

INTRODUCTION

IT223 – Internet Technology

Agenda

2

- ❑ Internet History.
- ❑ Internet Standards.
- ❑ Internet Administration.
- ❑ TCP/IP Suite.

Agenda

3

- ❑ Internet History.
- ❑ Internet Standards.
- ❑ Internet Administration.
- ❑ TCP/IP Suite.

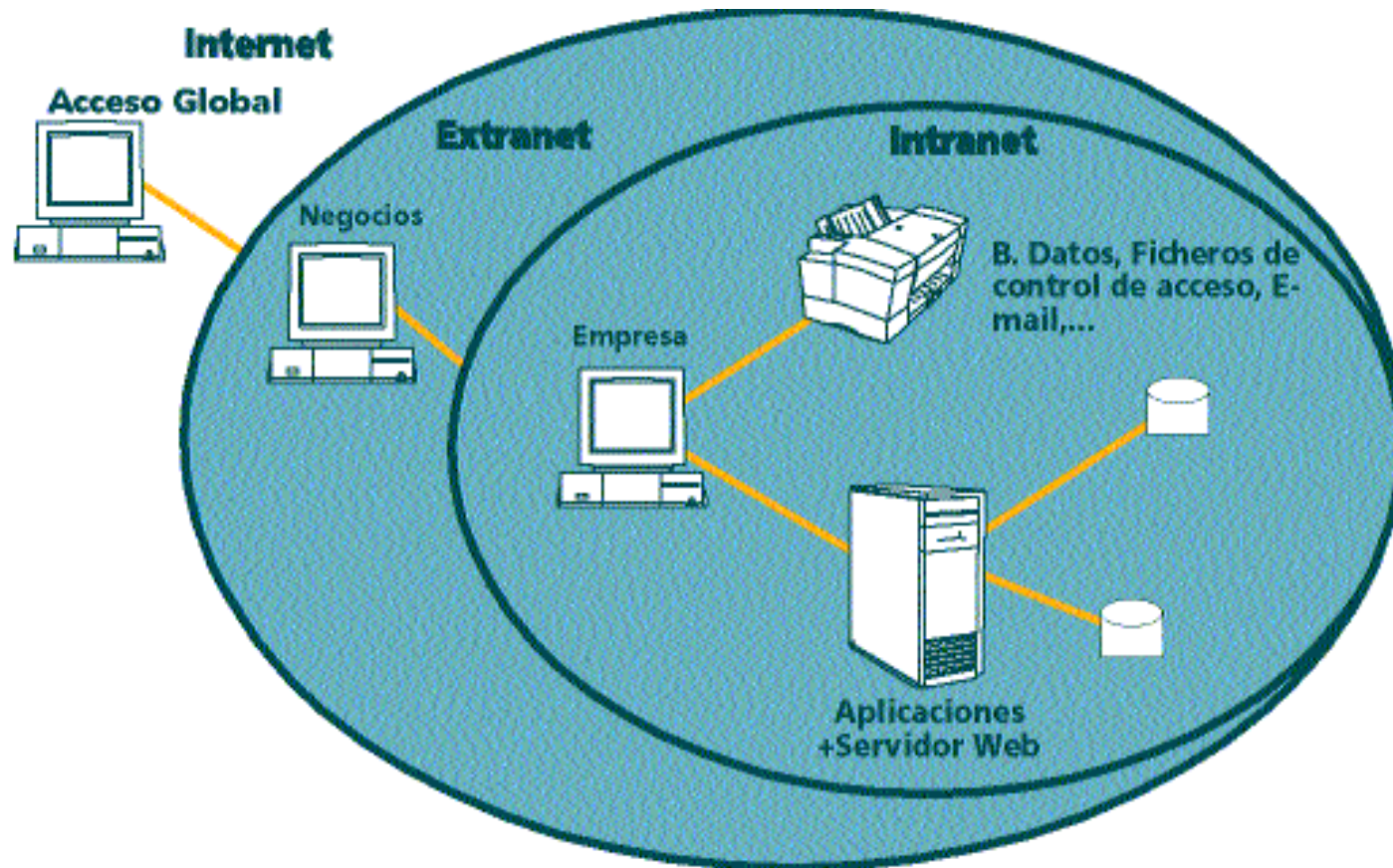
Internet History

4

What is the difference between internet, Internet and Intranet?

