

# Internet Fundamentals

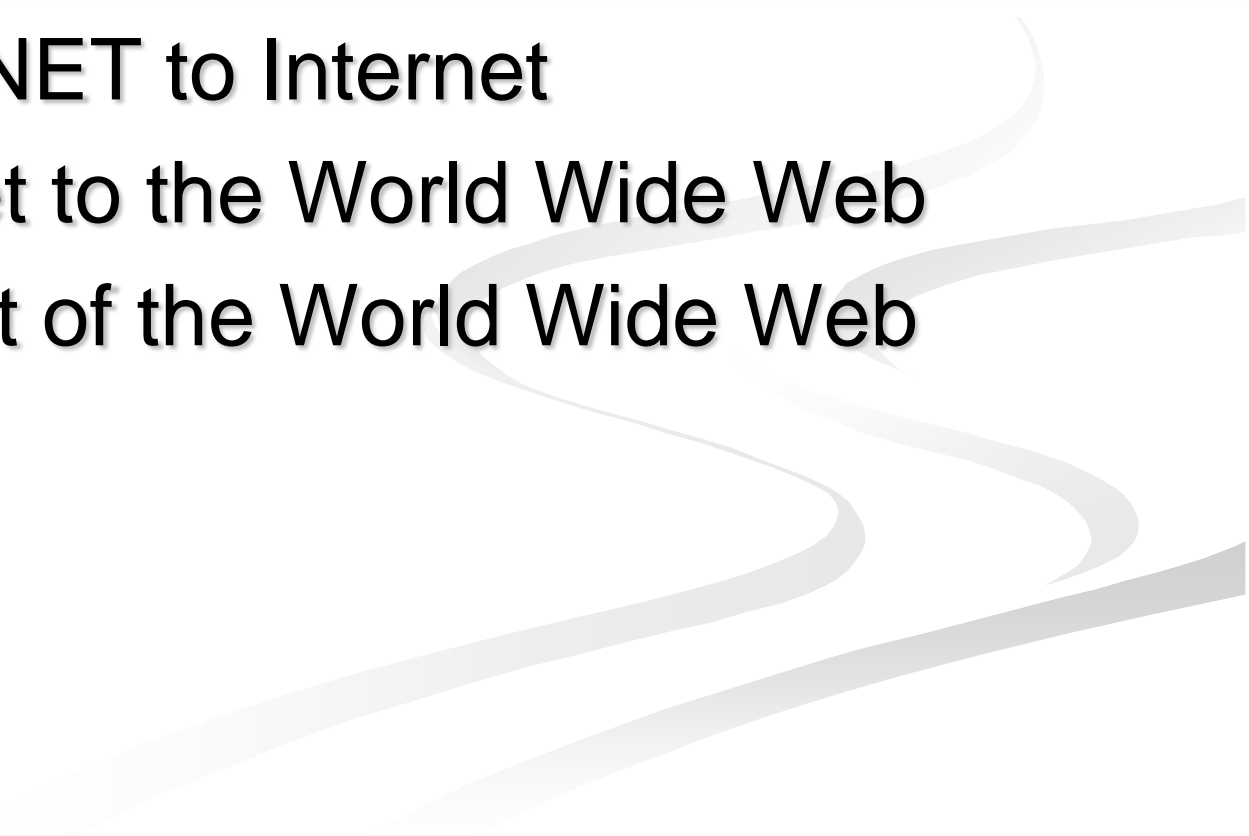
The background features several thick, light gray wavy lines that flow from the bottom right towards the center, creating a sense of movement and depth.

# **Lecture-1**

## **History of Internet**

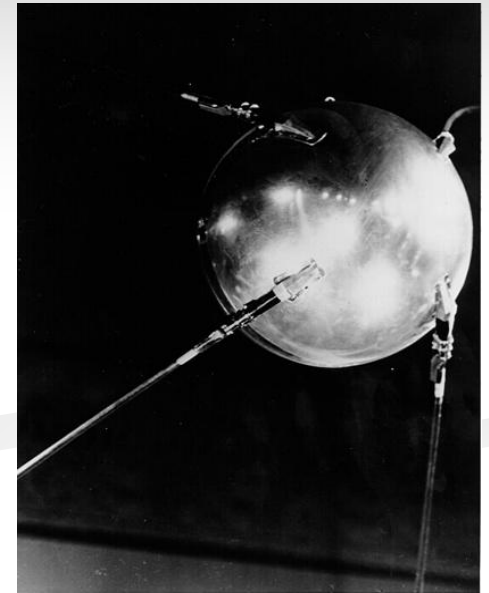
The background of the slide features several thick, light gray, wavy lines that flow from the right side towards the left, creating a sense of movement and depth.

