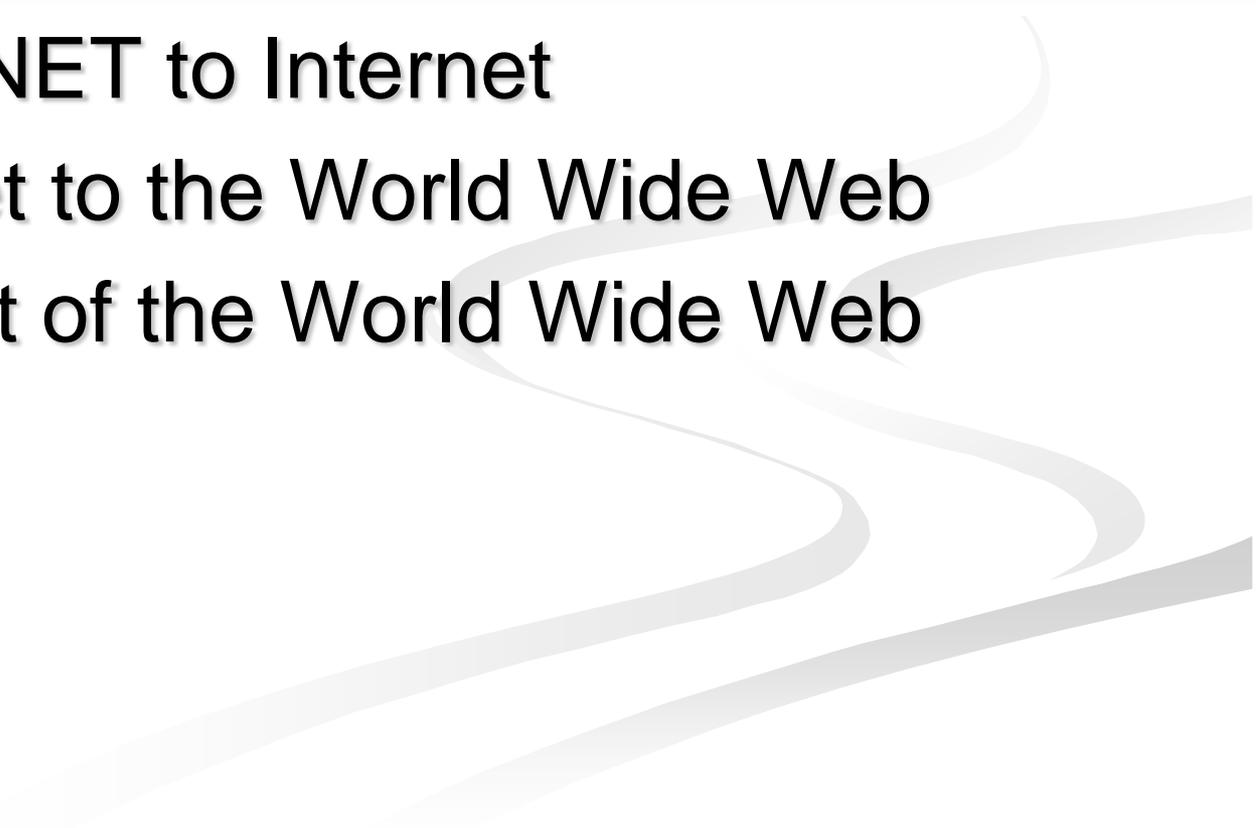# History of Internet

MCS 406: Internet and Web Technology

M.Sc. Computer Science (IV Sem.)

UNIT I

B. D. Gupta, PhD

Content

- Introduction
- Creation of ARPANET
- From ARPANET to Internet
- From Internet to the World Wide Web
- Development of the World Wide Web
- Questions

Creation of ARPANET (1)

