



Potenzialità e limiti della Rete

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La libertà su Internet: modelli e regole
Fondazione Calamandrei
Roma, 13 Ottobre 2010



Il mondo delle comunicazioni

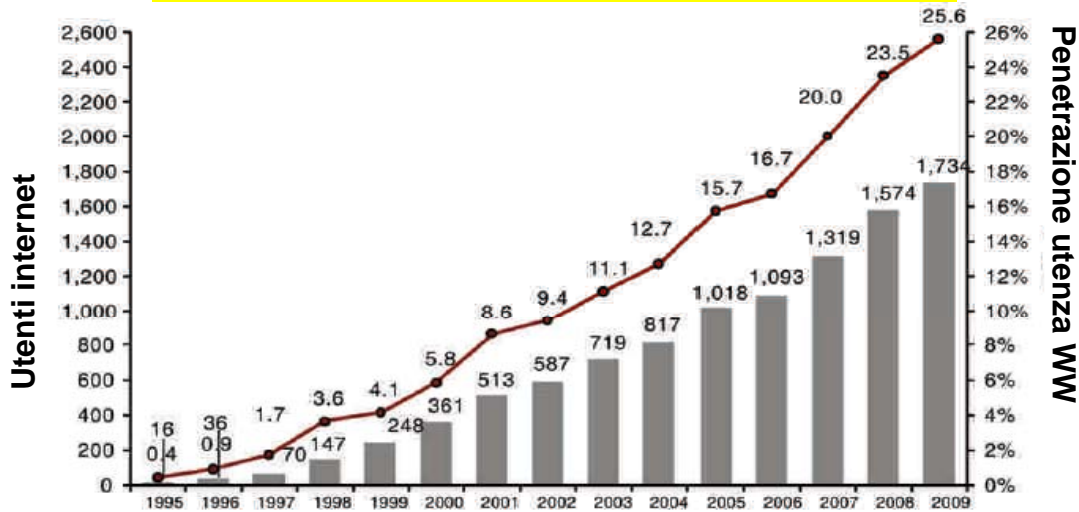


terminali personali per comunicazioni multimediali e elettronica di consumo

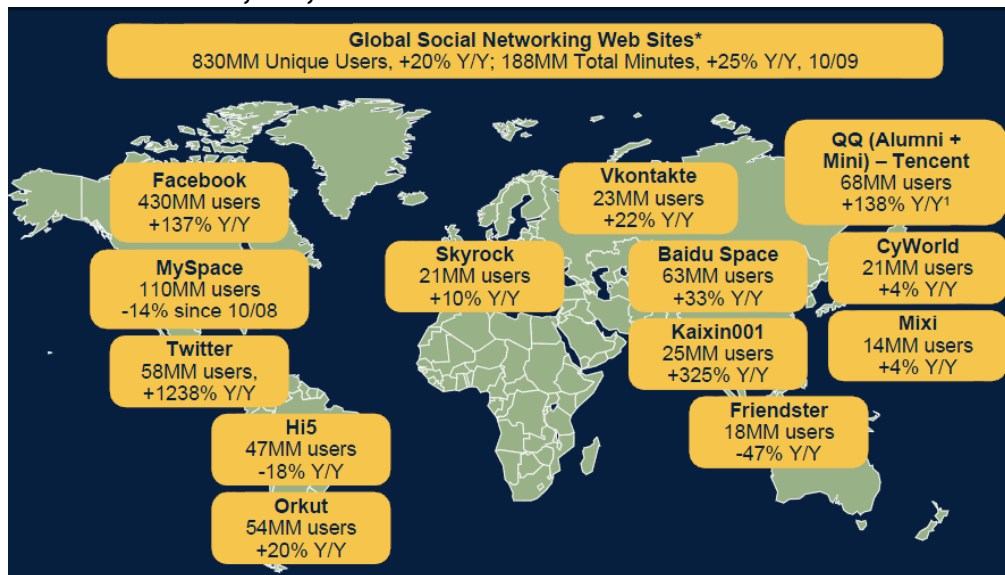


Cresce l'utilizzo di Internet

CRESCITA WW UTENTI INTERNET E PENETRAZIONE



Fonte: Nielsen, ITU, 2010



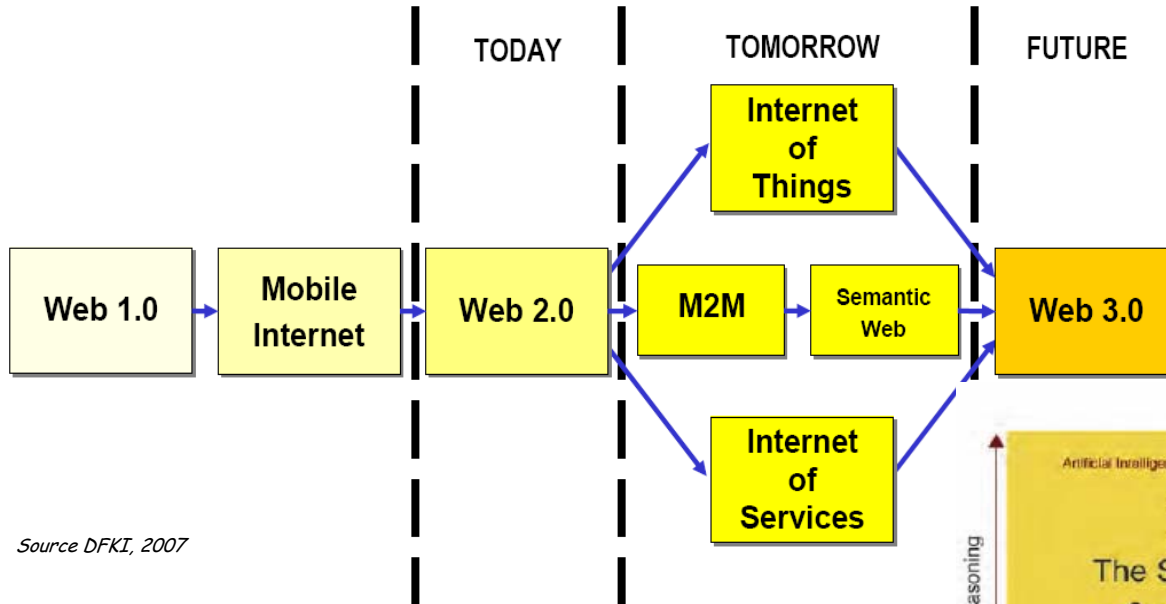
DIECI SITI PIU' VISITATI

- google.com**
Enables users to search the Web, Usenet, and images. Features include PageRank, caching and tra... [More](#)
★★★★★ Search Analytics Audience
- facebook.com**
A social utility that connects people, to keep up with friends, upload photos, share links and ... [Mo](#)
★★★★★ Search Analytics Audience
- youtube.com**
YouTube is a way to get your videos to the people who matter to you. Upload, tag and share your...
[More](#)
★★★★★ Search Analytics Audience
- yahoo.com**
Personalized content and search options. Chatrooms, free e-mail, clubs, and pager.
★★★★★ Search Analytics Audience
- live.com**
Search engine from Microsoft.