# Content

- Introduction
  - Creation of ARPANET
  - From ARPANET to Internet
  - From Internet to the World Wide Web
  - Development of the World Wide Web
  - Questions
- 
- A decorative graphic consisting of several overlapping, wavy, light gray lines that flow from the bottom left towards the top right, positioned behind the lower half of the list.

# Creation of ARPANET (1)

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

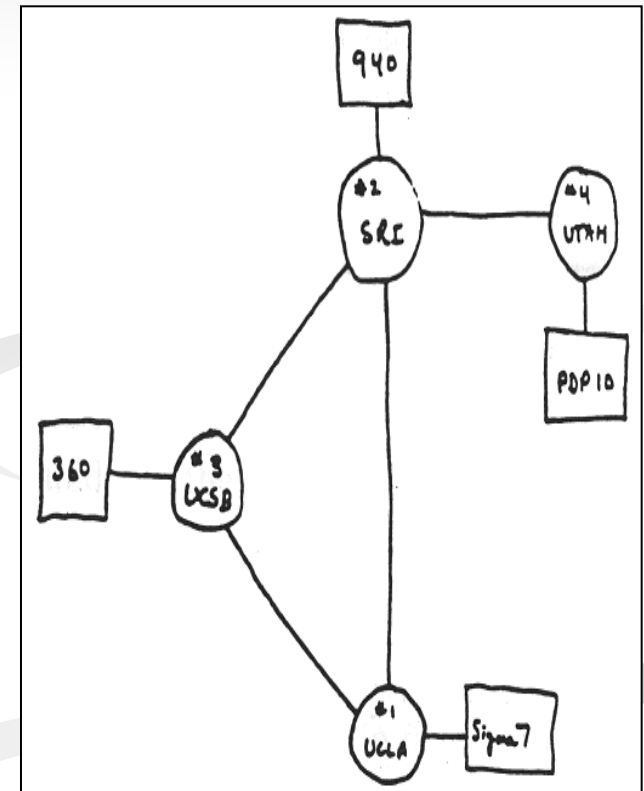


# Creation of ARPANET (2)

- 1962 – computer research program
  - Led 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)

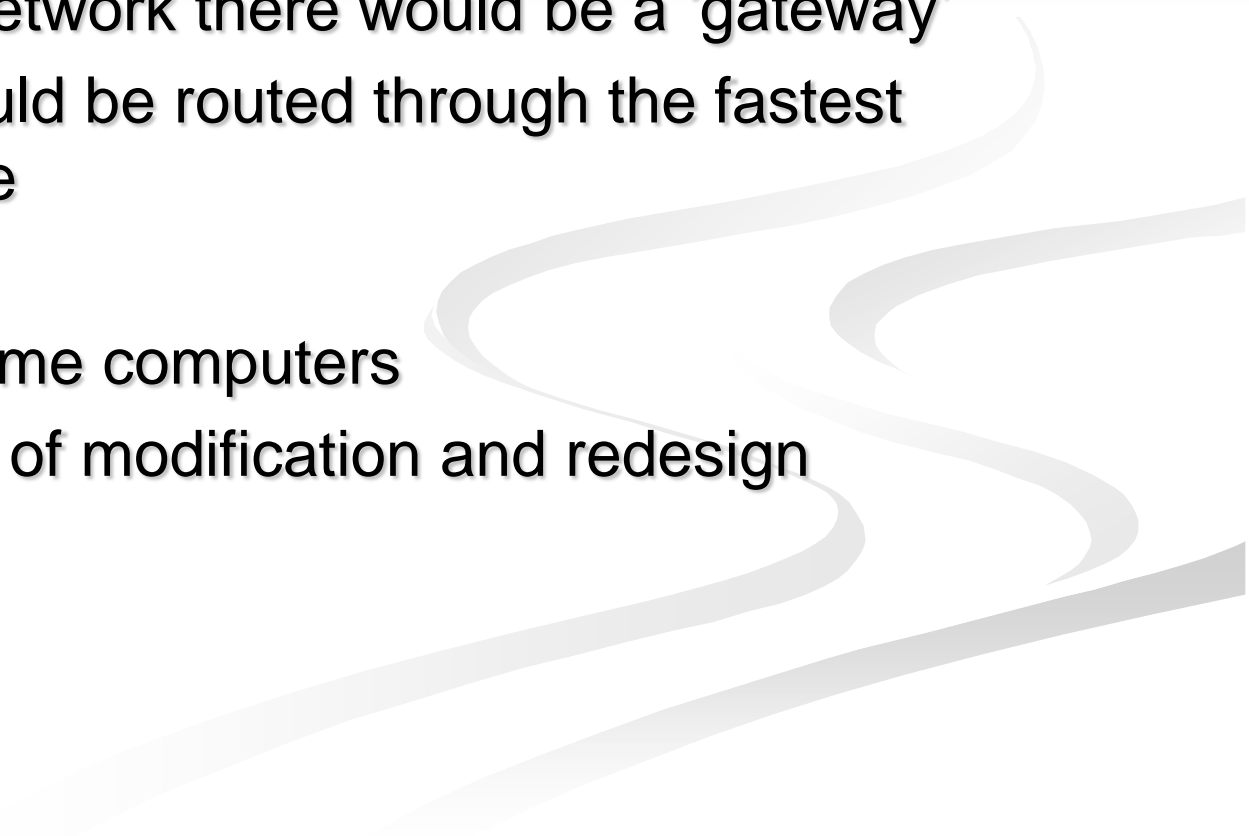
- 1967 – plans for ARPANET were published
  - MIT – NPL (UK) – RAND
- 1969 – Interface Message Processor (IMP)
  - 4 computers (UCLA, SRI, UCSB and UTAH)
- 1971 – 23 host computers (15 nodes)