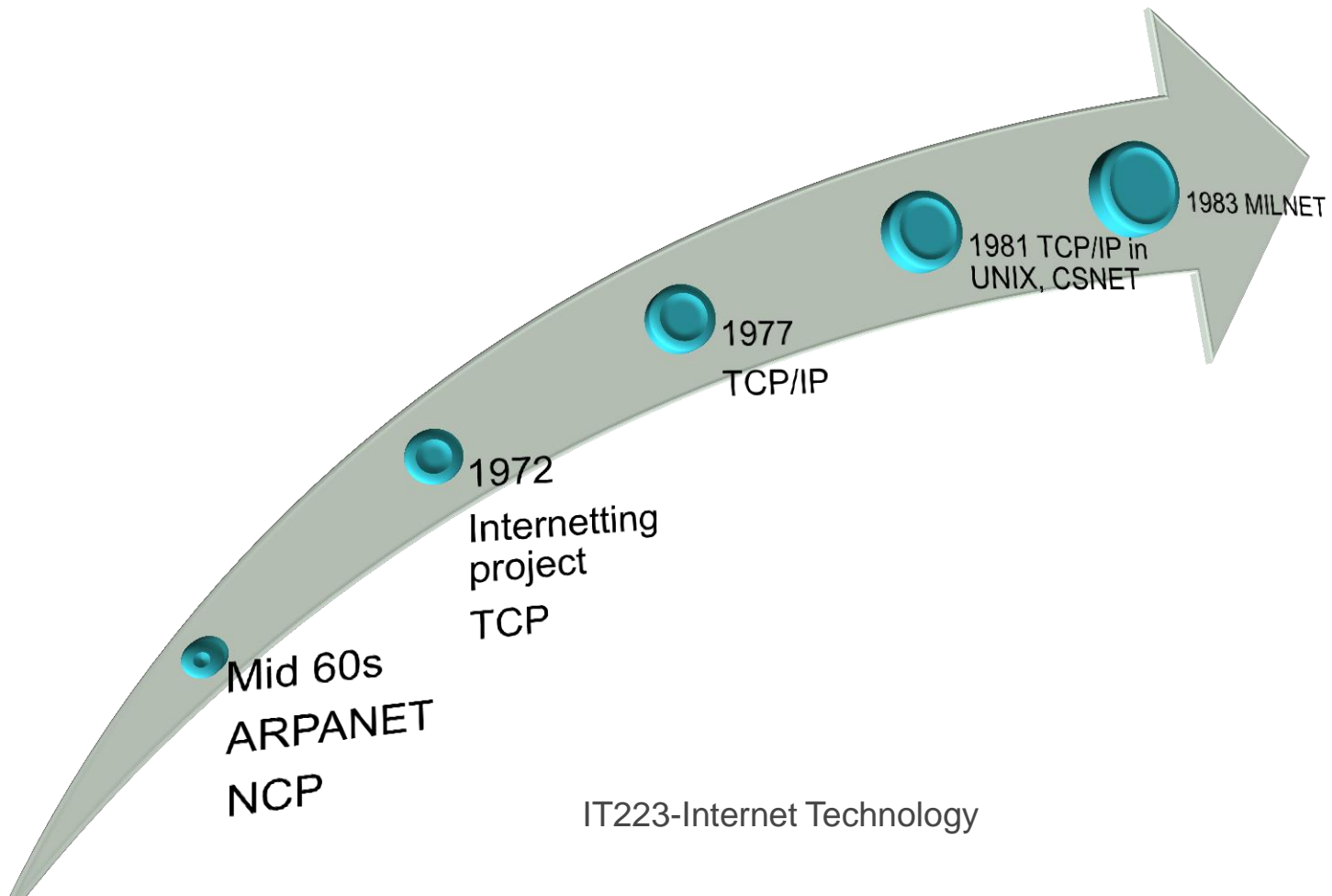
Internet History

5



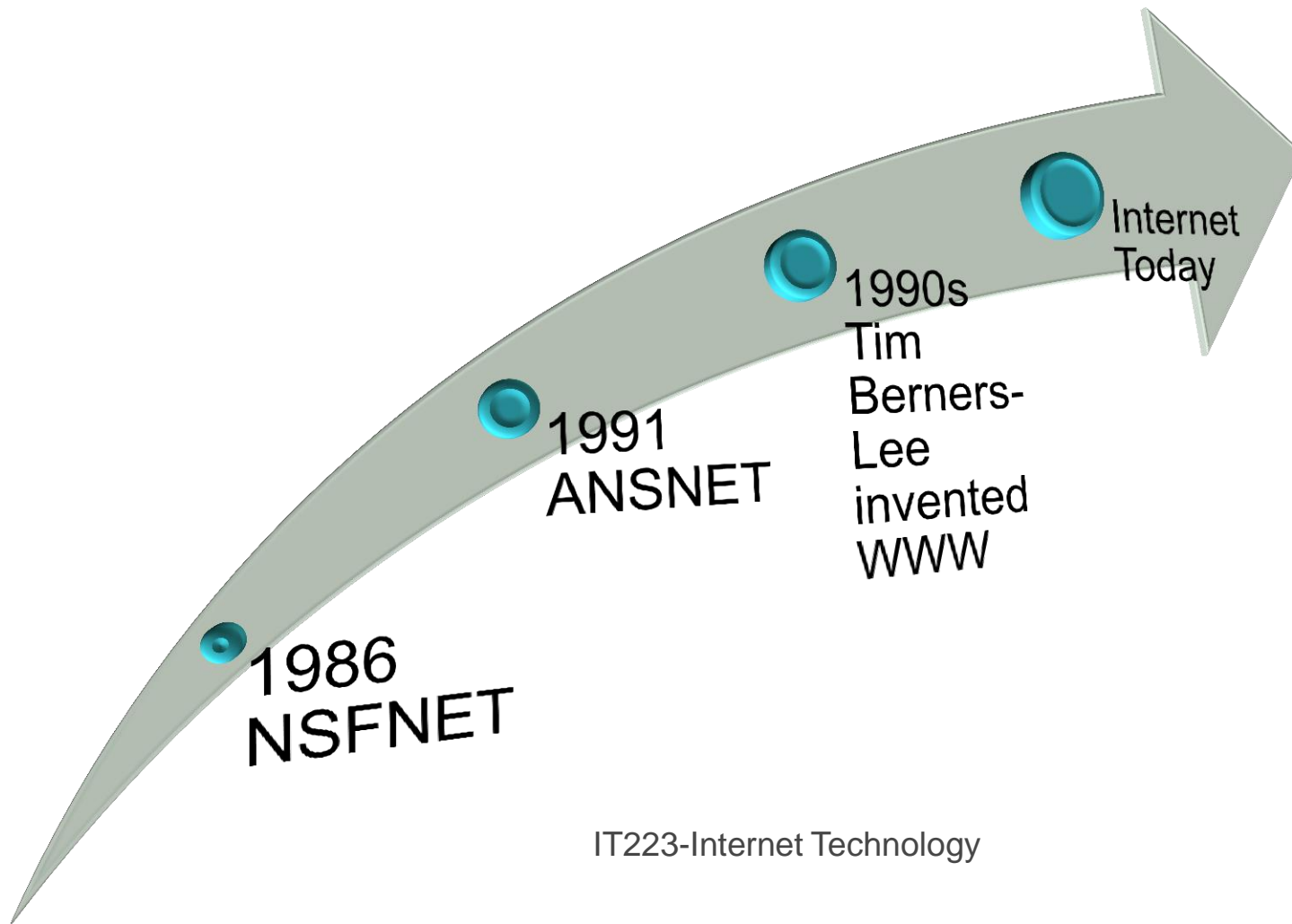
Internet History

6



Internet History

7

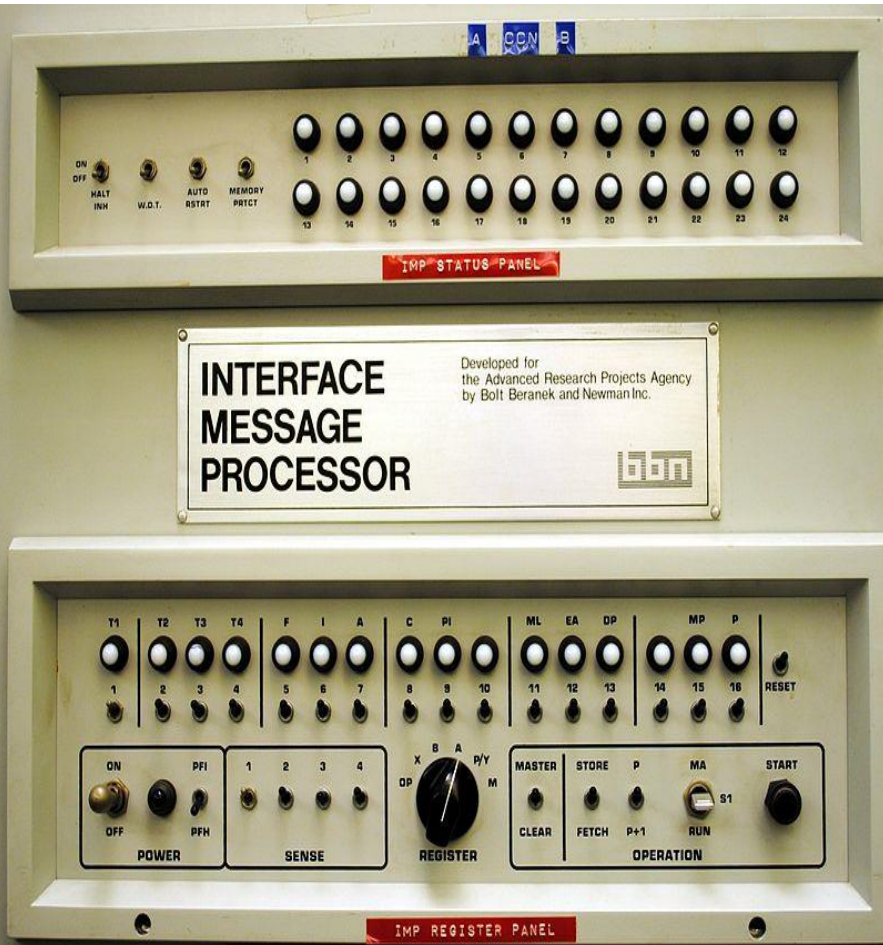


Internet History

- ❑ Started in 1960s at the Advanced Research Projects Agency (ARPA) in the Department of Defense (DOD).
- ❑ Each host computer would be attached to a specialized computer, called an interface message processor (IMP). Which in turn, would be connected to each other.
- ❑ Software called the **Network Control Protocol (NCP)** provided communication between the hosts.

Internet History

9



nology

Internet History

10



IT223-Internet Technology

Internet History

11

- In 1972, **Vint Cerf** and **Bob Kahn** collaborated on what they called the **Interneting** Project.
- They devised the idea of the gateway to overcome network differences.

Internet History

12

- **Vint Cerf** and **Bob Kahn** came with a new version of NCP.
- In 1977, an internet consisting of three different networks (ARPANET, packet radio, and packet satellite) was successfully demonstrated. Communication between networks was now possible.

Internet History

13

- TCP was then split into two protocols: Transmission Control Protocol (TCP) and Internet Protocol (IP).
- The new combination became known as TCP/IP.
- In 1981, under a DARPA contract, UC Berkeley modified the UNIX operating system to include TCP/IP.

Internet History - *MILNET*

14

- In 1983, ARPANET split into two networks: *MILNET* for military users and *ARPANET* for nonmilitary users.

Internet History - *CSNET*

15

- CSNET was a network sponsored by the National Science Foundation (NSF).
- CSNET was a less expensive network; there were no redundant links and the transmission rate was slower.
- By the middle 1980s, most U.S. universities with computer science departments were part of CSNET.

Internet History - *NSFNET*

16

- The NSF, in 1986, sponsored NSFNET, a backbone that connected five supercomputer centers located throughout the United States.
- In 1990, ARPANET was officially retired and replaced by NSFNET.