★★★★★ Search Analytics Audience
- wikipedia.org**
An online collaborative encyclopedia.
★★★★★ Search Analytics Audience
- baidu.com**
Music search engine and free MP3 & video streaming for all kind of topic.
★★★★★ Search Analytics Audience
- blogger.com**
Free, automated weblog publishing tool that sends updates to a site via FTP.
★★★★★ Search Analytics Audience
- msn.com**
Dialup access and content provider.
★★★★★ Search Analytics Audience
- qq.com**
中国最大的门户网站, 提供即时通讯、新闻资讯、网络游戏以及在线拍卖业务, ... [More](#)

Fonte: Alexa 2010

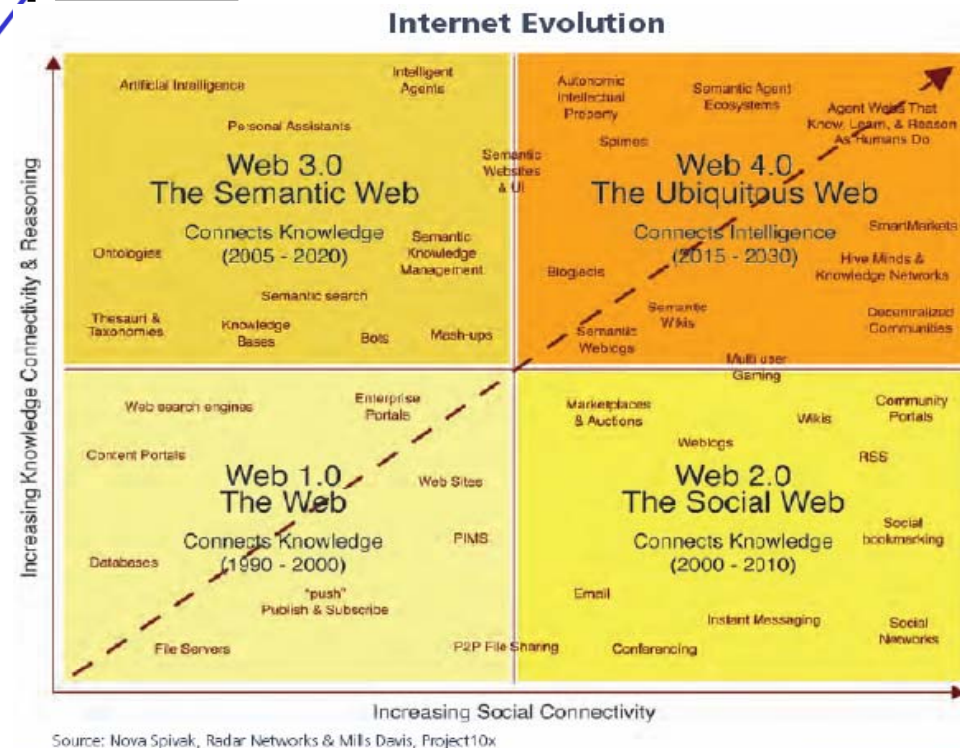


Internet del futuro



Source DFKI, 2007

- Web Services
- Social Networks
- Internet of Things (M2M)
- Semantic Web

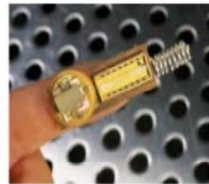




Internet delle cose



- Miniaturized cameras, microphones,...
 - pattern recognition, assisted by heuristics
 - speaker recognition, speech controlled devices
- Fingerprint sensor on mobile objects
- Radio sensors
 - without power supply
- Location sensors
 - e.g., based on GPS



POSITION
N 47°
23'17"
E 008°
34'26"

F. Ma. 38

Sensors

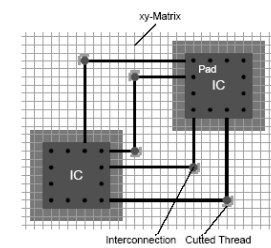
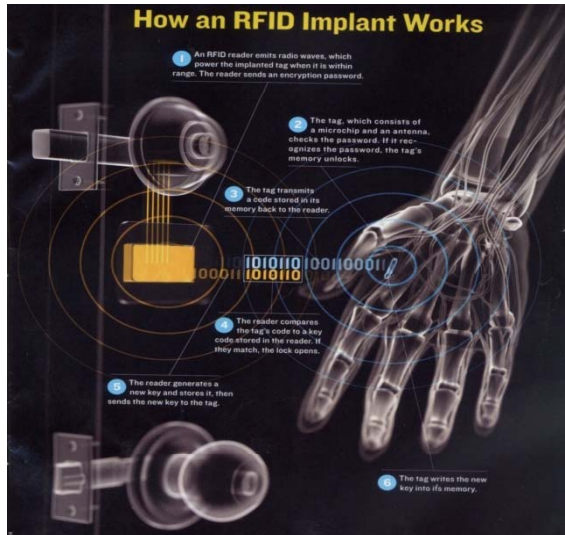
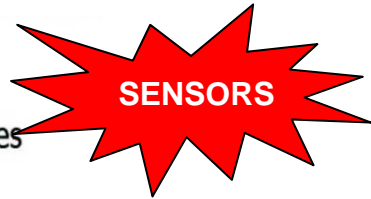


