# Challenges in a Networked World

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# The Information Overload

private, corporate or public sources

...ng and indexing are key issues

...ivalent in size to the information

...ries the size of the Library of Congress

...llections

**Price per Megabit of DRAM (Euros)**

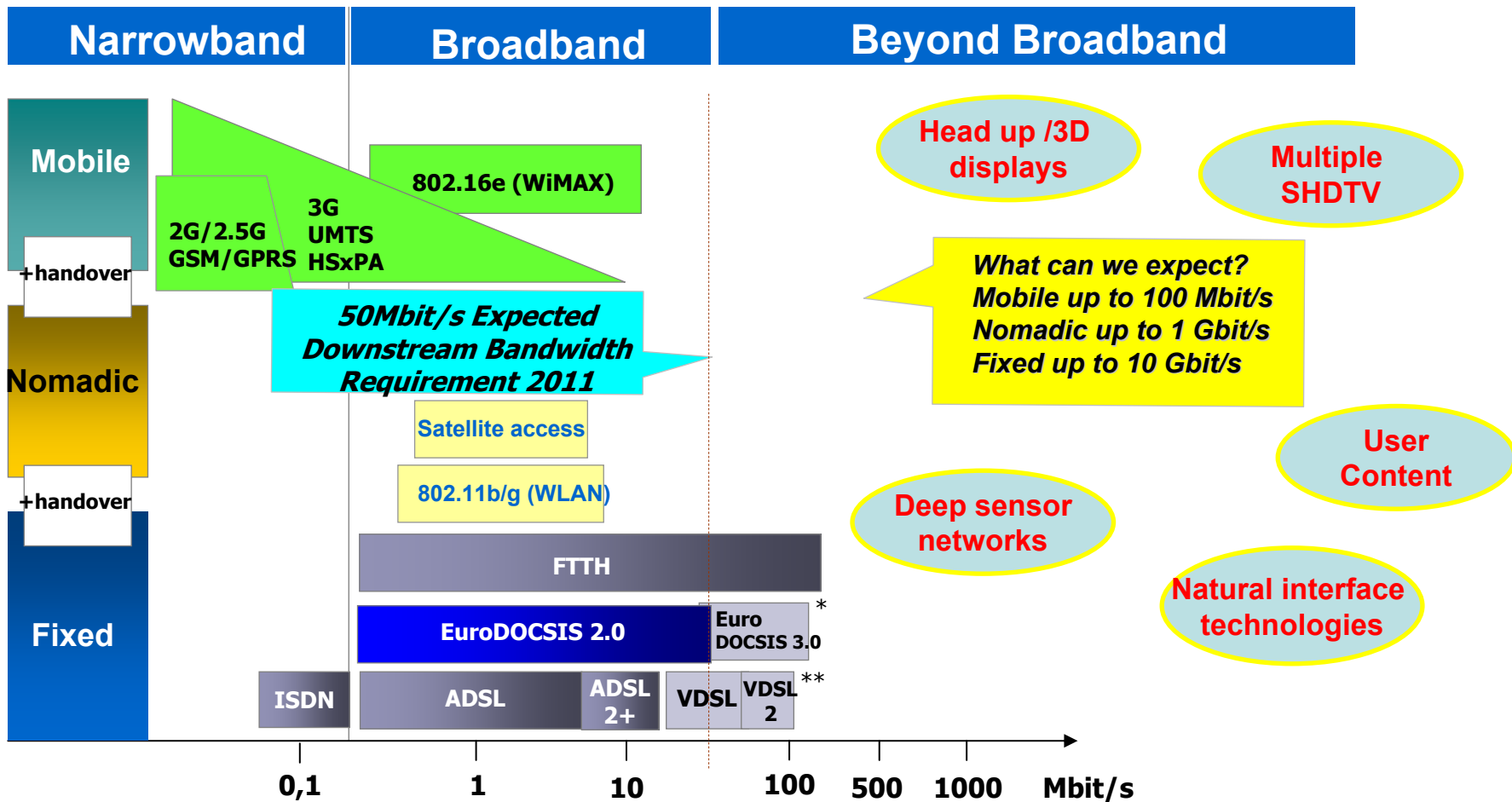| Year | Price |
|------|-------|
| 1973 | *75,000* |
| 1977 | *5,000* |
| 1981 | *400* |
| 1984 | *130* |
| 1987 | *20* |
| 1990 | *7* |
| 1995 | *3* |
| 2001 | *0.08* |
| 2005 | *0.03* |
| 2017 | *0.01* |

**Google storage capacity, spread over 450000 servers, is estimated to be of the order of 200 Petabytes, handling 100 Million queries a day with a total throughput of 3 petabits per second**

| | | | |
|---|---|---|---|
| | 1,200 | 210 | 55% |
| 51 | 81 | 29 | 28% |
| 81 | 3,212,731 | 2,132,238 | 69% |

**Migrating to digital media**

The Large Hadron Collider (CERN) will produce 5 petabytes/year

# Broadband Access



| Narrowband | Broadband | Beyond Broadband |

**Mobile**

+handover

**Nomadic**

+handover

**Fixed**

2G/2.5G GSM/GPRS

3G UMTS HSxPA

802.16e (WiMAX)

**50Mbit/s Expected Downstream Bandwidth Requirement 2011**

Satellite access

802.11b/g (WLAN)

FTTH

EuroDOCSIS 2.0

Euro DOCSIS 3.0 *

ISDN

ADSL

ADSL 2+

VDSL

VDSL 2 **

Head up /3D displays

Multiple SHDTV

**What can we expect? Mobile up to 100 Mbit/s Nomadic up to 1 Gbit/s Fixed up to 10 Gbit/s**

Deep sensor networks

User Content

Natural interface technologies

0,1   1   10   100   500   1000   Mbit/s

*)   future EuroDOCSIS 3.0: max 200Mbit/s downstream, 100Mbit/s upstream;
**)   future VDSL2: max 100Mbit/s downstream and 100Mbit/s upstream;

Source: Arthur D. Little Analysis, UPC, KPN

Weblogs Cumulative: March 2003 - July 2006

50 Million Weblogs Tracked (July, 2006)
Doubling in size about every 6 months for the past 3 years

The Blogosphere is over 100 times bigger than it was 3 years ago, when Technorati was incorporated.