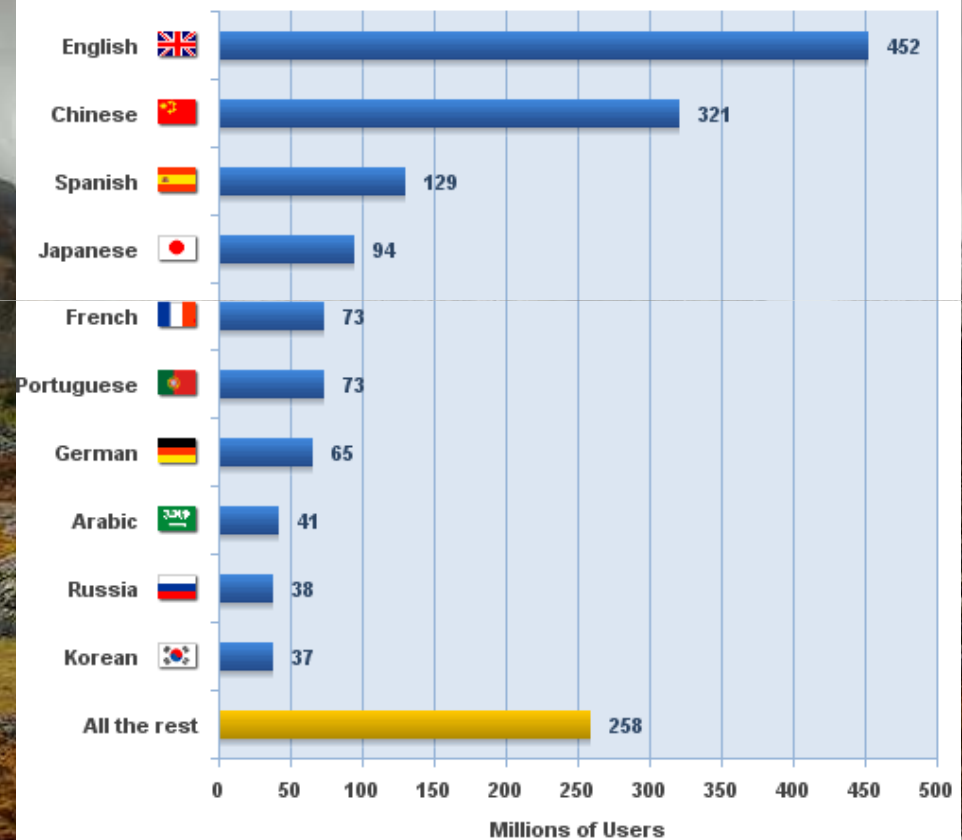
# Internet Today – The languages

## Top 3 Internet Languages



Source: Internet World Stats - [www.internetworldstats.com/languages.htm](http://www.internetworldstats.com/languages.htm)  
Based on 1,574,313,184 estimated Internet users for Dec. 2008  
Copyright © 2009, Miniwatts Marketing Group

## Top 10 Languages in the Internet millions of users

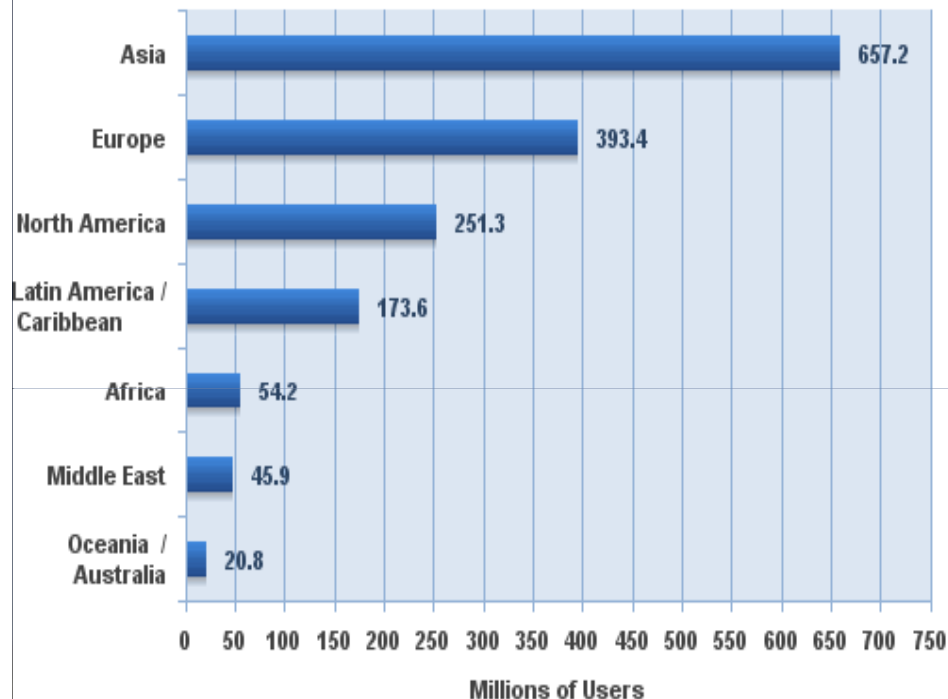


Source: Internet World Stats - [www.internetworldstats.com/stats7.htm](http://www.internetworldstats.com/stats7.htm)  
Estimated Internet users is 1,581,571,589 for 2008  
Copyright © 2009, Miniwatts Marketing Group