- 1957 – USSR launched Sputnik I
  United States were shocked
- Advanced Research Projects Agency
  - Thechnological think-tank
  - Space, ballistic missiles and nuclear test monitoring
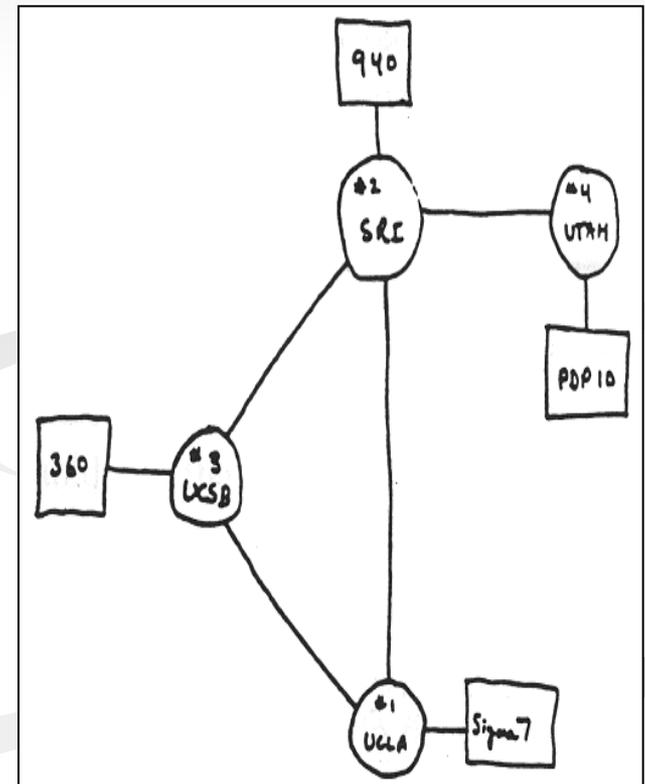 - Communication between operational base and subcontracters

Creation of ARPANET (2)

- 1962 – computer research program
  - Leaded by John Licklider (MIT)
  - Leonard Kleinrock published his first paper on packet-switching theory
- 1965 – first "wide area network" created
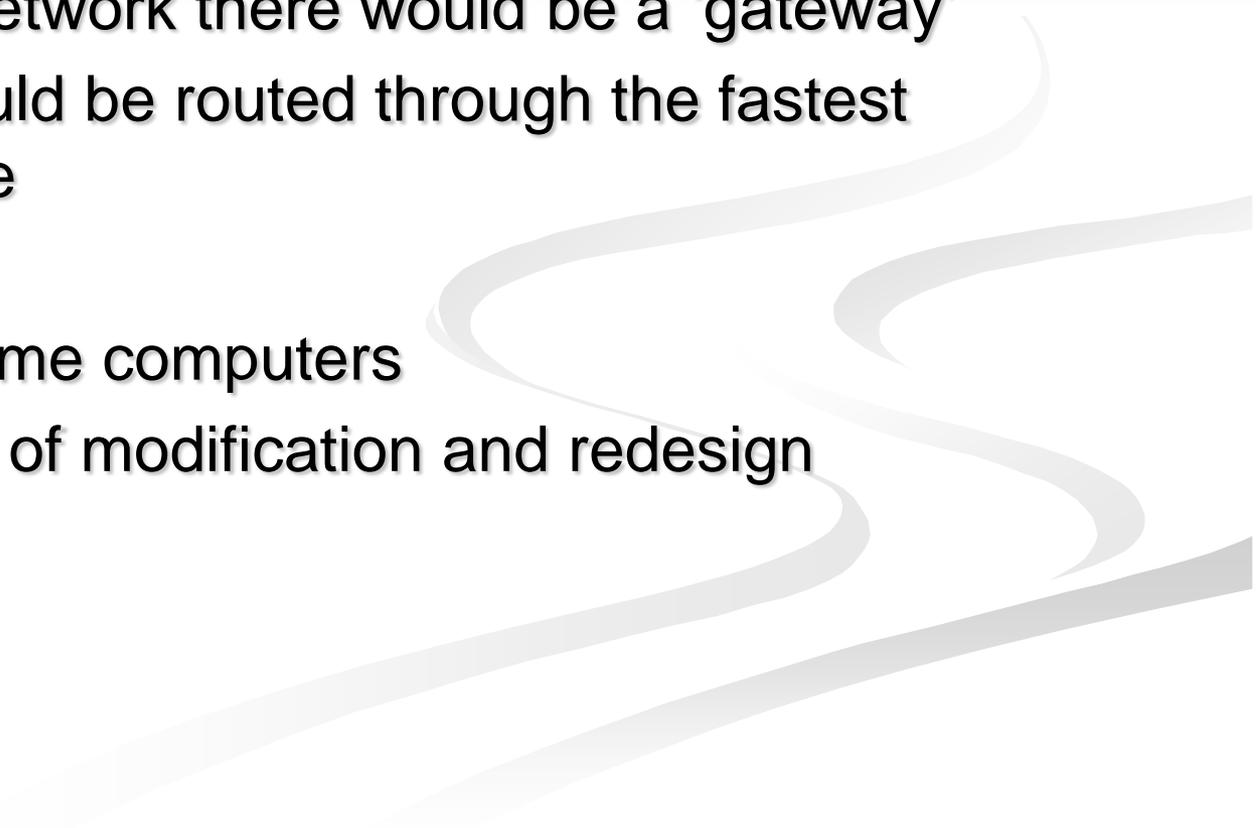 - Connection between Berkeley and MIT