Fig. 5: xy-matrix of isolated conductive yarns, configured for IC interconnect

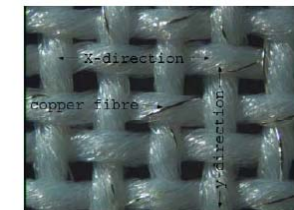
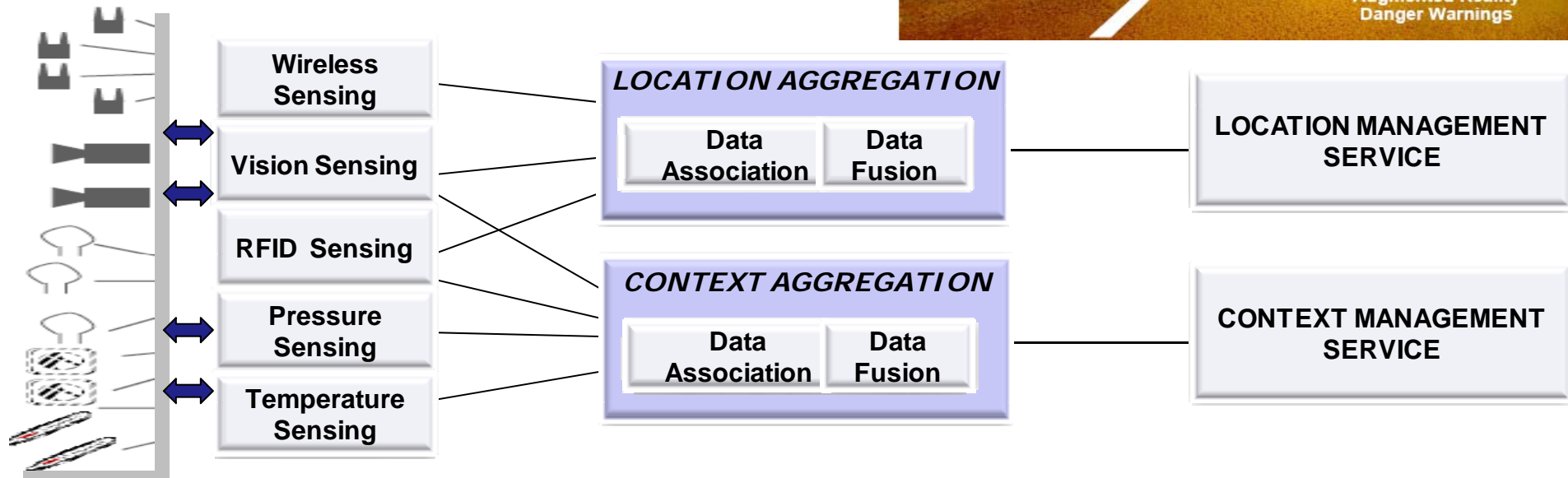
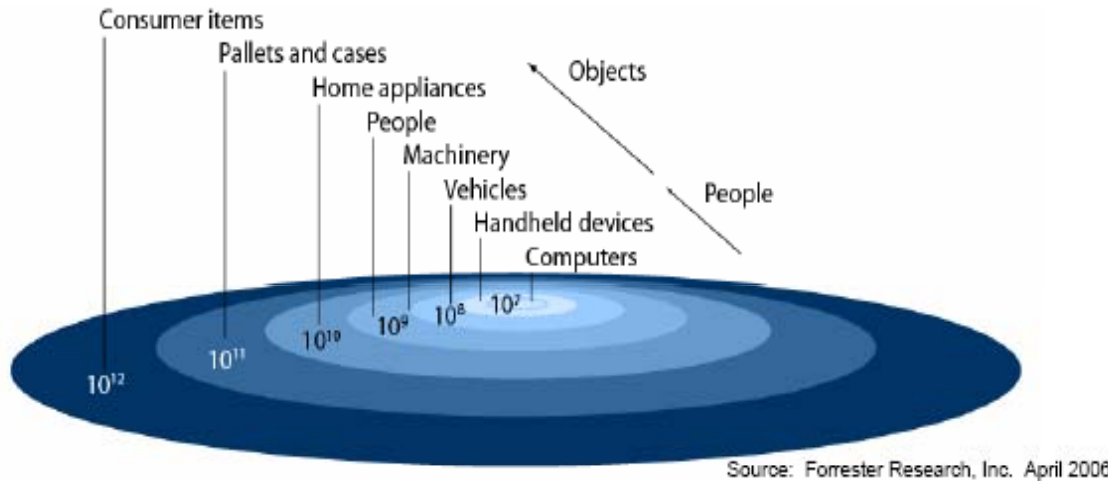


Fig. 2: Woven fabric using 230µ thick polyester (PES) yarns, twisted with a copper (Cu) filament both in x- and y-direction. The 40µ diameter copper filaments are insulated with a polyesterimide coating