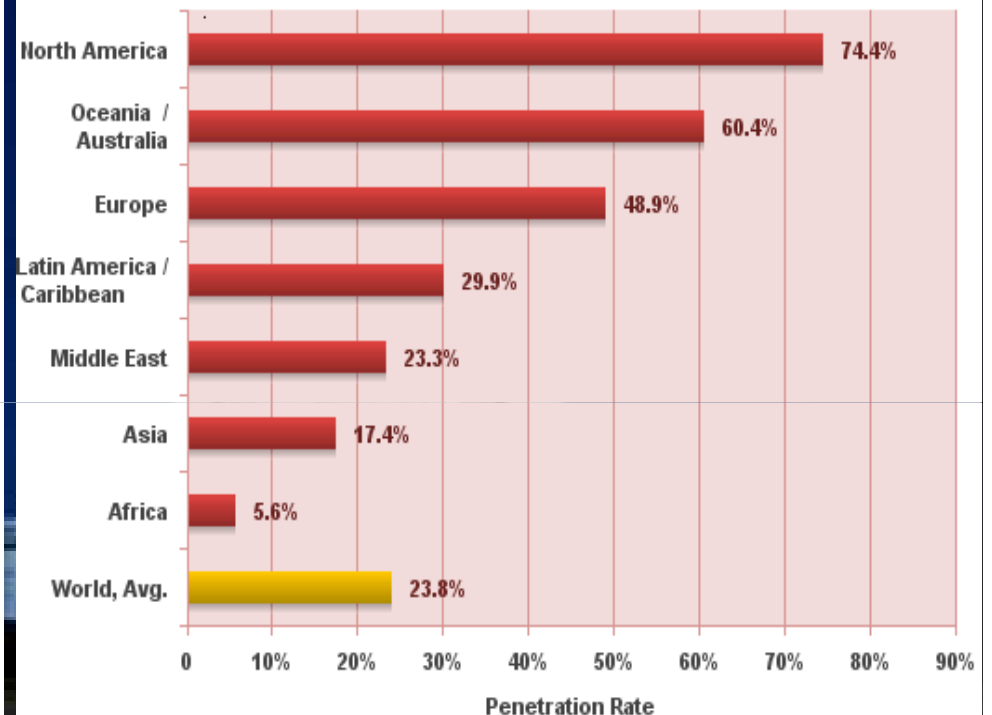


# Where will the users come from?

Internet Users in the World  
by Geographic Regions



World Internet Penetration Rates  
by Geographic Regions

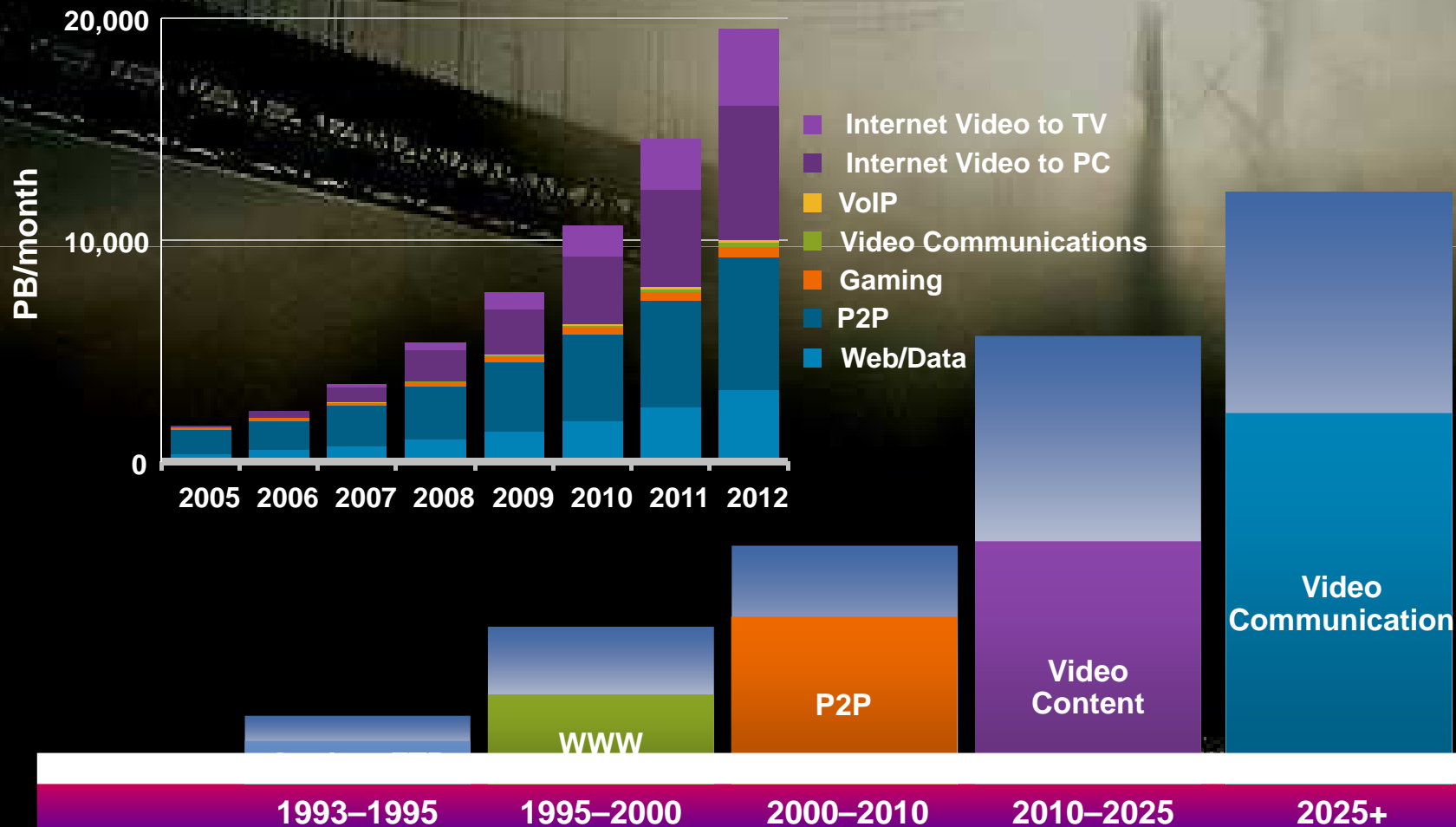


1500 million people use the web...but less than one **hundred** sites reach more than 90% of the worldwide audience and less than **ten** reach more than 93%

Internet titans dominate... and mostly from US

# *Video will be Nearly 50% of traffic by 2012*

41% CAGR 2007-2012

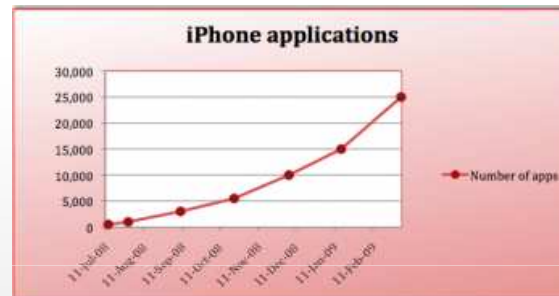


Source: Cisco Visual Networking Index – Forecast, 2007-2012



# *The speed and the dynamics of change*

40000 Applications end of April 2009



956,416,092

We're about to hit a billion.

Join the celebration. Download any app and you automatically get the chance to win a \$10,000 iTunes Gift Card, an iPod touch, a Time Capsule, and a MacBook Pro.



As of today, nearly one billion apps have been downloaded around the globe. So we just want to say thanks — a billion. Download an app and you'll automatically get the chance to win a \$10,000 iTunes Gift Card, an iPod touch, a Time Capsule, and a MacBook Pro. Just go to the iTunes Store, browse the App Store, and download your best app yet.

[Enter to win without purchase\\*](#) | [Official Rules\\*\\*](#)

[View the all-time top 20 apps](#)

Economies of scale being replaced by markets of one

Real-time service adaptation

Mobile Internet on the rise (1 billion users out of 5 billion mobile subscribers by 2012)

# ***A massive new Internet will emerge***

- ☐ Pervasive and massively distributed ubiquitous sensing and communications will generate new streams of data
