BCA SEMESTER - II

0302203
HISTORY OF COMPUTING

UNIT – 4
HISTORY OF INTERNET

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Index

Index

- History of Databases
  - Introduction
  - Hierarchical and Network Models
  - The Relational Model
  - SQL
  - Oracle Database

History of Internet

- The origins of the internet are rooted in the USA of the 1950s.
- The Cold War was at its height and huge tensions existed between North America and the Soviet Union.
- Both superpowers were in possession of deadly nuclear weapons, and people lived in fear of long-range surprise attacks.
- The US realised it needed a communications system that could not be affected by a Soviet nuclear attack.
- At this time, computers were large, expensive machines exclusively used by military scientists and university staff.

History of Internet

- Elliott/NRDC 401 Computer MkI, c.1953.
- The Elliott-NRDC 401 was one of the first electronic computers, developed by British electrical company Elliott Brothers in 1952 when machines of this type could span 4 metres in length and weigh over a ton.

History of Internet

- These machines were powerful but limited in numbers, and researchers grew increasingly frustrated: they required access to the technology, but had to travel great distances to use it.
- To solve this problem, researchers started ‘time-sharing’.
- This meant that users could simultaneously access a mainframe computer through a series of terminals, although individually they had only a fraction of the computer’s actual power at their command.
- The difficulty of using such systems led various scientists, engineers and organisations to research the possibility of a large-scale computer network.

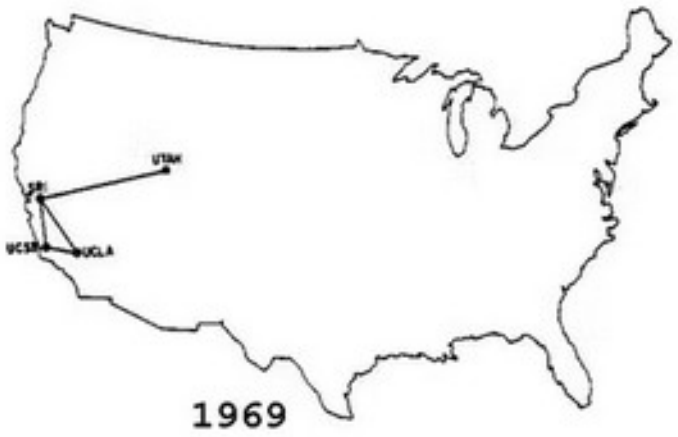
The ARPANET

- The Internet was developed by Bob Kahn and Vint Cerf in the 1970s.
- They began the design of what we today know as the 'internet.'
- It was the result of another research experiment which was called ARPANET, which stands for Advanced Research Projects Agency Network.
- Arpanet was the first real network to run on packet switching technology (new at the time).
- On October 29, 1969, computers at Stanford and UCLA connected for the first time.
- In effect, they were the first hosts on what would one day become the Internet.

The ARPANET

- The first message sent across the network was supposed to be “Login”, but reportedly, the link between the two colleges crashed on the letter “g”.
- The Advanced Research Projects Agency Network (ARPANET) was the first wide-area packet-switched network with distributed control and one of the first networks to implement the TCP/IP protocol suite.
- ARPA awarded the contract to build the network to Bolt Beranek & Newman who developed the first protocol for the network.

