Data Communications and Networking

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Networking...

Networking History

- In the 1950s and early 1960s most communication networks were limited by their nature to only allow communications between the stations on a small internal network.
- Some networks had gateways or bridges between them, but these bridges were often limited or built specifically for a single use.
- One prevalent computer networking method was based on the central mainframe method, simply allowing its terminals to be connected via long leased lines.

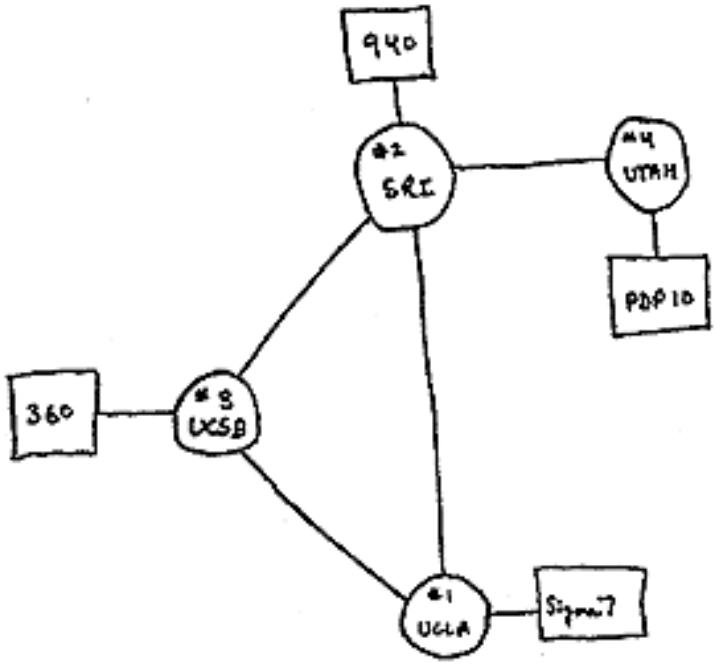
1967 – Two mainframe computers in the UK for the retail company Woolworths.

Networking History

- 1961-1965: The Massachusetts Institute of Technology (MIT) started to research sharing information in small, phone-linked networks. ARPA was one of their main sponsors.
- ARPA is the US defense departments Advanced Research Projects Agency to develop military science and technology.

Networking History

- 1966: The first ARPANET plan is unveiled by Larry Roberts of MIT. Packet switching technology is getting off the ground, and small university networks are beginning to be developed.