Source: IEEE Spectrum, 2007



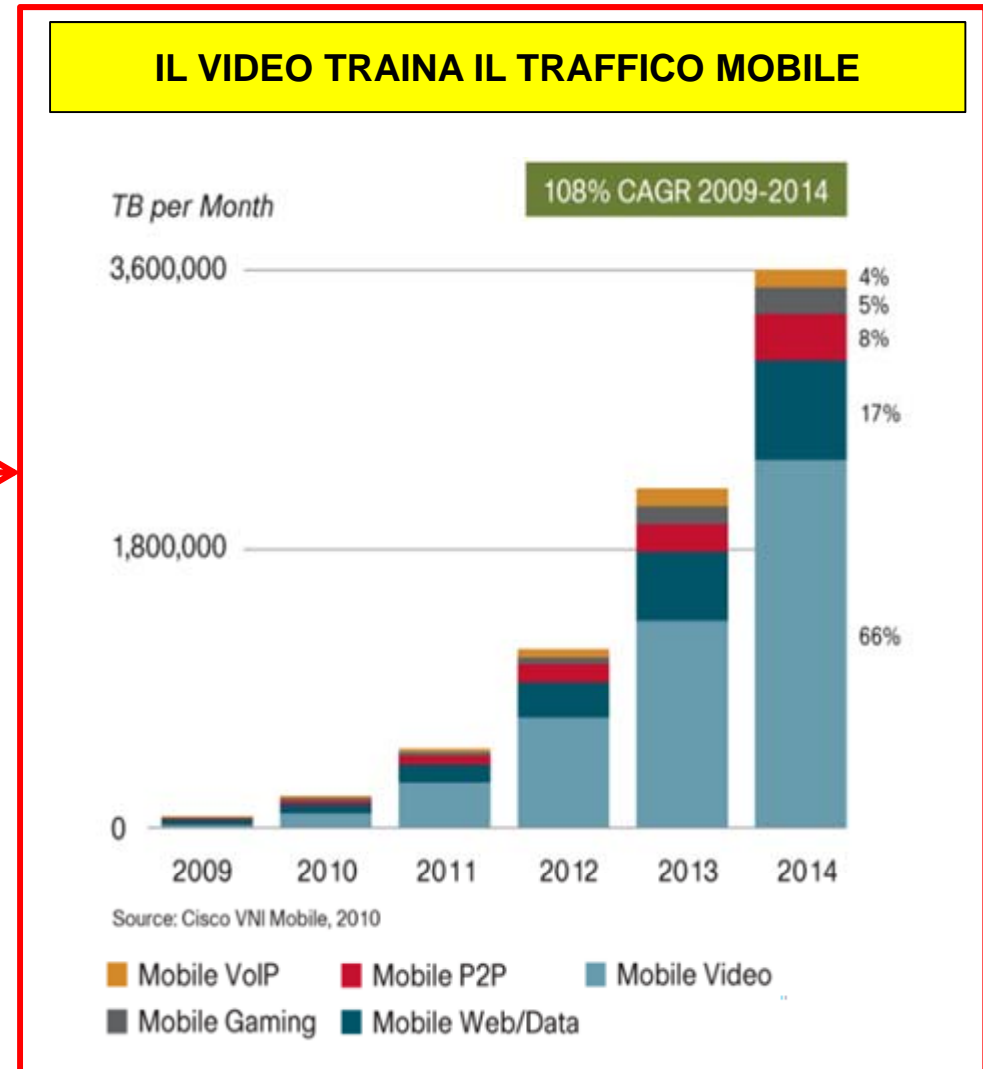
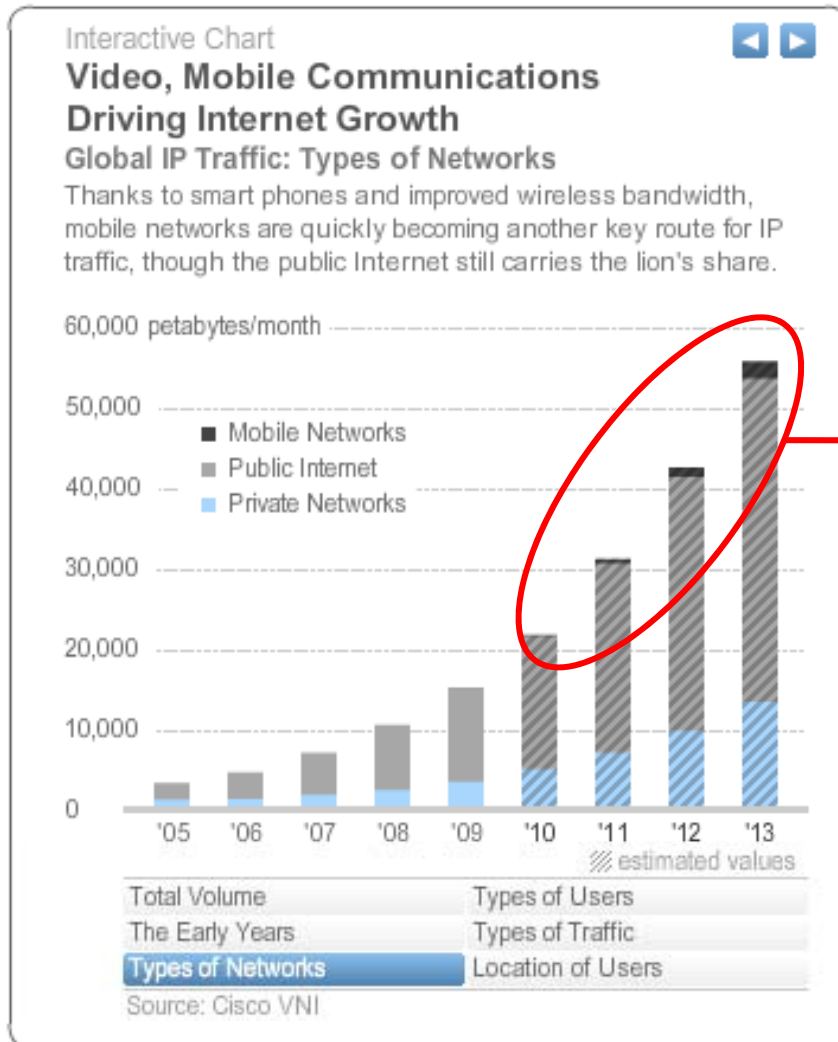
Internet delle cose e applicazioni di contesto