The ARPANET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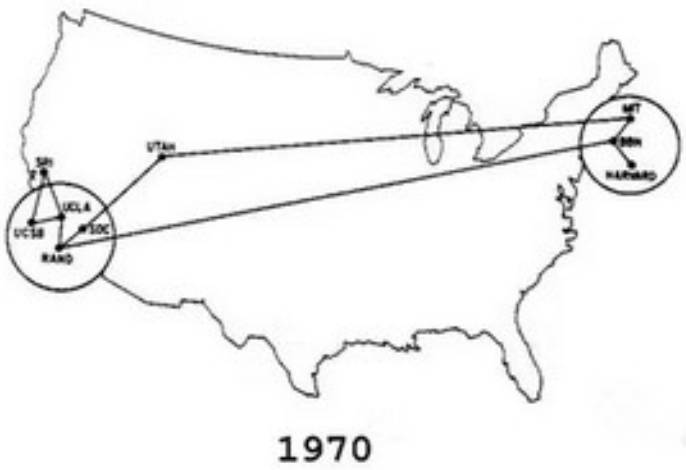
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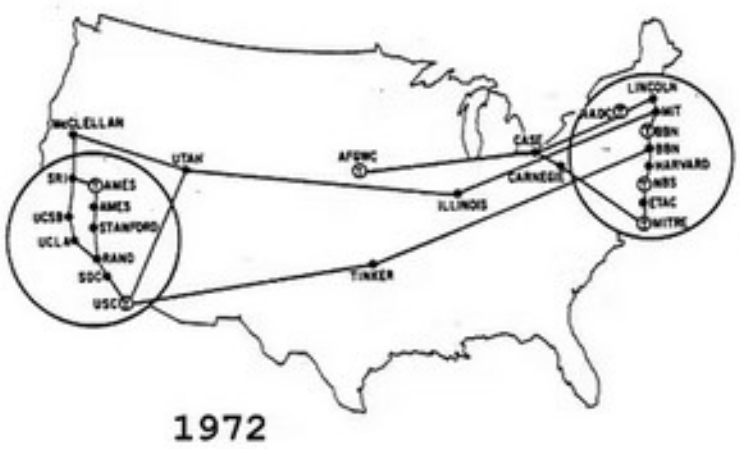
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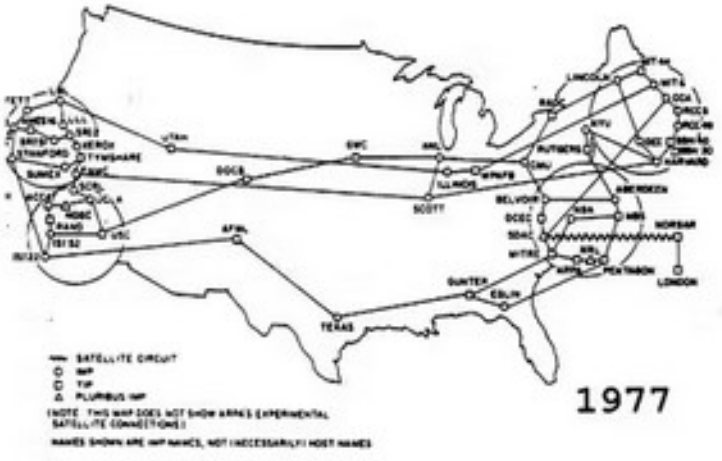