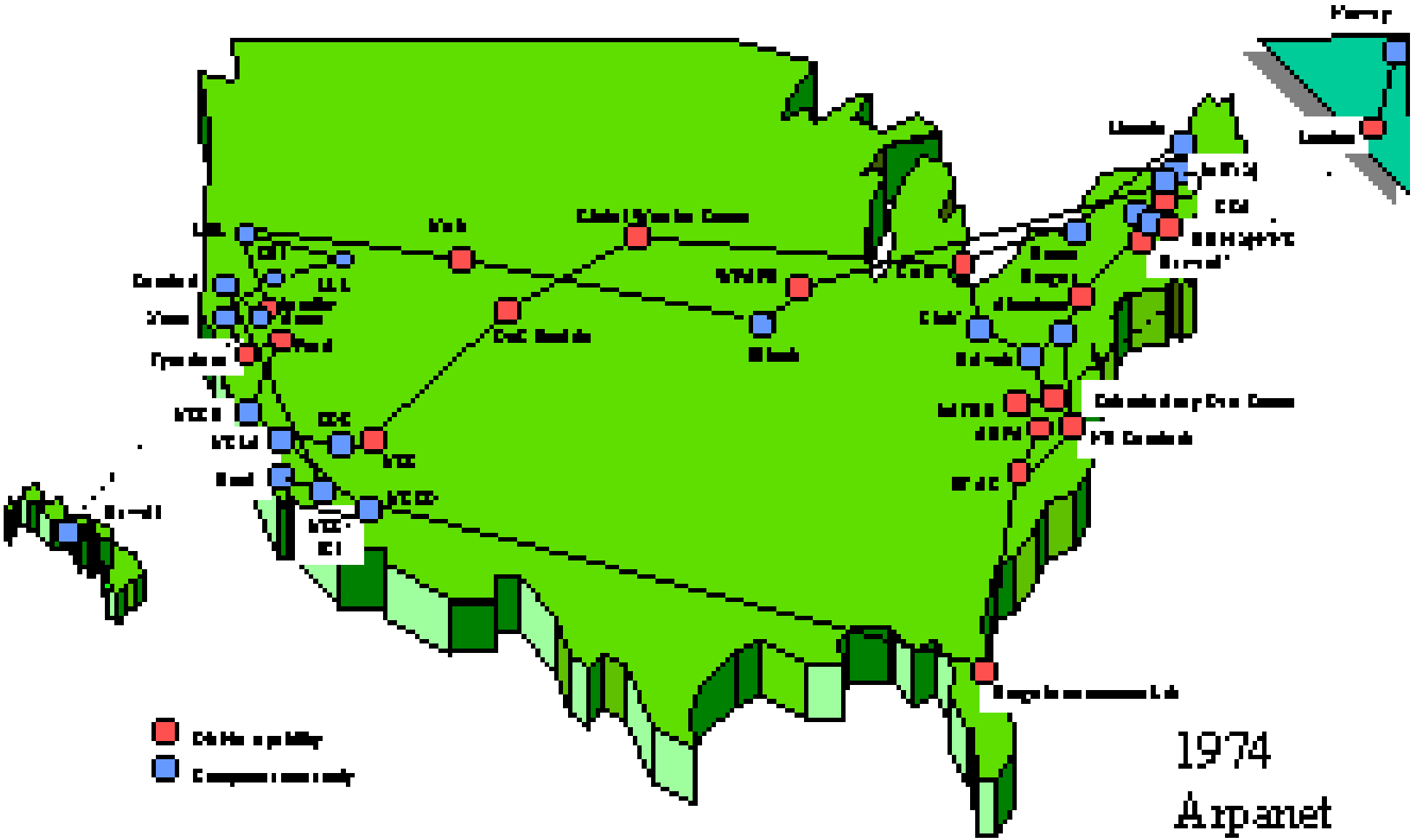


Networking History

- 1969:The Department of Defense commissions the fledgling ARPAnet for network research.
- The first official network nodes were UCLA, Standford Research Institute,UCSB, and the University of Utah. The first node to node message was sent from UCLA to SRI.
- 1971: more nodes join the network, bringing the total to 15. These new nodes include Harvard and NASA.

Networking History

- 1973: ARPAnet goes global when the the University College of London and Norway's Royal Radar Establishment join up.
- 1974: Network intercommunication is becoming more sophisticated; data is now transmitted more quickly and efficiently with the design of TCP (Transmission Control Program).


1974
Arpanet

Networking History

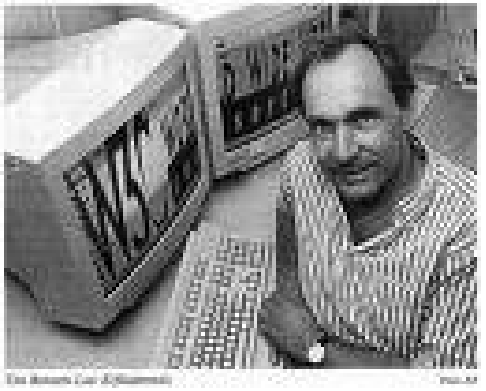
- 1976: Unix is developed at AT and T; Queen Elizabeth sends out her first email message.
- 1979: USENET, the mother of all networked discussion groups, is developed.
- 1982: Internet technology protocols are developed, commonly known as TCP/IP (Transmission Control Protocol and Internet Protocol). This leads to one of the first definitions of an "internet" being a connected set of networks.