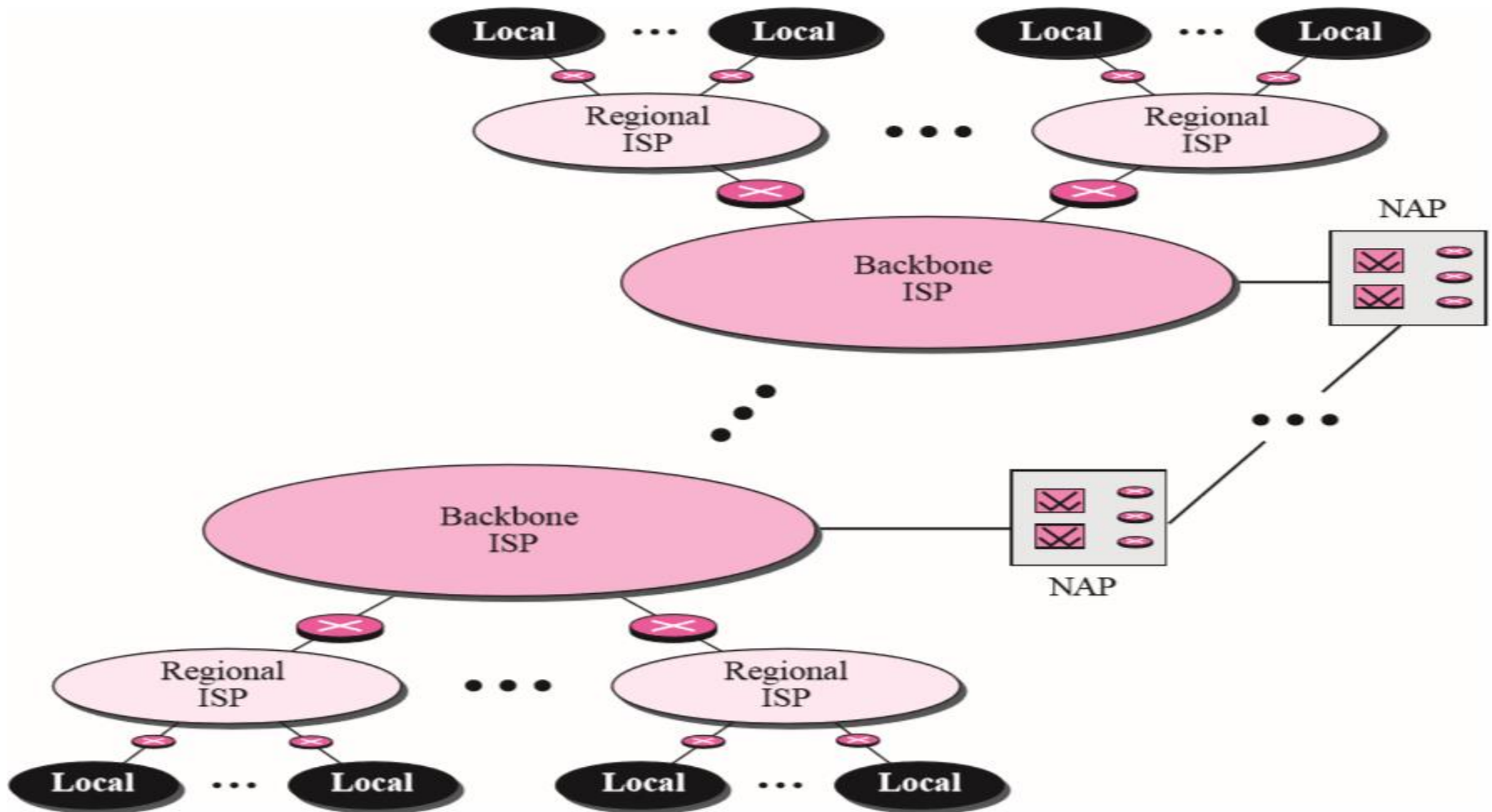
Internet History - *ANSNET*

17

- In 1991, three companies, IBM, Merit, and MCI, formed a nonprofit organization called Advanced Network and Services (ANS) to build a new, high-speed Internet backbone called ANSNET.

Internet History – *Internet Today*

18



Agenda

19

- ❑ Internet History.
- ❑ Internet Standards.
- ❑ Internet Administration.
- ❑ TCP/IP Suite.

Internet Standards

- Standards are essential in creating and maintaining an open and competitive market for equipment manufacturers and also in guaranteeing national and international interoperability of data and telecommunications technology and processes.

Internet Standards

- Data communication standards fall into two categories:
 1. de facto (meaning “by fact” or “by convention”)
 2. de jure (meaning “by law” or “by regulation”).

Internet Standards

22

- The standards for the TCP/IP protocol suite come from the Internet Engineering Task Force (IETF).
- The IETF is neither strictly a de facto nor de jure standards organization.

Internet Standards

23

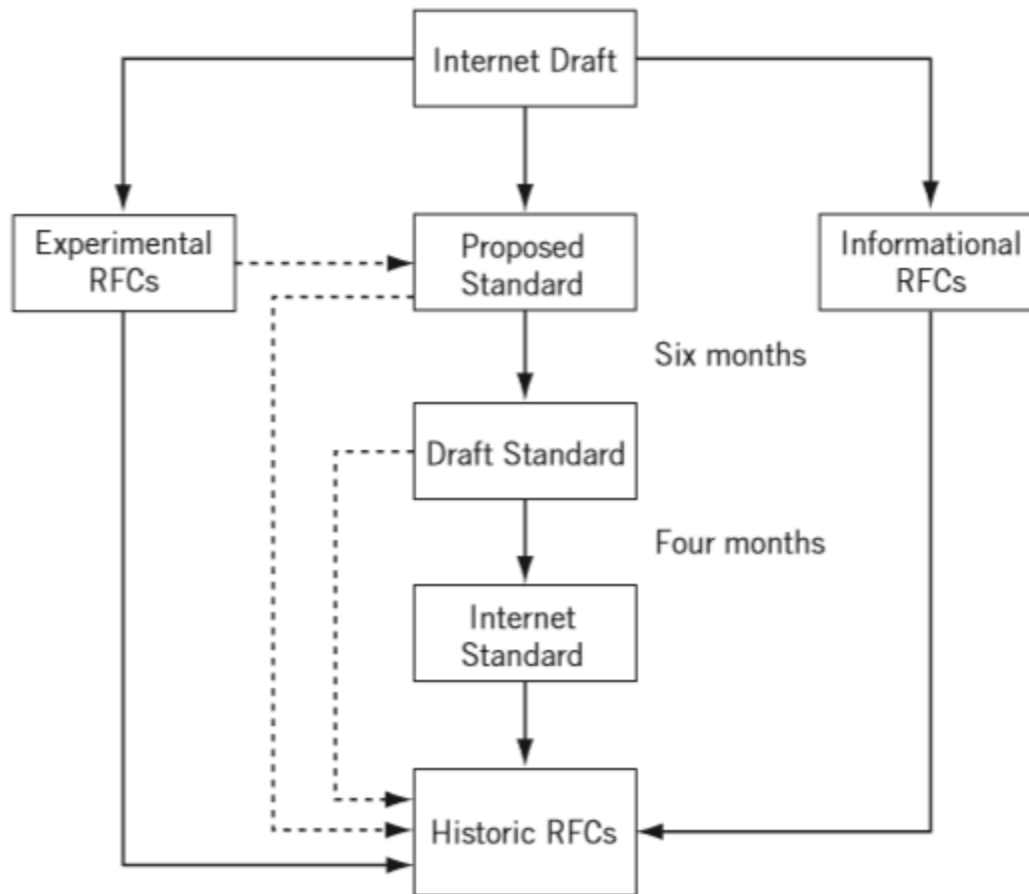
- The following organizations are the main ones that are the sources of these other standards.
 - ✓ IEEE
 - ✓ ANSI
 - ✓ EIA
 - ✓ ISO
 - ✓ ITU-T

Internet Standards - RFC

- The Internet standardization process starts with an ***Internet draft***.
- If recommended, the Internet authorities can publish the draft as a ***request for comment*** (RFC).
- Each RFC is edited, assigned a number, and available to all.
- Not all RFCs are standards, even those that define protocols.