SATELLITE CIRCUIT
1977

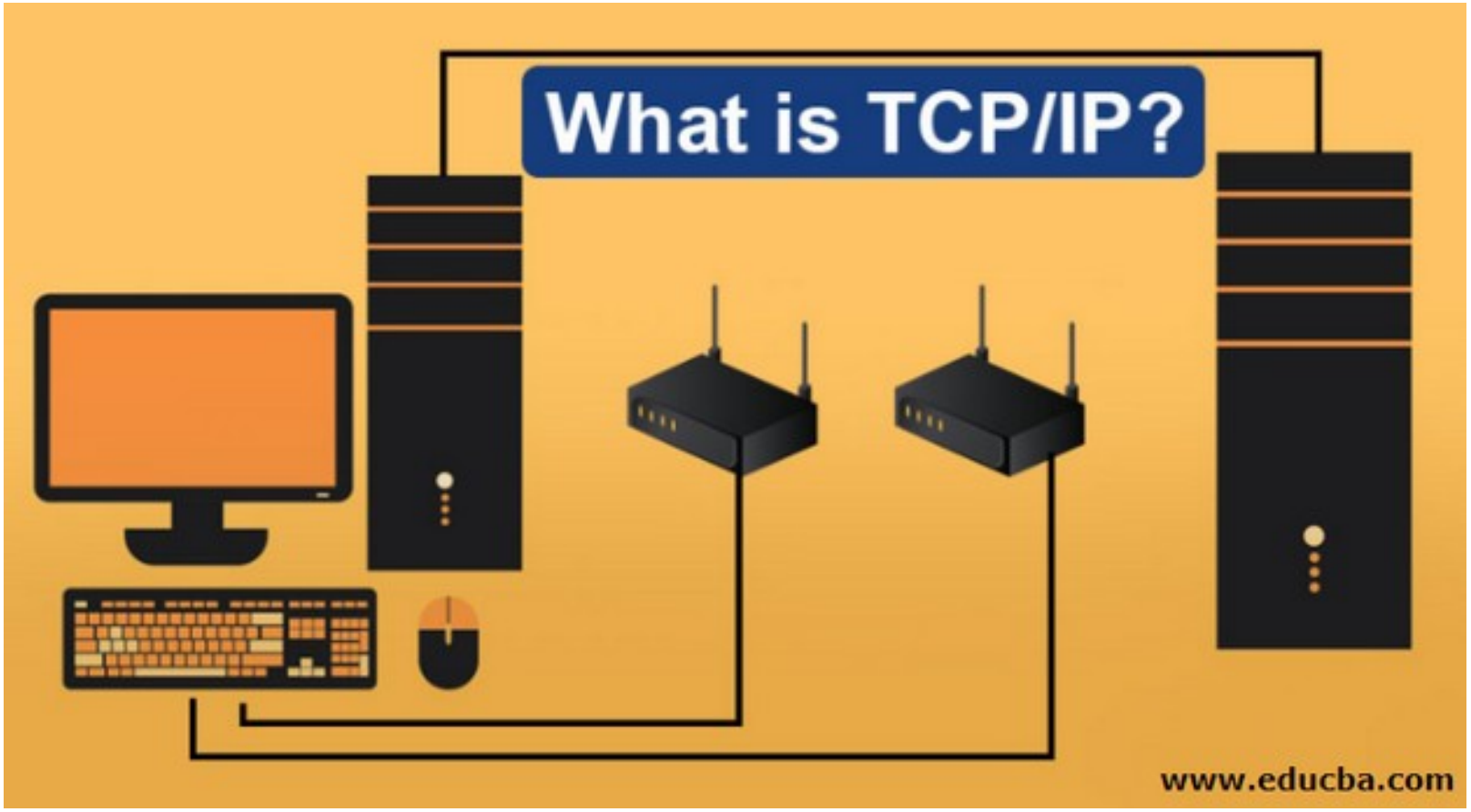
TCP / IP

- TCP/IP stands for Transmission Control Protocol/Internet Protocol. The term is used to describe a set of protocols that govern how data moves through a network.
- After the creation of ARPANET, more networks of computers began to join the network, and the need arose for an agreed set of rules for handling data.
- In 1974 two American computer scientists, Bob Kahn and Vint Cerf, proposed a new method that involved sending data packets in a digital envelope or ‘datagram’.
- The address on the datagram can be read by any computer, but only the final host machine can open the envelope and read the message inside.
- Kahn and Cerf called this method transmission-control protocol (TCP).

TCP / IP

- TCP allowed computers to speak the same language, and it helped the ARPANET to grow into a global interconnected network of networks, an example of ‘internetworking’—internet for short.
- IP stands for Internet Protocol and, when combined with TCP, helps internet traffic find its destination.
- Every device connected to the internet is given a unique IP number.
- Known as an IP address, the number can be used to find the location of any internet-connected device in the world.

TCP / IP



Birth of the Internet

- On October 29, 1969, at 10:30 PM, internet history was made with the transfer of one simple message.
- At 10:30 PM, a student programmer at UCLA named Charley Kline sent the letter “l” and the letter “o” electronically more than 350 miles to a Stanford Research Institute computer in Menlo Park, California.
- The letters stood for “login,” and the effort led to a system crash immediately afterward.
- But a technological revolution had begun.