© M. Dècina



Il traffico cresce trainato dal video



Fonte: Cisco Visual Networking Index (VNI), 2010

© M. Dècina

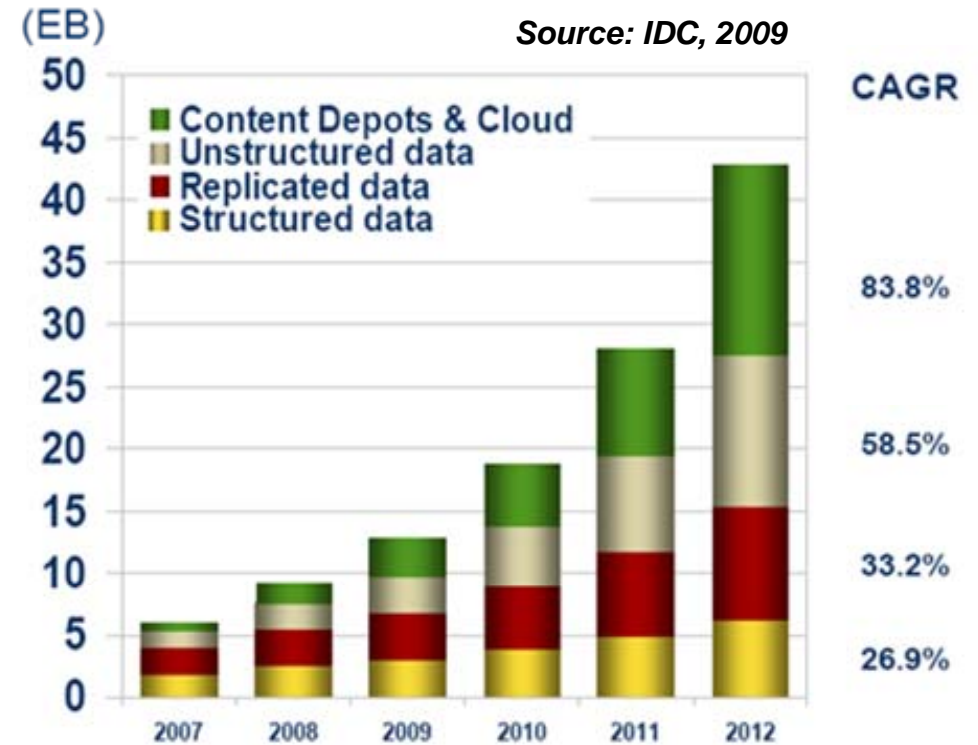
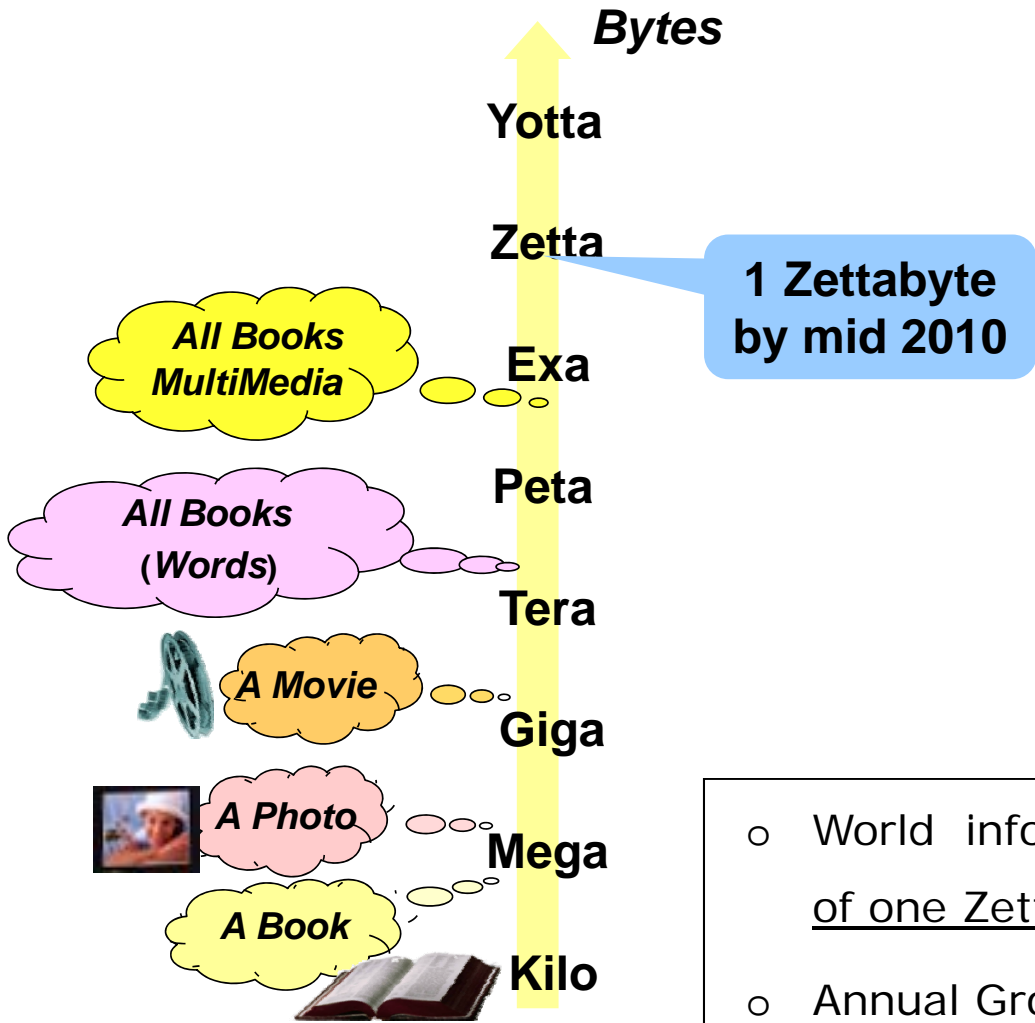
Libertà su Internet: modelli e regole, Roma, 13 Ottobre 2010



