



# Technology evolution

# Technologies evolution with power reserve

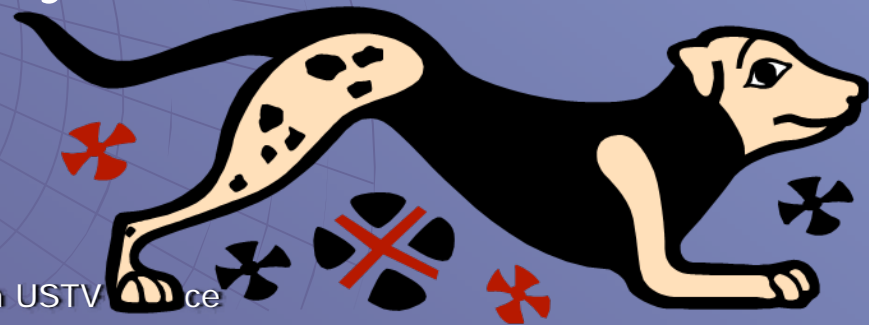
- ◆ "Moore's law" 1965:
  - the capacity of the electronic components doubles every 18 months
  - for more than 35 years this law has been respected
  - multiplication of the capacities by 10.000.000
  - at about constant price
- ◆ "Machrone's law":
  - the machine which you need costs always less than 5000\$

# In all the fields...

- ◆ computing power
  - ◆ 10GigaHz microprocessors
- ◆ storage capacities
  - ◆ main memories (RAM)
  - ◆ Hard disks or CDROM
- ◆ flows in optical fibres and "routers"
  - ◆ flow of information
- ◆ consequence: the fantastic internet explosion

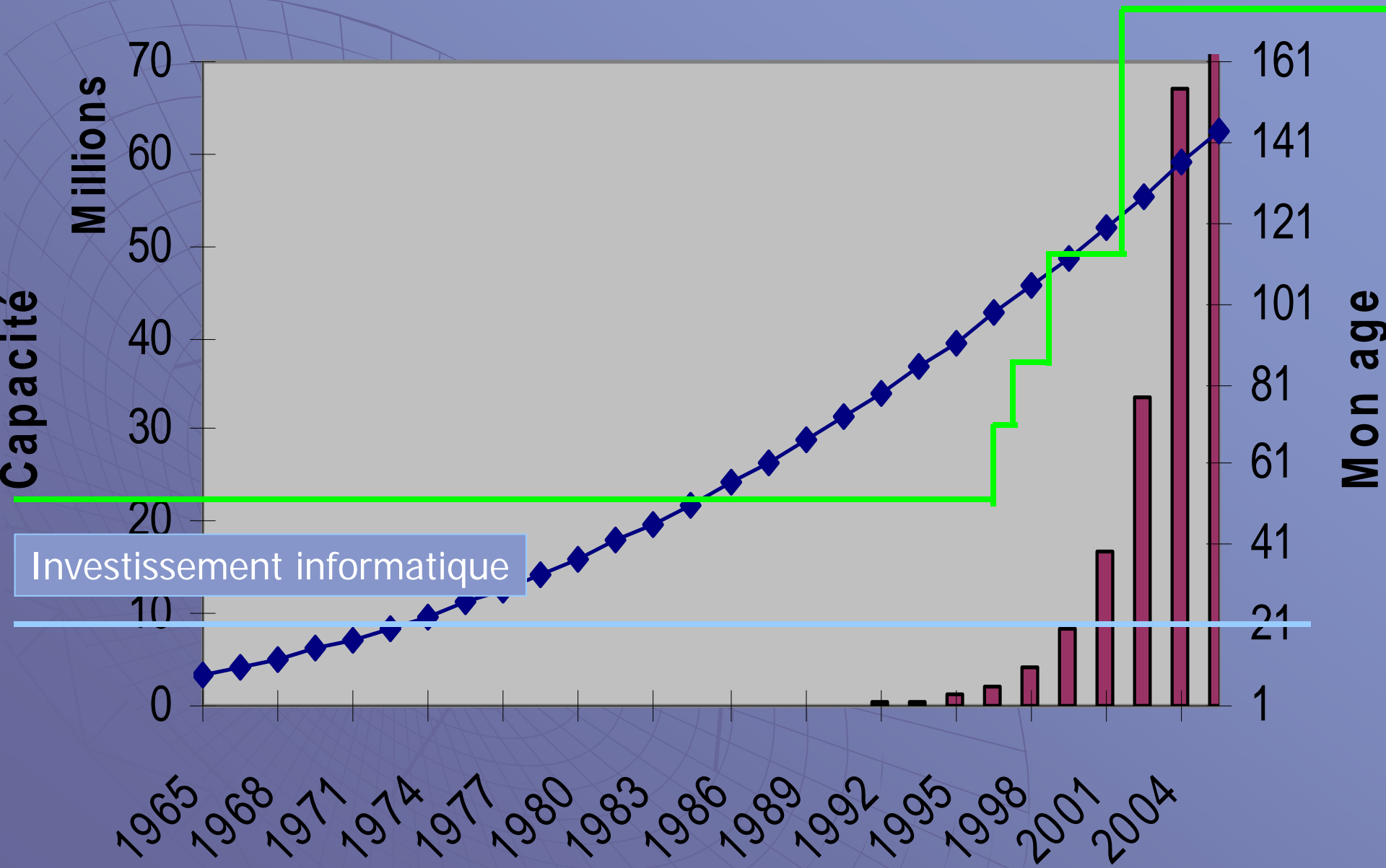
## the "dog's years"

« A real year contains seven of them »



# Moore's and Machrone's laws

Saut Technologique



Investissement informatique

# Compacting the time

- ◆ 1945 Vannevar Bush : electromechanical hypertext model
- ◆ 1960 Ted Nelson : hypertext
- ◆ 1971 L. Pouzin, INRIA (Fr):
  - « datagram » : packet transmission
  - Ray Tomlinson : e-mail
- ◆ 1990 Tim Berners-Lee (CERN)
  - World Wide Web (WWW) et (HTML)
- ◆ 1994-1995 : business use of the internet
  - At first: e-commerce et gateways (Yahoo!, Amazon.com, ...)
- ◆ 2000 American project: new generation Internet

Internet: major geopolitical strategic stake of which it is  
advisable to preserve the leadership (not soldier)

Contents or container? comparable evolution with that of the writing

- ◆ The invention of the alphabet ( $a=A$ ;  $b-a=ba$ ) was only one "convention" which allowed to :
  - capitalize knowledge (science and culture)
  - exchange the ideas in space (between continents) and in time (between generations)
  - develop the trade
  - lay down legal provisions, contracts, "scriptural" currency
  - upset the social and economic organization deeply...
- ◆ It is impossible to reduce the invention of the writing
  - ◆ with the advertising display and the mail order trading
- ◆ So
  - Why reduce E-business to the electronic trade?
  - Why compare Internet to the "contents" which it gives access

Standard for transaction allowing the emergence of a new organization of the economy and society

# Science fiction ??...

- ◆ This "phenomenon" does not reach only Internet.
- ◆ Bionics: graft of memory "silica" in the human brain (2030).  
When will one graft a "full" memory silica?
- ◆ Digital cave of the USP (to become family)
- ◆ Primary school without professors (Belgium)
- ◆ The first long distance "Maitrise" in France on electronic medium (1997)
- ◆ Certificate of European level of knowledge (electronic)

Paradigms change

The richest companies are those of the immaterial one