Birth of the Internet

- That first unassuming message was the first flicker of what we now know as the Internet, but was then called ARPANET.
- Like many expensive, revolutionary technologies, ARPANET was funded by the U.S. military.
- In particular, the U.S. Defense Department's Advanced Research Projects Agency Network–hence the abbreviation to ARPANET.
- The Cold War had the country in fear of a nuclear apocalypse, and the military needed a way to command and control their computers remotely in the case of an attack.

Father of the Internet: Tim Berners-Lee

- Tim Berners-Lee was the man, who led the development of the World Wide Web, the defining of HTTP (HyperText Transfer Protocol), HTML (hypertext markup language) used to create web pages, and URLs (Universal Resource Locators).
- The development of WWW, HTTP, HTML and URLs took place between 1989 and 1991.
- Currently, Tim Berners-Lee is the Director of the World Wide Web Consortium, the group that sets technical standards for the web.
- Tim Berners-Lee, Vinton Cerf is also named as an internet daddy other than Tim Berners-Lee.
- After being out for 10 years from high school, he began co-designing and co-developing the protocols and structure of what became the internet.

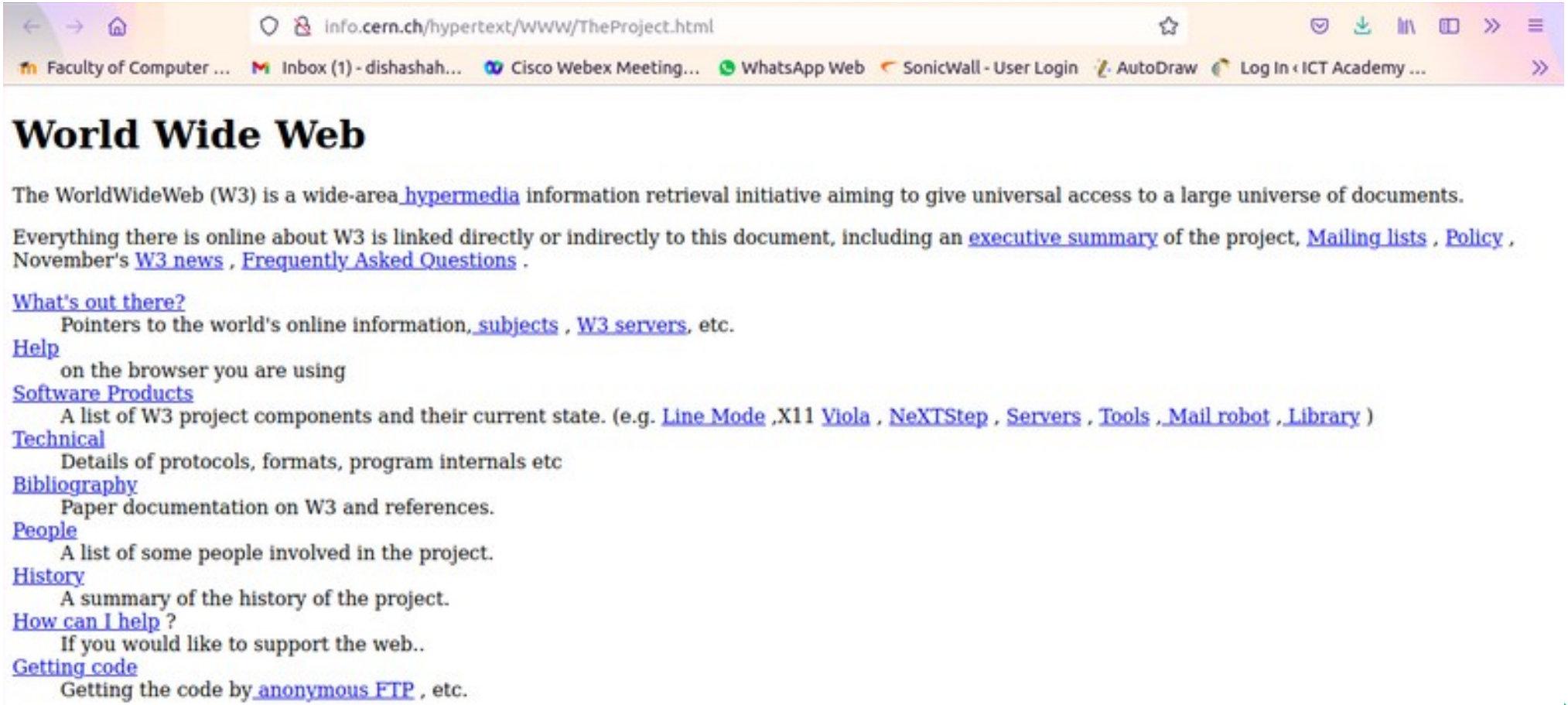
Birth of World Wide Web

- Tim Berners-Lee, a British scientist, invented the World Wide Web (WWW) in 1989, while working at CERN.
- The web was originally conceived and developed to meet the demand for automated information-sharing between scientists in universities and institutes around the world.
- The first website at CERN – and in the world – was dedicated to the World Wide Web project itself and was hosted on Berners-Lee's NeXT computer.
- In 2013, CERN launched a project to restore this first ever website: info.cern.ch.
- On 30 April 1993, CERN put the World Wide Web software in the public domain. Later, CERN made a release available with an open licence, a more sure way to maximise its dissemination.
- These actions allowed the web to flourish.

Birth of World Wide Web

Browse on First Website

- **http://info.cern.ch/hypertext/WWW/TheProject.html**



Applications of WWW

- The development of the World Wide Web was begun in 1989 by Tim Berners-Lee and his colleagues at CERN, an international scientific organization based in Geneva, Switzerland.
- They created a protocol, HyperText Transfer Protocol (HTTP), which standardized communication between servers and clients.