Crescita delle informazioni

WORLD INFORMATION

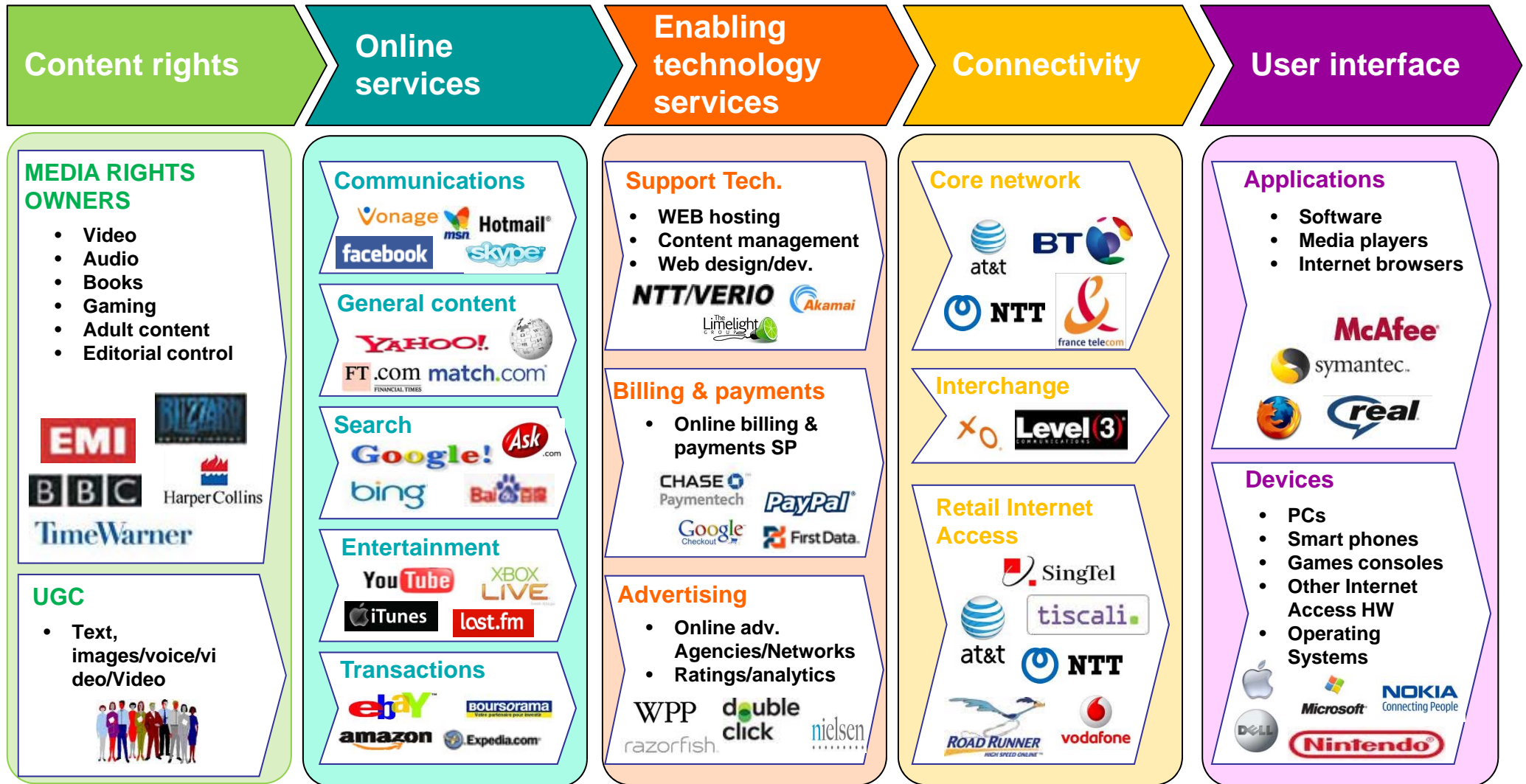
ENTERPRISE STORAGE



- World information content estimated in the order of one Zettabyte by mid Year 2010
 - Annual Growth ~ 50%
- Source: IDC for EMC, 2010