Creation of ARPANET (3)

- 1967 – plans for ARPANET were published
  - MIT – NPL (UK) – RAND
- 1969 – Interface Message Processor (IMP)
  - 4 computers (UCLA, SRI, UCSB and UTAH)
- 1971 – 23 host computers (15 nodes)

From ARPANET to Internet (1)

- 1972 – ARPANET went 'public'
  - ICCC
  - First program for person-to-person communication (e-mail)
- 1973
  - 75% of all ARPANET traffic is e-mail
  - First international connection (University College of London)

From ARPANET to Internet (2)

- 1974 – TCP/IP
  - Each network should work on its own
  - Within each network there would be a 'gateway'
  - Packages would be routed through the fastest available route

  - Large mainframe computers
  - Several years of modification and redesign

From ARPANET to Internet (3)

- 1974/1982 – Networks launched
    - Telenet – first commercial version of ARPANET
    - MFENet – researchers into Magnetic Fusion Energy
    - HEPNet – researchers into High Energy Physics
    - SPAN – space physicists
    - Usenet – open system focusing on e-mail and newsgroups
    - Bitnet – university scientists using IBM computers
    - CSNet – Computer Scientists in universities, industry and government
    - Eunet – European version of the Unix network
    - EARN – European version of Bitnet

From ARPANET to Internet (4)

- 1974/1982
  - Very chaotic
  - Different competing techniques and protocols
  - ARPANET is still the backbone

- 1982 – The internet is born using the TCP/IP standard

From Internet to WWW (1)

- System expands
  - Advances in computer capacities and speeds
  - Introduction of glass-fibre cables
- Problems created by its own success
  - More computers are linked (1984 – 1000 hosts)
  - Large volume of traffic (success of e-mail)

- 1984 – Introduction DNS

From Internet to WWW (2)

- Use of internet throughout the higher educational system
    - British government – Joint Academic Network
    - US National Science Foundation – NSFNet

- NSFNet
    - Use of TCP/IP
    - Federal Agencies share cost of infrastructures
    - NSFNet shared infrastructure
    - Support behind the 'Internet Activities Board'
    - NSFNet provided the 'backbone'

From Internet to WWW (3)

- NSFNet
  - broke the capacity bottleneck
  - encouraged a surge in Internet use
    - 1984 – 1,000 hosts
    - 1986 – 5,000 hosts
    - 1987 – 28,000 hosts
    - 1989 – 100,000 hosts
    - 1990 – 300,000 hosts
  - encouraged the development of private Internet providers

- Commercial users

From Internet to WWW (4)

- 1990 – ARPANET was wound up
- 1990 – first search-engine (Archie)
- 1991 – NSF removed restrictions on private access
- "Information superhighway" project

The World Wide Web (1)