Networking History

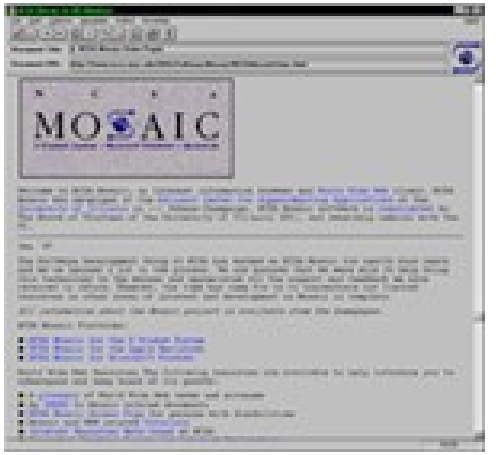
- 1984: Number of hosts is now up to 1000, with more being added every day.
- 1985: The first registered domain is Symbolics.com.
- 1987: Number of hosts breaks the 10,000 mark.
- 1988: First large-scale Internet worm affects thousands of Internet hosts.

Networking History

- 1989: Tim Berners-Lee develops the World Wide Web.



- 1993: Mosaic 1.0 released
- 1994: Growing public interest in the academic/technical Internet.



What is Networking?

What is Networking?

- A network is comprised of two or more PCs connected so that they can communicate and share resources.
- Networked computers can share:
  - Hardware
    - printers,
    - scanners,
    - CD-ROM drives
  - Software
  - Data
    - Text Documents, Files and Databases

What is Networking?

Computers can be networked together in:

- the same room
- the same building
- the same city
- the same country
- across the world

What is Networking?

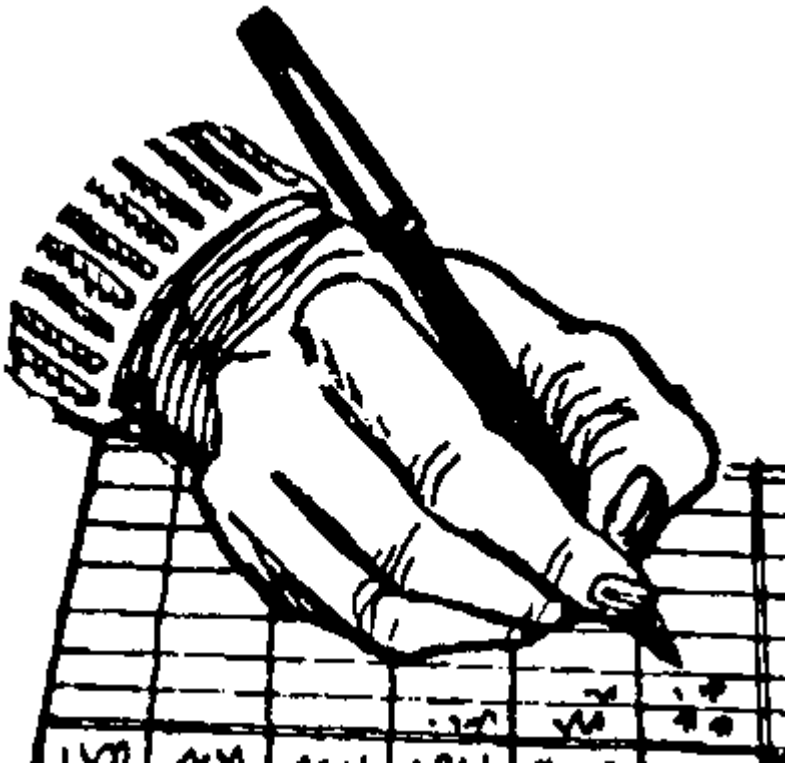
Computers can be networked together using:

- Electrical cables
- Optical cables
- Wireless connections

Networking

Q. What different types of networks can you think of?

Write a list of examples.



Networking

Q. What are the advantages of having a computer network?

Networking

Q. What are the disadvantages of having a computer network?

Introduction to Networking Terms

- Network - two or more connected computers.
- Internet - a connected set of networks.
- Host - any computer on a network that provides services to other computers on the network.
- Node - any single computer connected to a network.
- Protocol - a set of rules that define an exact format for communication between systems.
- Gateway - a mechanism for providing access to another system (translates protocols).