# From ARPANET to Internet (1)

- 1972 – ARPANET went ‘public’
  - ICC
  - 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

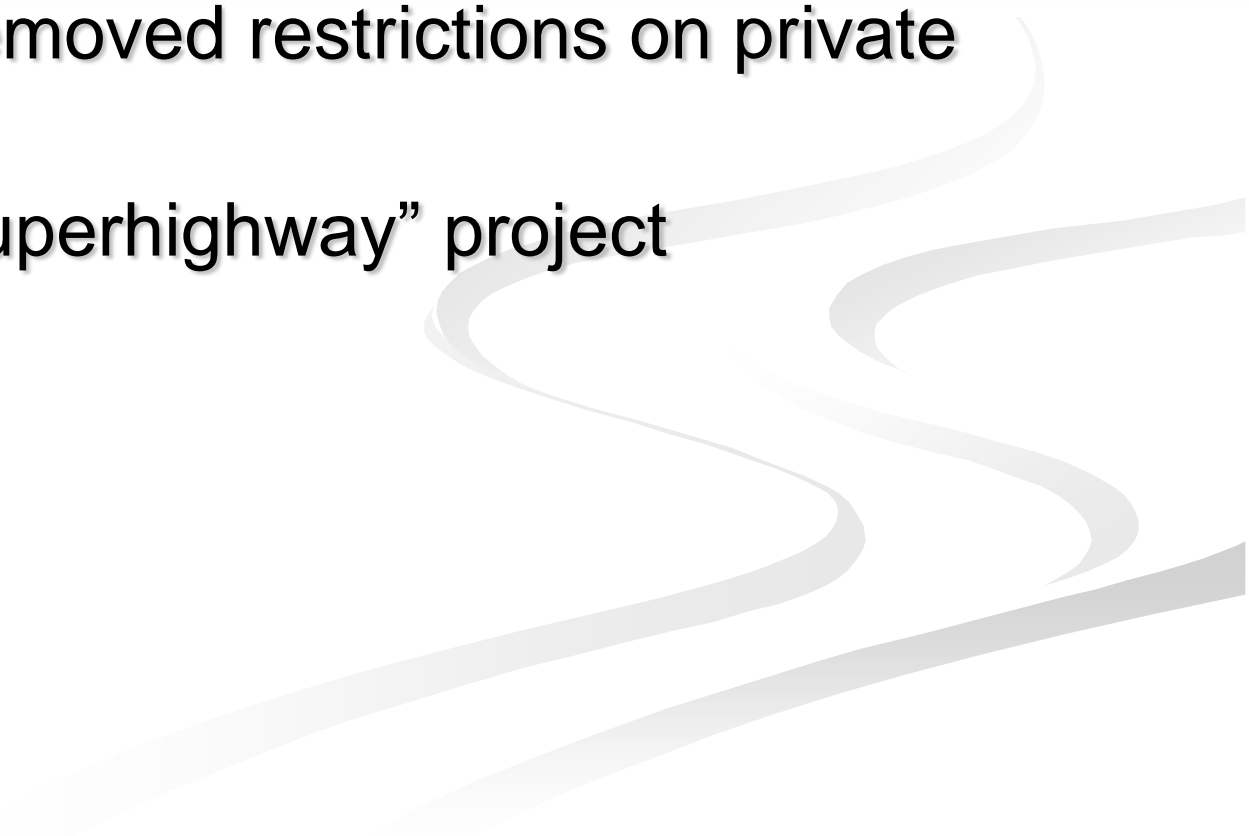
# From Internet to WWW (2)