- ☐ From the primitive networks of today will emerge a new Internet where the economy of tomorrow will be invented.
- ☐ Employment and innovation opportunities will be plenty in sectors such as energy, transport, health ...
- ☐ Information finding will play a vital role



## ***Our Ambition***

- ❑ Ensuring a greater degree of effectiveness and impact through greater R&D and industrial coordination
- ❑ Responding to the competitiveness and innovation challenges of globalization and leading economic recovery
- ❑ Facilitating trans-European collaborations between key actors, development of synergies, harmonisation of measures, creation of a strengthened single market



# ***Our Strategy***

## ☐ **WP (2011-2013)**

- ☐ **Strengthen R&D coordination (FIA +)**
- ☐ **Maintain funding levels**

## ☐ **Complement the WP with a PPP (2011 +)**

- ☐ **Reconcile technologies with applications**
- ☐ **Stimulate innovations for a networked world**
- ☐ **Commit significant funding drawn from WP**

## ☐ **Forum of Member States**

- ☐ **Best practices in the single market for FI**
- ☐ **Conceive a EU wide FI strategy**

## ***For you now is the time***

- ❑ To demonstrate that the search engines community is ready to contribute to a Future Internet where access, services and intelligence will be key
- ❑ To identify the key contributions that search engines can offer (access to relevant content/services, making sense of information and aware of content, context and user preferences, personalisation...)
- ❑ To position multimedia search as a key component of the Future Internet and to participate in the definition of the EU Future Internet actions
- ❑ To help lay the strategy that will create the foundations of an economy driven by an Internet based on innovation and creativity