- 1989 – WWW concept
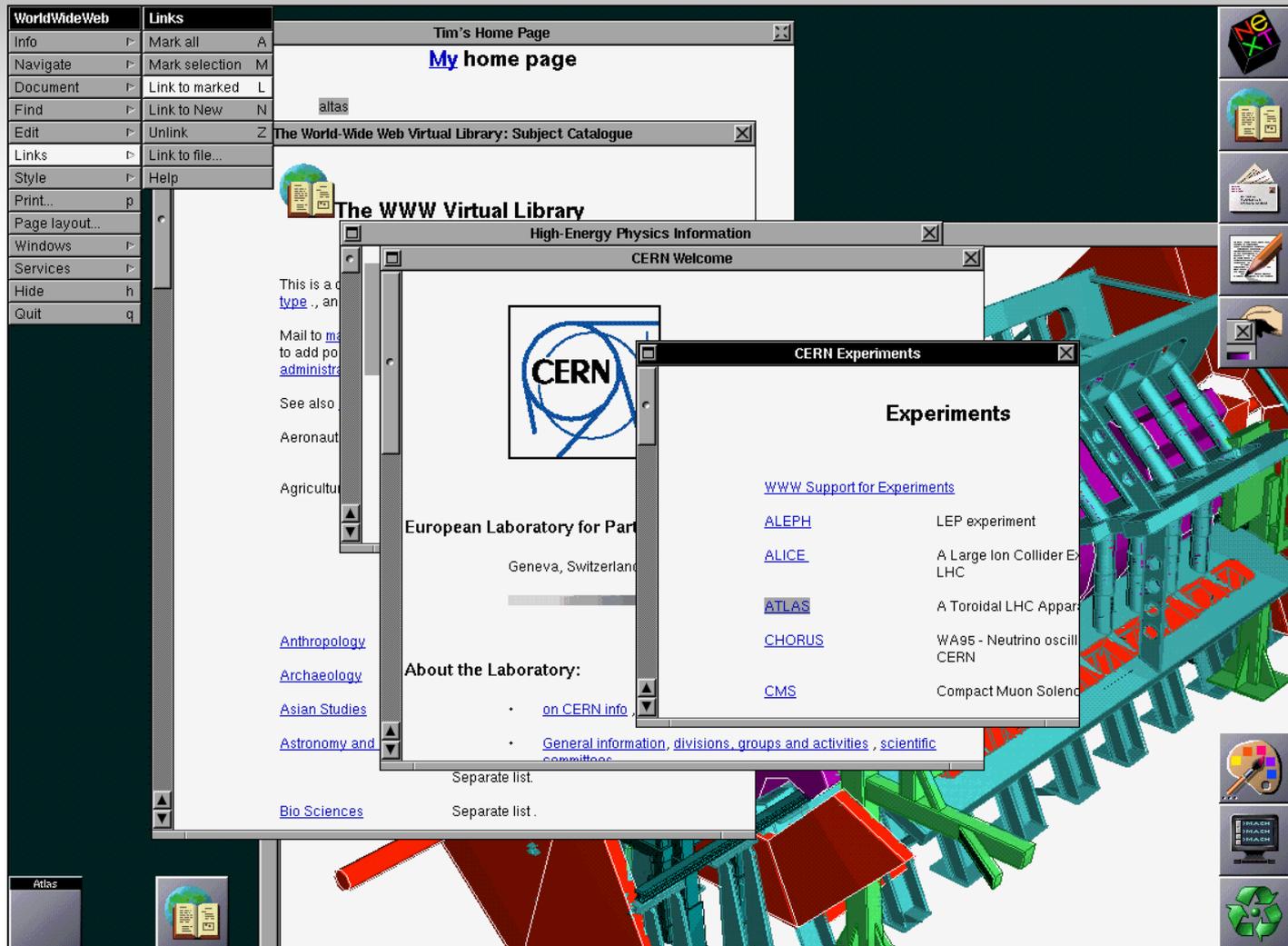 by Tim Berners-Lee

- 1990 – first browser/editor program

The World Wide Web (2)