- Their text-based Web browser was made available for general release in January 1992.
- The World Wide Web gained rapid acceptance with the creation of a Web browser called Mosaic, which was developed in the United States by Marc Andreessen and others at the National Center for Supercomputing Applications at the University of Illinois and was released in September 1993.

Applications of WWW

- Mosaic allowed people using the Web to use the same sort of “point-and-click” graphical manipulations that had been available in personal computers for some years.
- In April 1994 Andreessen cofounded Netscape Communications Corporation, whose Netscape Navigator became the dominant Web browser soon after its release in December 1994.
- BookLink Technologies’ InternetWorks, the first browser with tabs, in which a user could visit another Web site without opening an entirely new window, debuted that same year.
- By the mid-1990s the World Wide Web had millions of active users.

Dotcom Bubble

- The dotcom bubble was a rapid rise in U.S. technology stock equity valuations fueled by investments in Internet-based companies during the bull market in the late 1990s.
- The value of equity markets grew exponentially during this period, with the technology-dominated Nasdaq index rising from under 1,000 to more than 5,000 between the years 1995 and 2000.
- Things started to change in 2000, and the bubble burst between 2001 and 2002 with equities entering a bear market.
- The crash that followed saw the Nasdaq index, which rose five-fold between 1995 and 2000, tumble from a peak of 5,048.62 on March 10, 2000, to 1,139.90 on Oct. 4, 2002, a 76.81% fall.
- By the end of 2001, most dotcom stocks went bust.
- Even the share prices of blue-chip technology stocks like Cisco, Intel, and Oracle lost more than 80% of their value.
- It would take 15 years for the Nasdaq to regain its peak, which it did on April 24, 2015

https://www.investopedia.com/terms/d/dotcom-bubble.asp

Dotcom Bubble

Dotcom Company

- An organization that offers its services exclusively on the Internet, either via the user's Web browser or a client program that must be installed in the user's computer.
- Amazon.com, Yahoo!, Google and eBay are examples of dot-com companies.
- Telecom companies that offer voice or video services over the Internet also fit into the dot-com company umbrella.