- 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
- 
- A decorative graphic consisting of several thick, light gray, wavy lines that flow from the right side of the slide towards the left, creating a sense of movement and depth.

# The World Wide Web (1)

- 1989 – WWW concept by Tim Berners-Lee



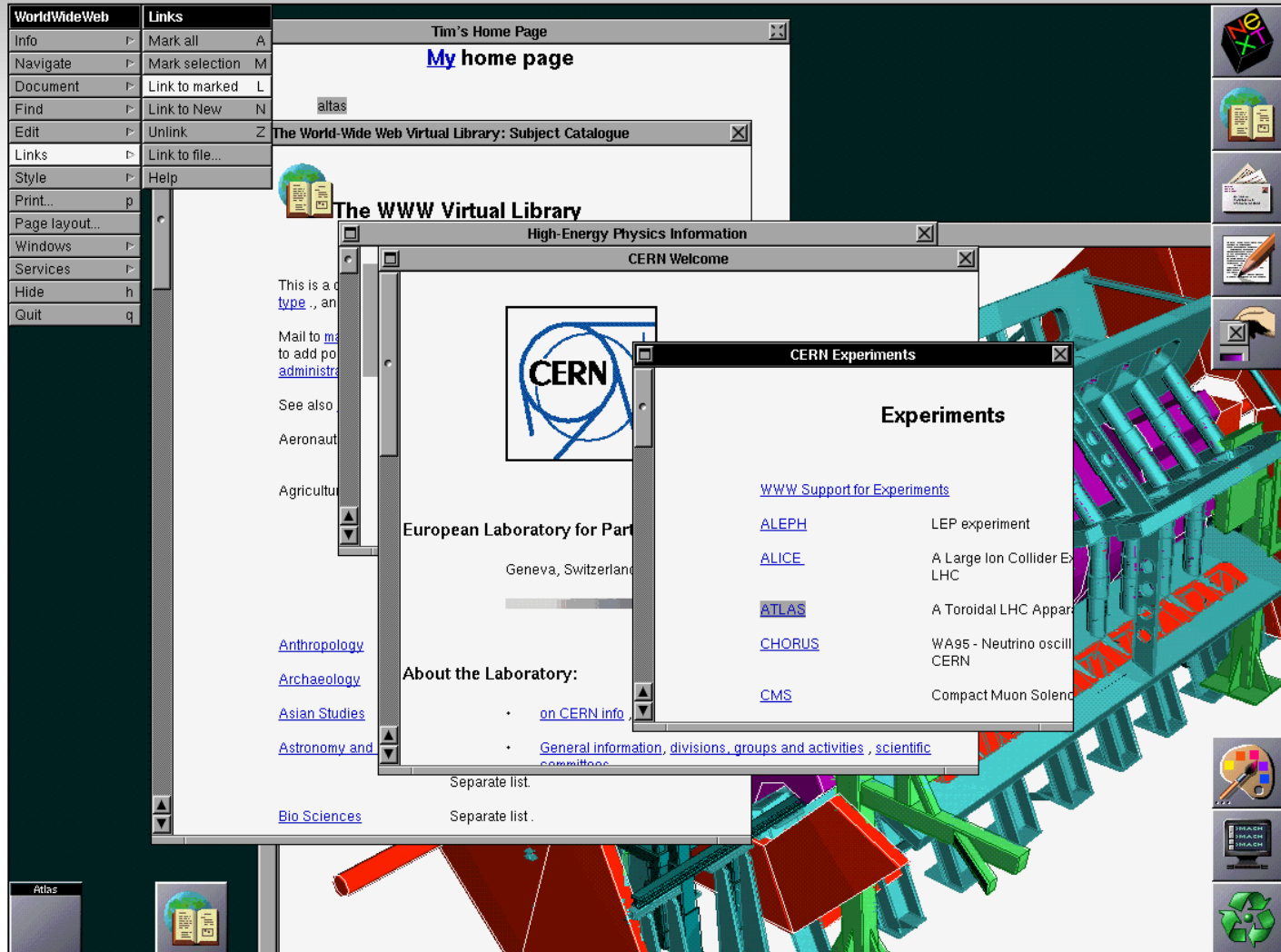
