

# The Beginning: A "Network of Networks"

— SATELLITE CIRCUIT  
○ IMP  
□ TSP  
▲ PLUMBIC IMP

(NOTE: THIS MAP DOES NOT SHOW ARPANET EXPERIMENTAL  
SATELLITE CONNECTIONS)

NAMES SHOWN ARE IMP NAMES, NOT NECESSARILY HOST NAMES

The seeds of the Internet were planted in

- 1969
- ADVANCED RESEARCH PROJECT AGENCY – ARPA  
(U.S. Department of Defense)
- began connecting computers
- at different universities and defense contractors
- ARPANET



ARPA, 1958-1972

The **goal** of this early project was

- to create a large computer network
- with multiple paths
- in the form of telephone lines
- that could survive a **nuclear attack** or a **natural disaster** such as an earthquake.

At first, ARPANET was basically a

- large network
- serving only a handful of users,
- but it expanded rapidly.

- jumped across the Atlantic to Europe
- in 1973,
- and it never stopped growing.



After the Defense Department stopped funding the network in the mid-1980s,

- another federal agency
- the NATIONAL SCIENCE FOUNDATION - NSF
- joined the project.



**National Science  
Foundation**

- NSF
  - established **five** “supercomputing centers”
  - that were available to anyone who wanted to use them
  - for academic research purposes.
- quickly discovered
  - the existing network
  - **could not handle the load**.
- created a
  - new, higher-capacity network,
  - called **NSFnet**
- The link between ARPANET, NSFnet, and other networks
  - was called the **Internet**

- The NSF did not permit private business
- therefore, several private telecommunications companies built their own network
- these private portions of the Internet
- were not limited by NSFnet as "appropriate use" restrictions,
- so it became possible to use the Internet
- to distribute business and commercial information.
- The original ARPANET was shut down in 1990,
- and government funding for NSFnet was discontinued in 1995,
- but the commercial Internet backbone services replaced them
- by the early 1990s, interest in the Internet began to expand dramatically

The system that had been created as a tool for surviving a nuclear war found its way into businesses and homes. Now, advertisements for movies are far more common online than collaborations on physics research.





# Today: Still Growing

Today, the Internet connects thousands of networks and hundreds of millions of users around the world.



It is a

- huge, cooperative community
- with no central ownership.

This **lack of ownership** is an important feature of the Internet, because it means that no single person or group controls the network.



- The Internet is open to anyone who can access it.
- If you can use a computer
- and if the computer is connected to the Internet,
- you are free not only to use the resources posted by others, but to create resources of your own

This openness has attracted millions of users to the Internet. Internet access was available to nearly one-half billion people worldwide in 2001. The number of actual users continues to climb dramatically.

## Internet Users in the US, 2000-2006 (in millions)