Internet Standards - RFC

25



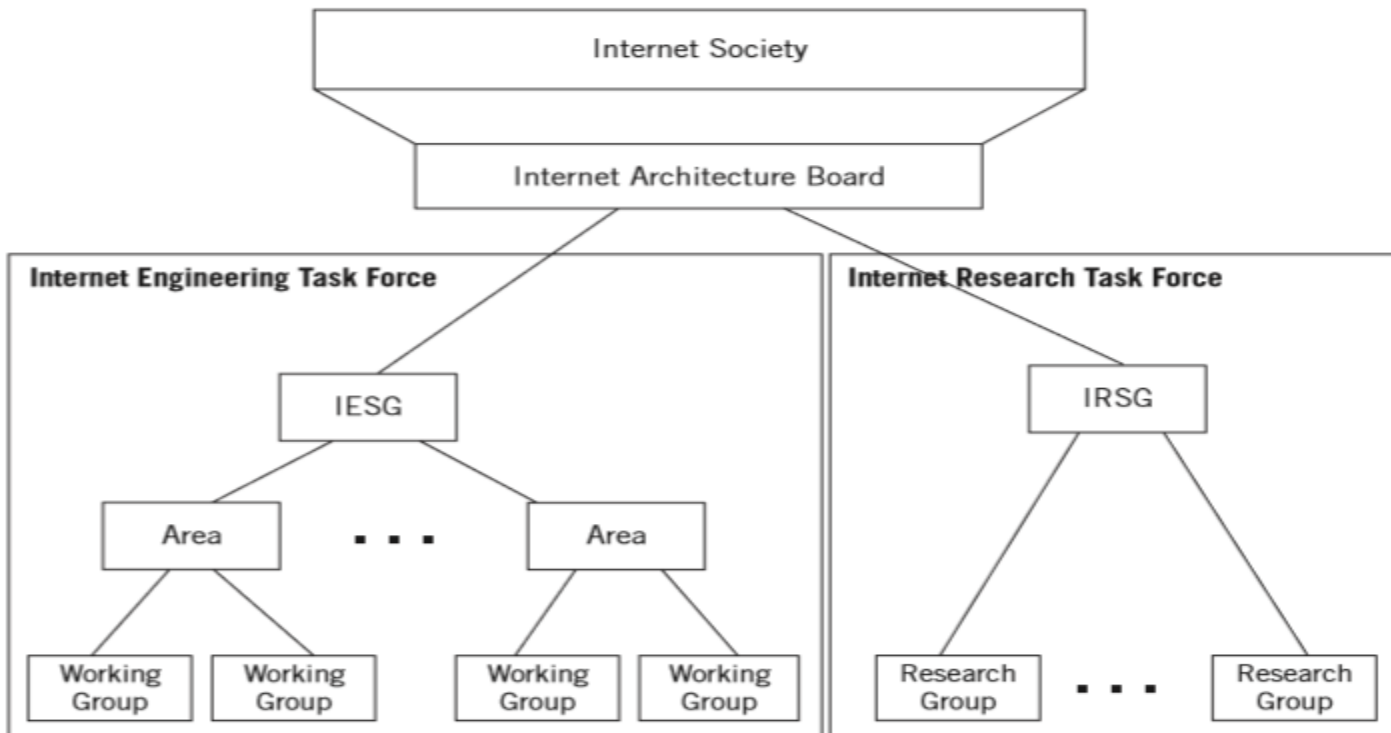
Agenda

26

- ❑ Internet History.
- ❑ Internet Standards.
- ❑ Internet Administration.
- ❑ TCP/IP Suite.

Internet Administration

27



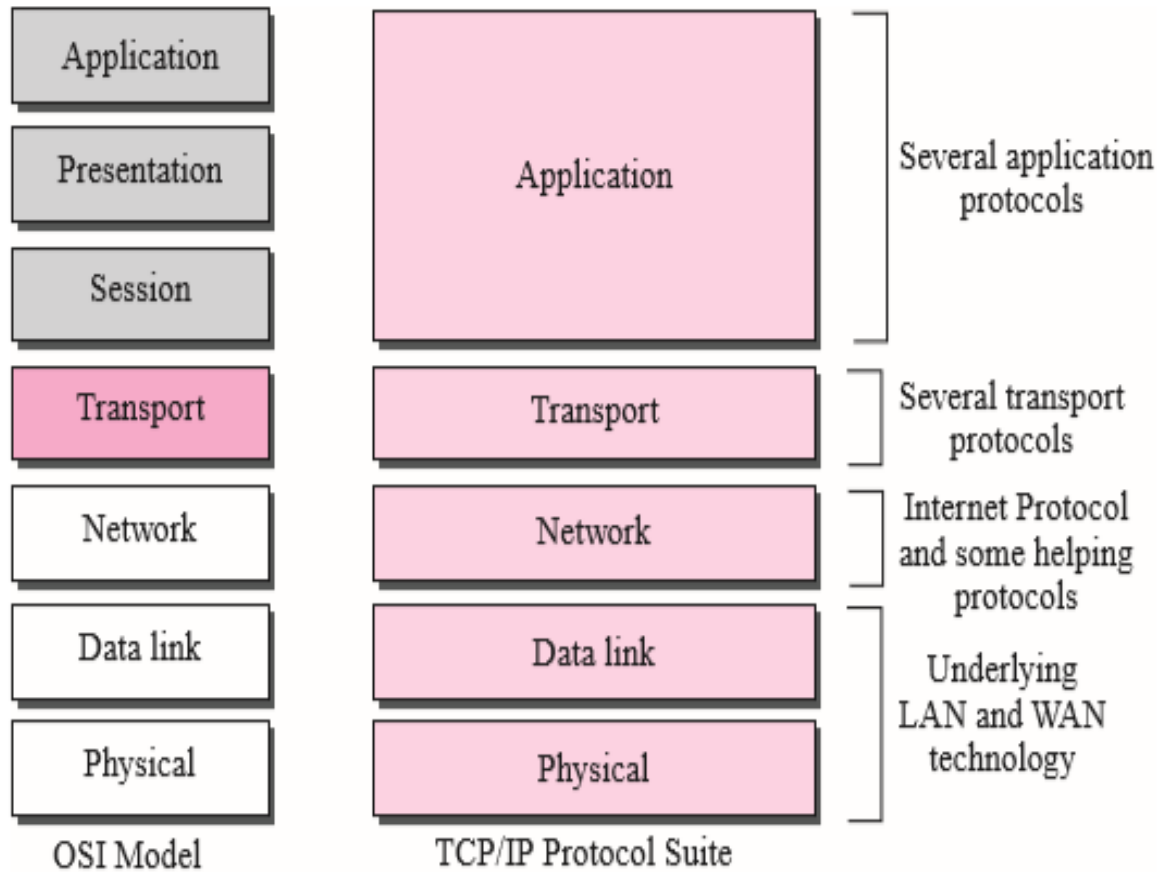
Internet administration groups, showing the interactions between the major components.