- 1990 – first browser/editor program

# The World Wide Web (2)

- National Center for SuperComputing Applications launched Mosaic X
- Commercial websites began their proliferation
- Followed by local school/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



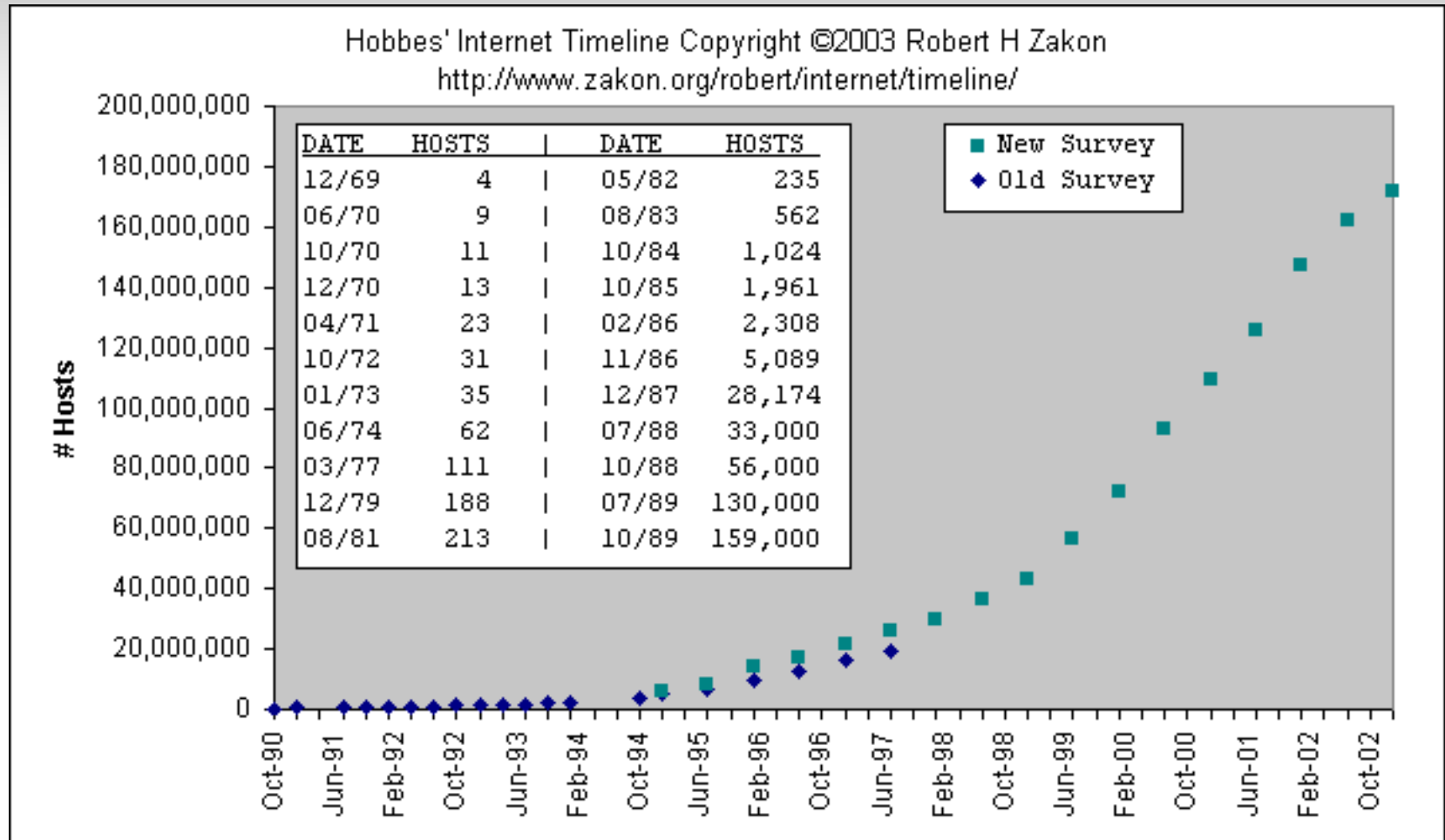
# The World Wide Web (3)