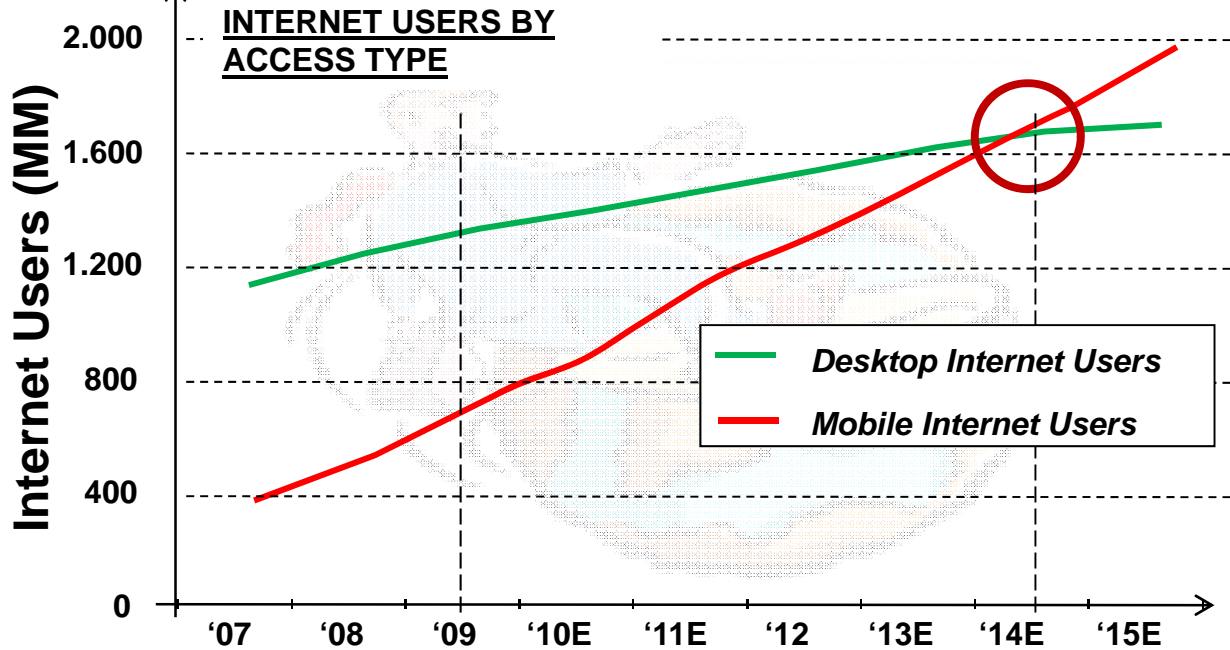
Internet Value Chain



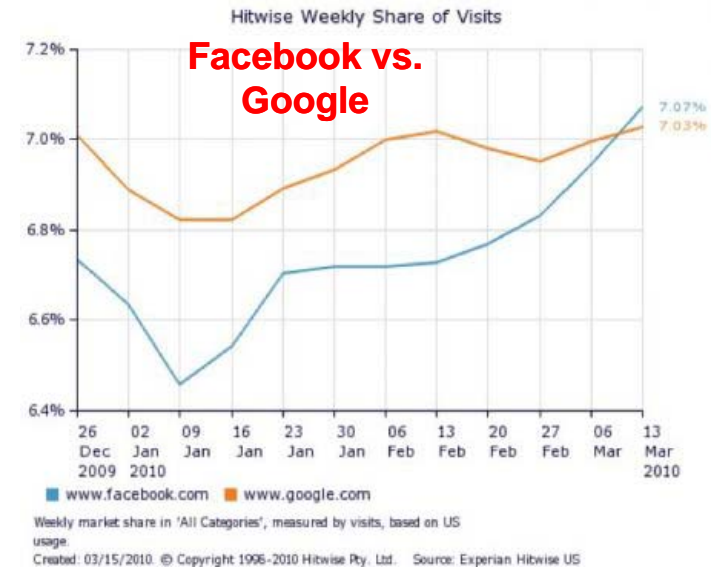
Source: AT Kearney, 2010



Users change their habits



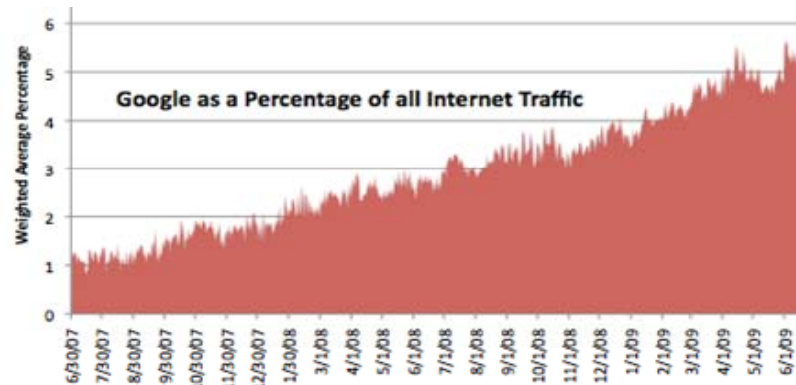
Source: Morgan Stanley 2010



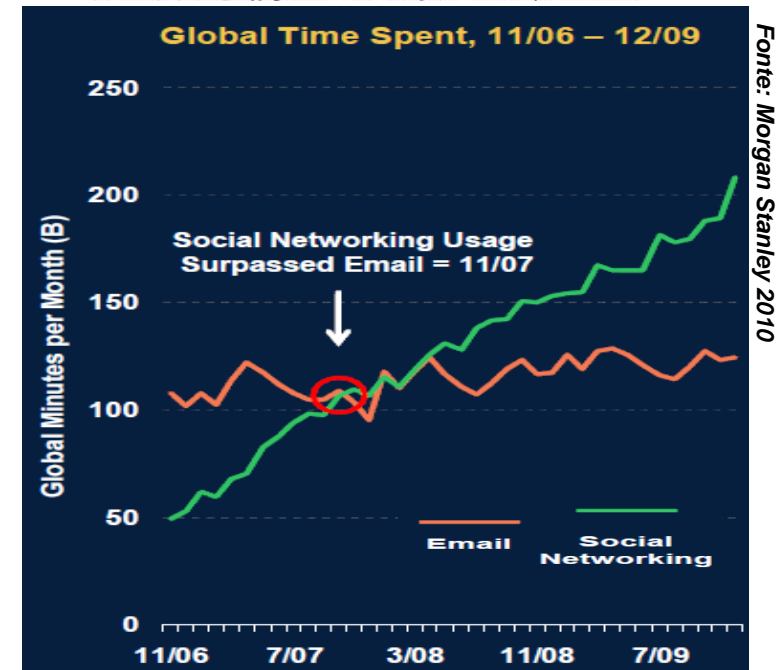
Weekly market share in 'All Categories', measured by visits, based on US usage.

Created: 03/15/2010. © Copyright 1996-2010 Hitwise Pty. Ltd. Source: Experian Hitwise US

"[...] we estimate Google contributes somewhere between 6-10% of all Internet traffic globally"



Source: <http://asert.arbornetworks.com>, 2009



Fonte: Morgan Stanley 2010



Consumerization of IT

A new user experience ...

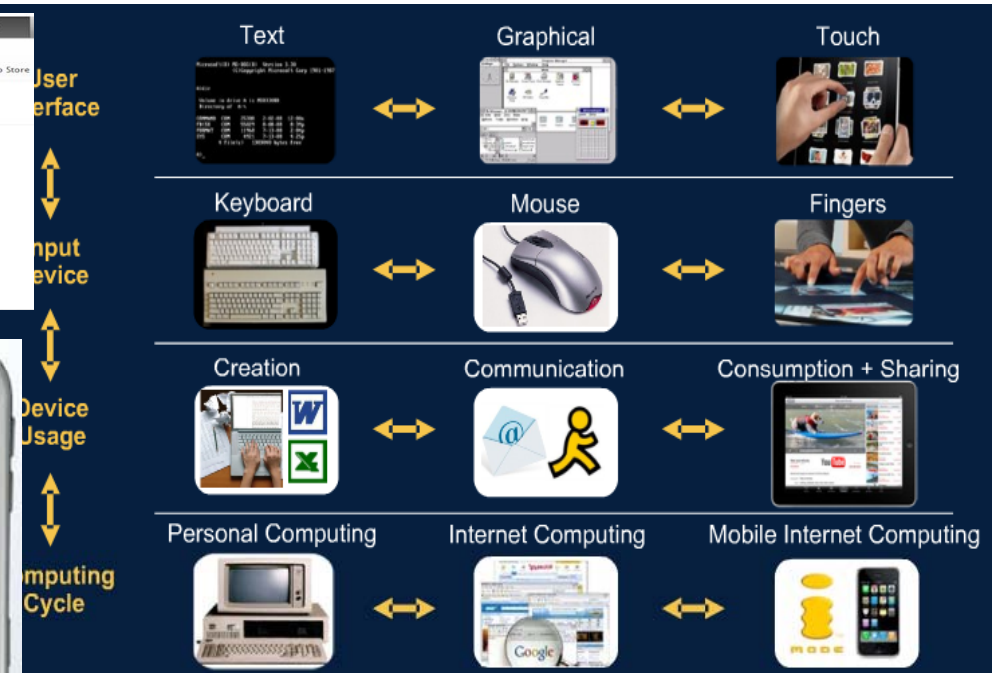
- Users are experiencing a shift in how they consume information

ACCESS & TERMINALS



BIZ MODEL

SERVICES



Source: Morgan Stanley, 2010


































Target: import the winning consumer model in the Enterprise

- New enterprise applications will follow a similar consumption model
 - "Apple store" like



Mobile Cloud Computing

MUSICA  **VIDEO**  **APPS/DOC**  **FOTO**  **VOICE** 

       	        	    	    	       
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Chi guida il mondo Consumer?



UNIFIED DIGITAL LOCKER

Chi guida il mondo Business?

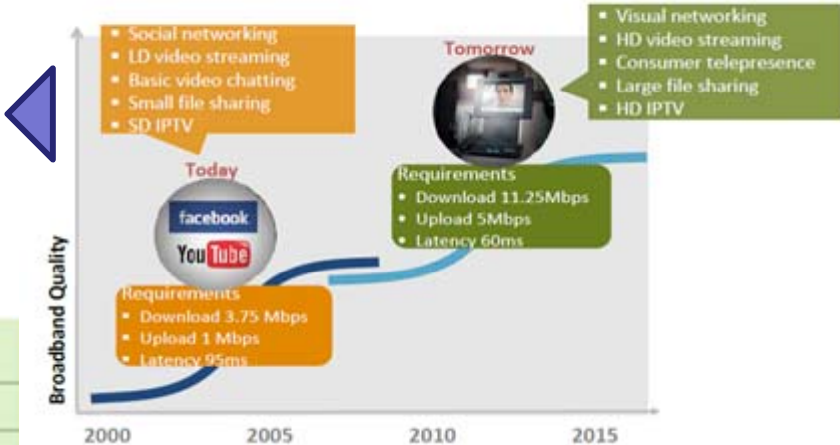




Internet challenges – fixed bandwidth

WIRED TECHNOLOGIES - THE BIG PICTURE

Traffic growth challenges networking capabilities
Are networks future-proof?