Agenda

28

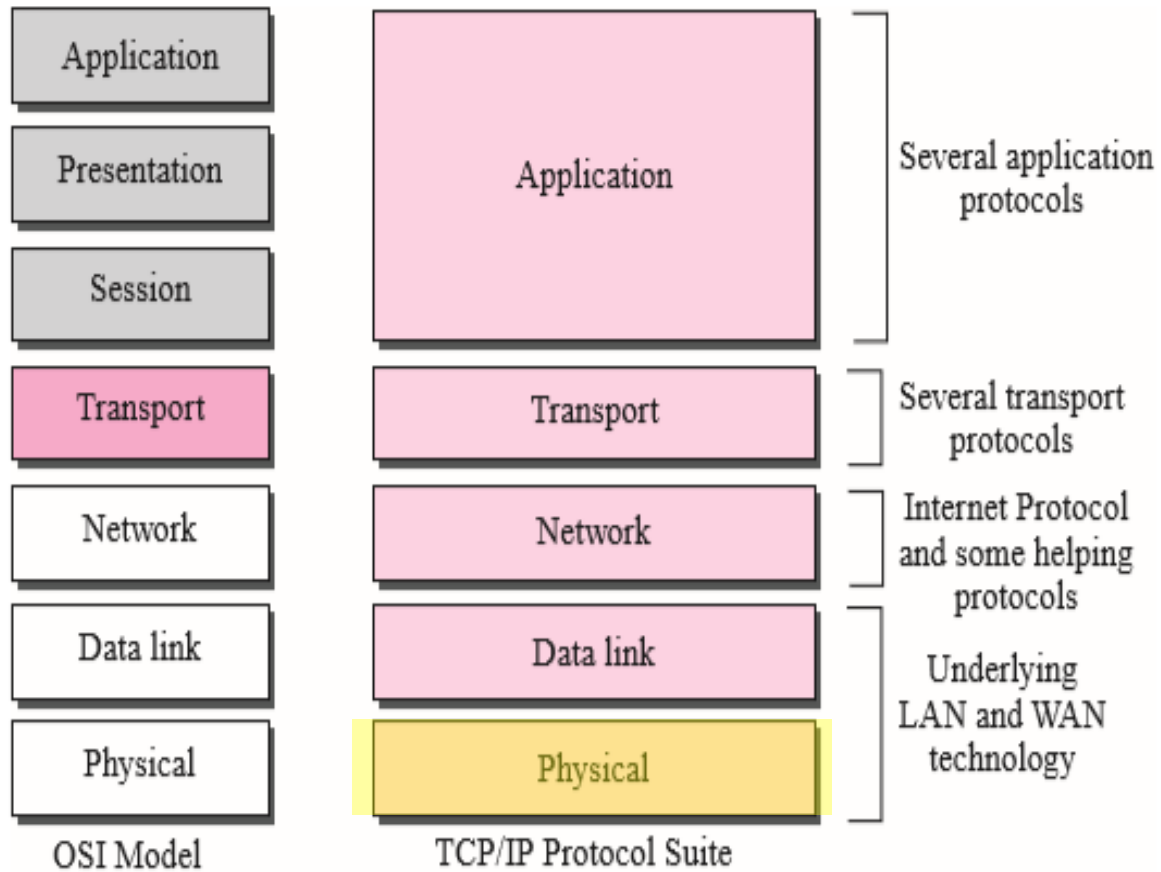
- ❑ Internet History.
- ❑ Internet Standards.
- ❑ Internet Administration.
- ❑ TCP/IP Suite.