- National Center for SuperComputing Applications launched Mosaic X
- Commercial websites began their proliferation
- Followed by local shool/club/family sites
- The web exploded
  - 1994 – 3,2 million hosts and 3,000 websites
  - 1995 – 6,4 million hosts and 25,000 websites
  - 1997 – 19,5 million hosts and 1,2 million websites
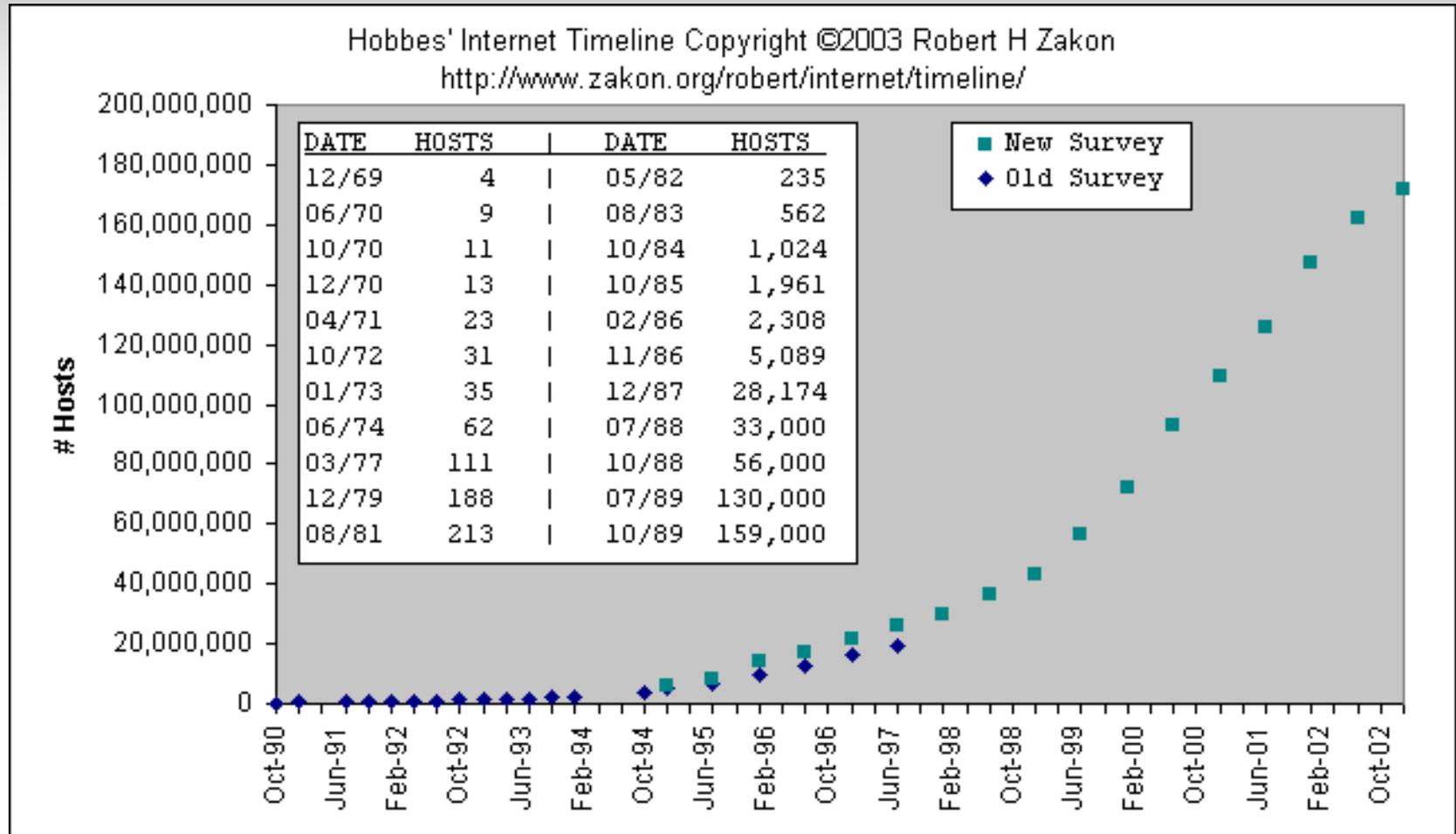 - January 2001 – 110 million hosts and 30 million websites

The World Wide Web (3)

The World Wide Web (4)

- Some facts
  - 1994 – Hotmail starts web based email
  - 1994 – World Wide Web Consortium (W3C) was founded
  - 1995 – JAVA source code was released
  - 1996 – Mirabilis (Israel) starts ICQ
  - 1998 – Google is founded

The World Wide Web (5)

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The World Wide Web (6)

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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