BROADBAND QUALITY INDEX

2009

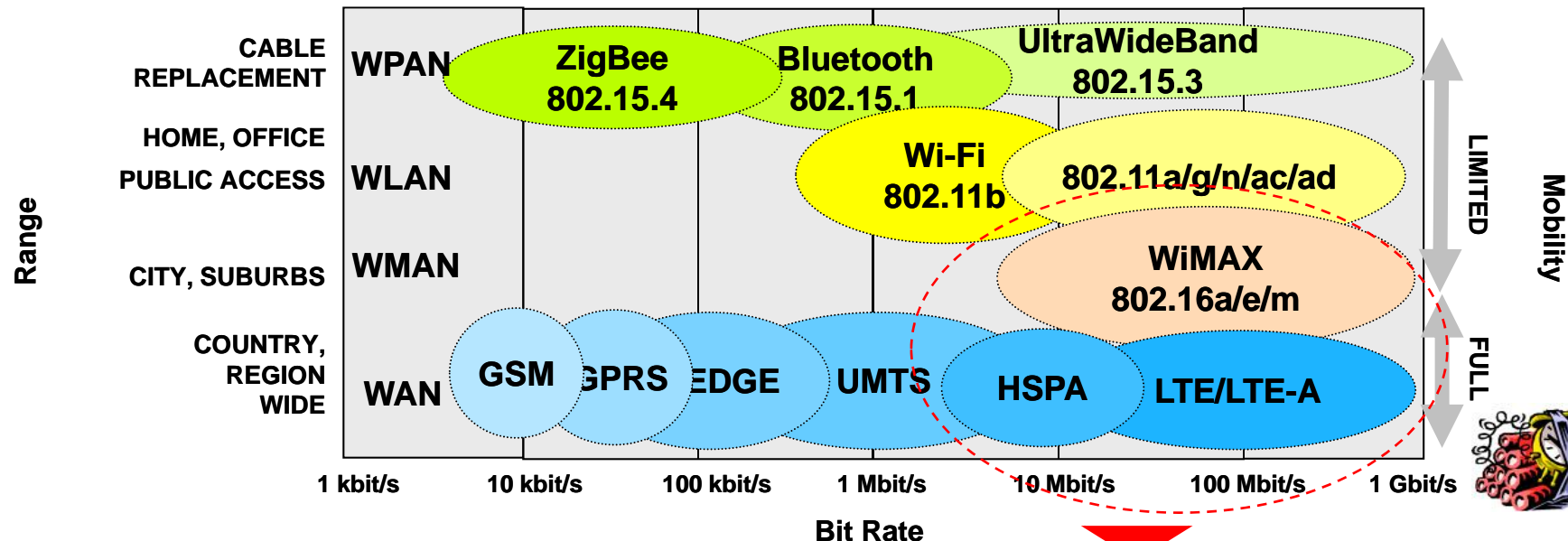


Source: Cisco, University of Oxford and University of Oviedo, 2009



Internet challenges - mobile bandwidth

WIRELESS TECHNOLOGIES - THE BIG PICTURE



- Mobile networks are not designed for emerging traffic loads
- Deep and costly network transformations needed for base stations backhauling
- Spectrum is a scarce resource: need to increase the amount of frequencies available (e.g. use the Digital Dividend), as well as to constantly improve efficiency





Potenzialità e limiti della Rete

- **Potenzialità**

- Social Networks
- Semantic Web
- Internet of Things
- Ambient intelligence
-

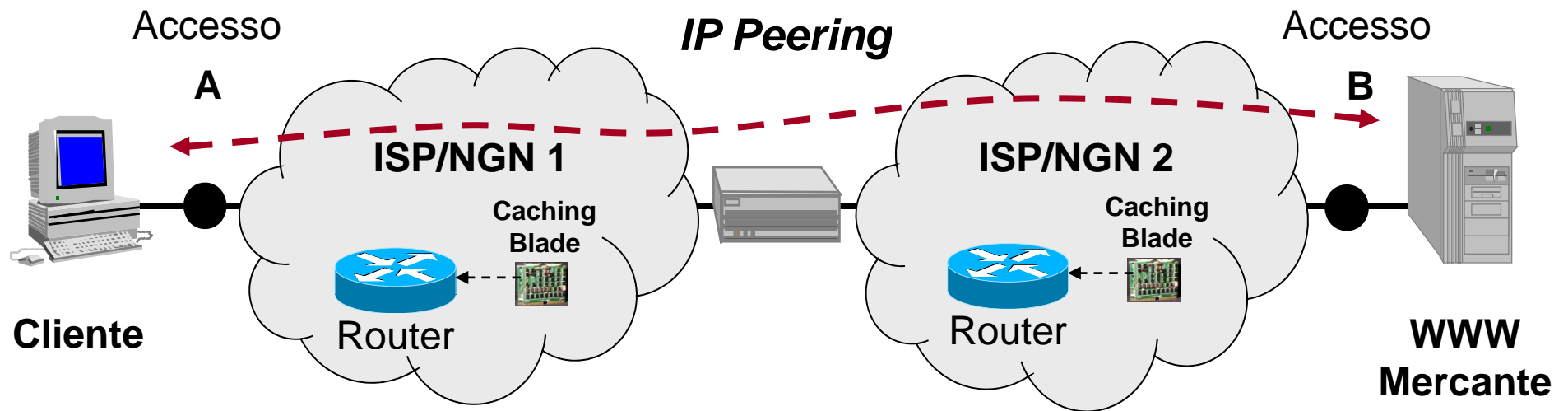
- **Limiti**

- Privacy
- Security, Frauds,
- Intellectual Property
- Soliciting Minors
-



Network Neutrality Scenario

Scenario Multiple Carriers



e2e-QoS: end-to-end Quality of Service?

Net neutrality: all bis are created equal!



Net Neutrality Issues

traffic handling tools	
traffic capping	data, time
traffic shaping	throughput, data, delay
traffic blocking	packets, applications
traffic handling objectives	
traffic management	routing, congestion, fairness, malicious users
managed services	QoS differentiation
pricing policies	flat, data, time, application, QoS

all bits of traffic are created equal, but:

1. Traffic management must be applied to maintain control of network congestion and outages, and to guarantee fairness, security and privacy to the users
2. Managed services allow flexible/agile market propositions, and stimulate innovation, competition and investments
3. Flexible pricing stimulates market innovation, competition and investments



Gestione del traffico in Internet

Traffic management applicato soltanto durante i periodi di congestione

Blocco del traffico illegale: spam, hacking, contenuti illegali, ecc.

Offerta servizi con priorità/qualità e prezzo differenziato: managed services

Gestione del traffico in Internet (Ofcom 2010)

Best efforts
- no traffic management
- no priority

Offerta gratuita
priorità a voce, video, giochi, ecc.

Degradazione /ritardo per certi tipo di traffico, ad es. P2p

Blocco di contenuti o applicazioni, ad es. servizio lptv rivale