TCP/IP Suite



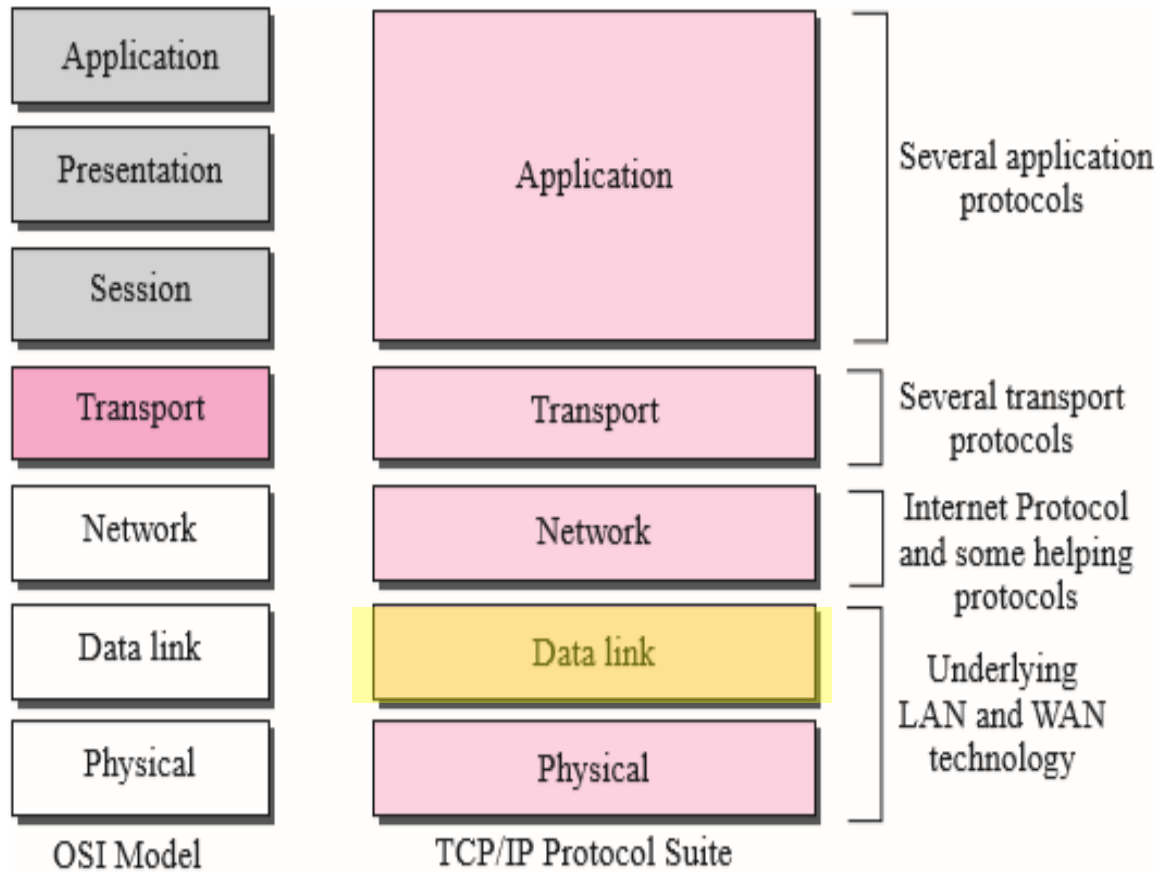
TCP/IP Suite

30



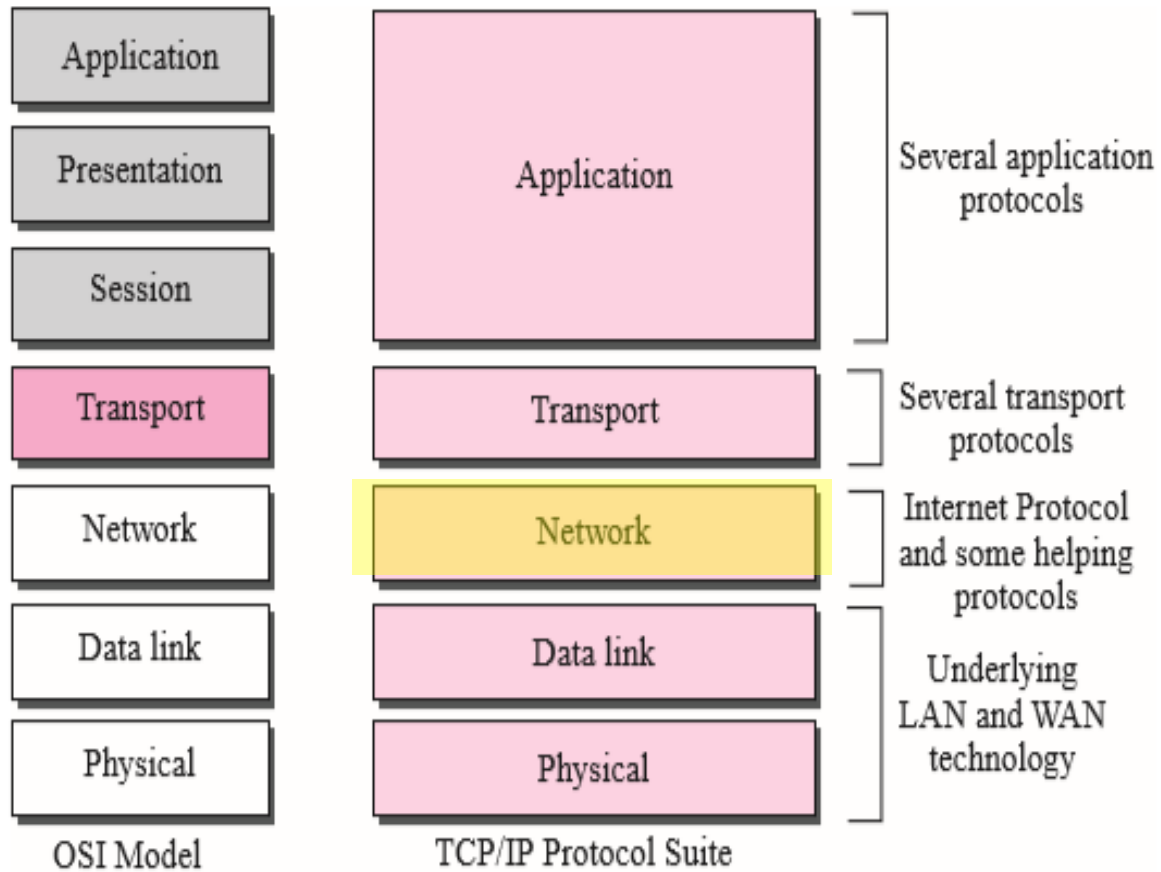
TCP/IP Suite