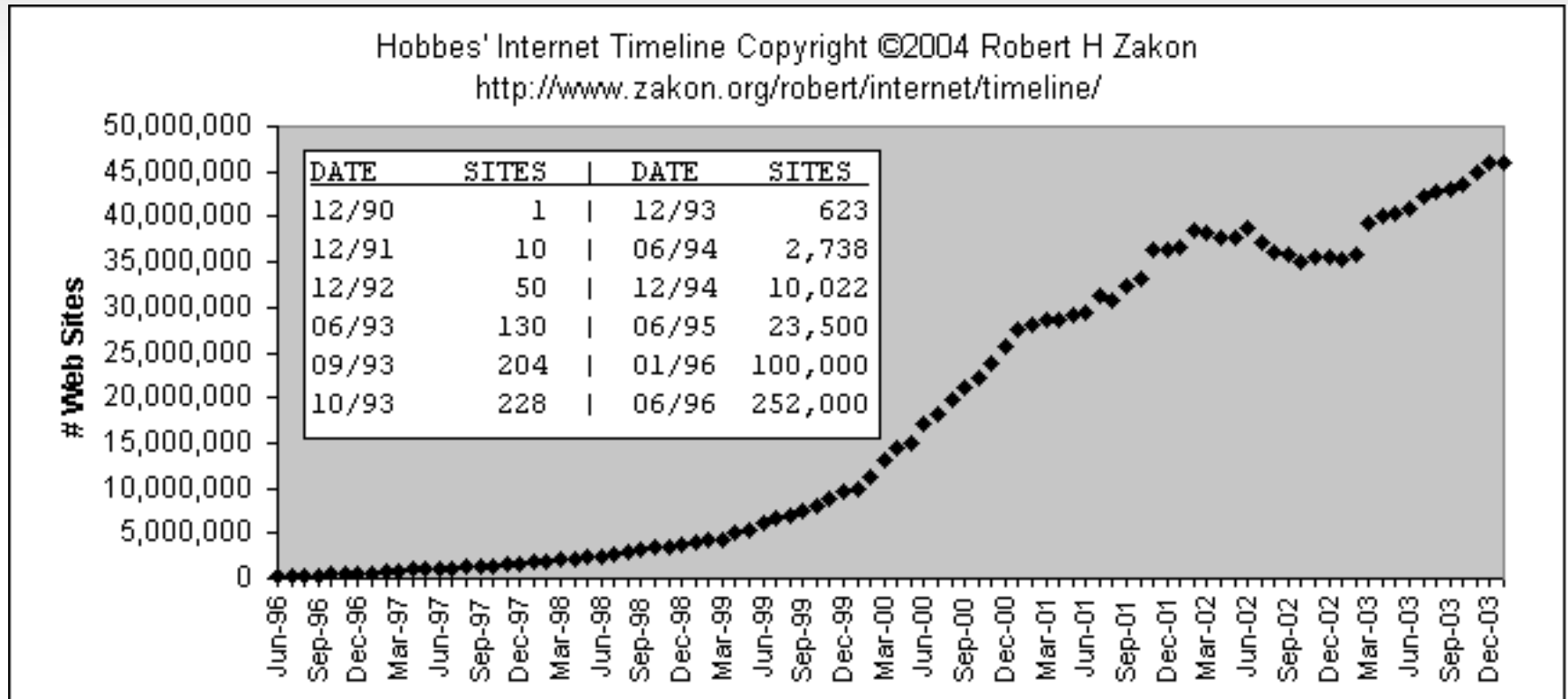
# The World Wide Web (4)

- 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)



# The World Wide Web (6)



# Assignment

- **Write a short note on history of internet.**