31



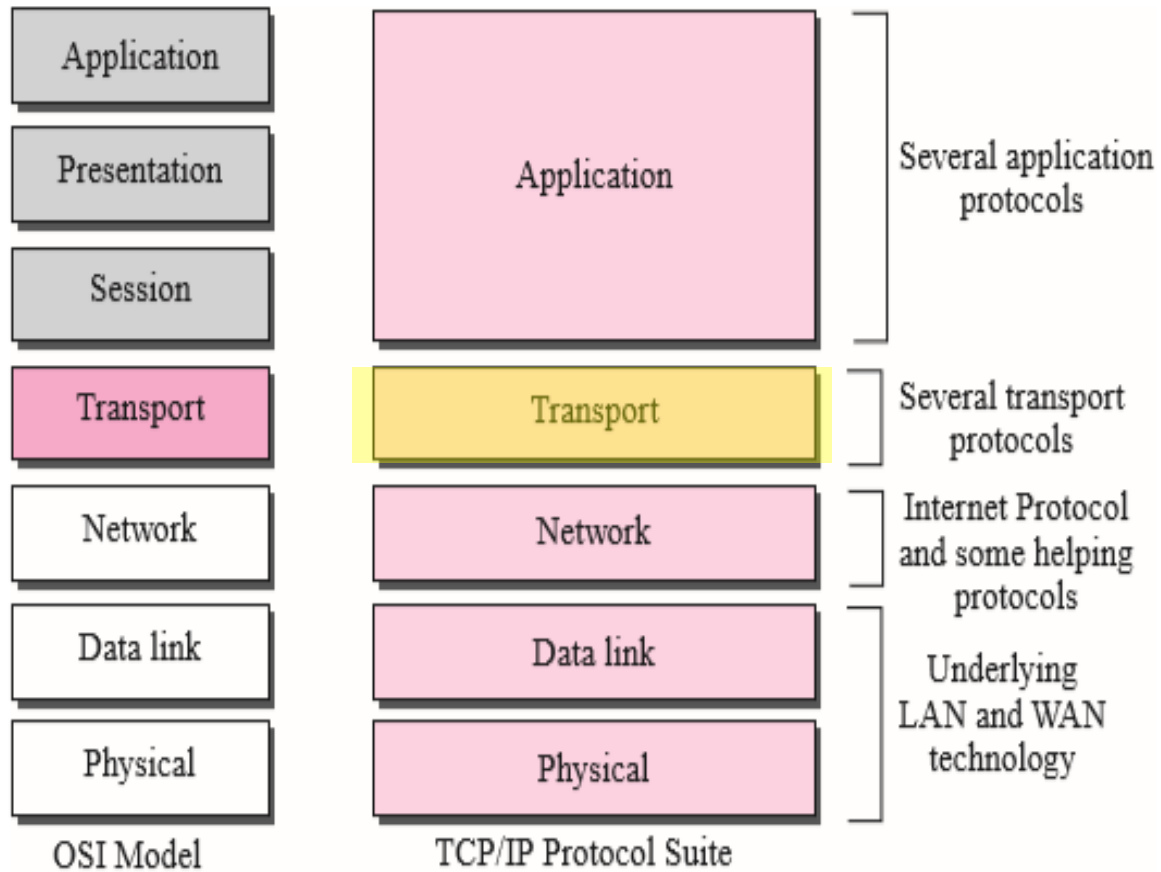
TCP/IP Suite

32



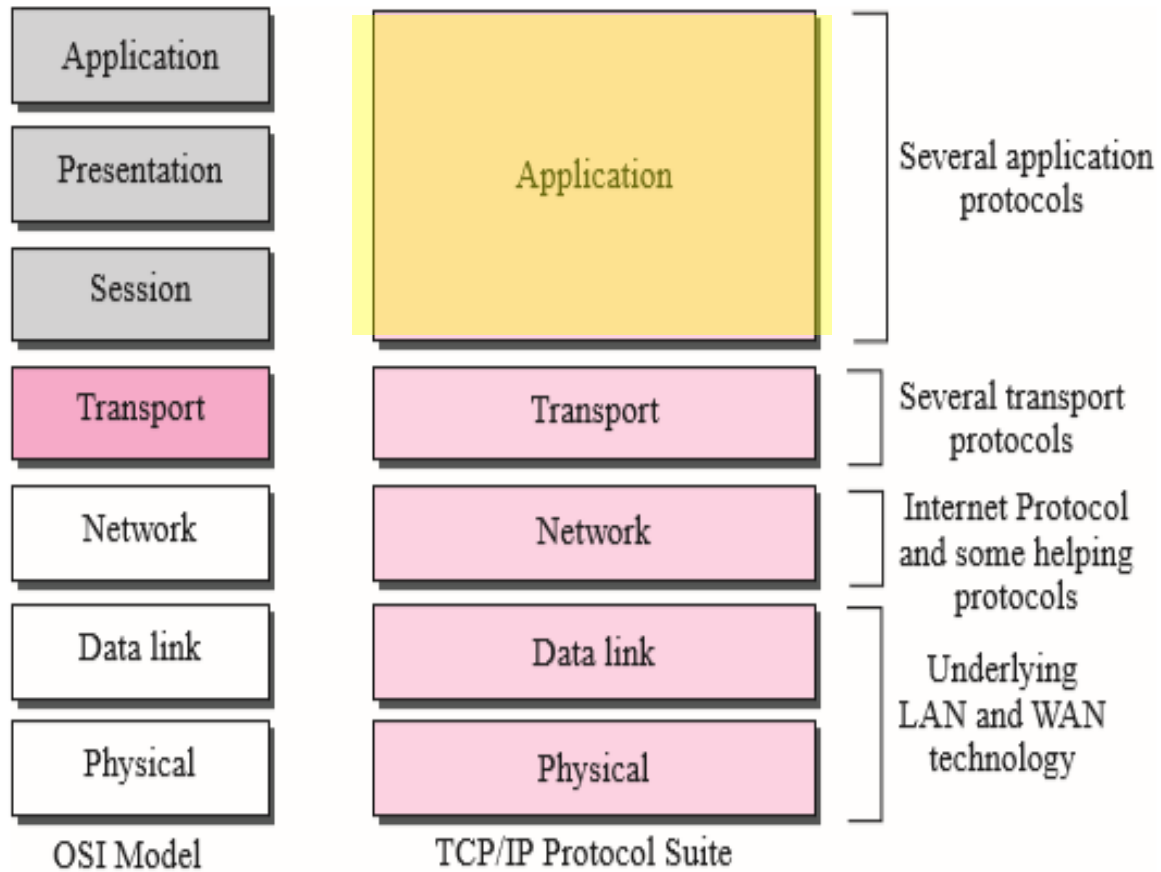
TCP/IP Suite

33



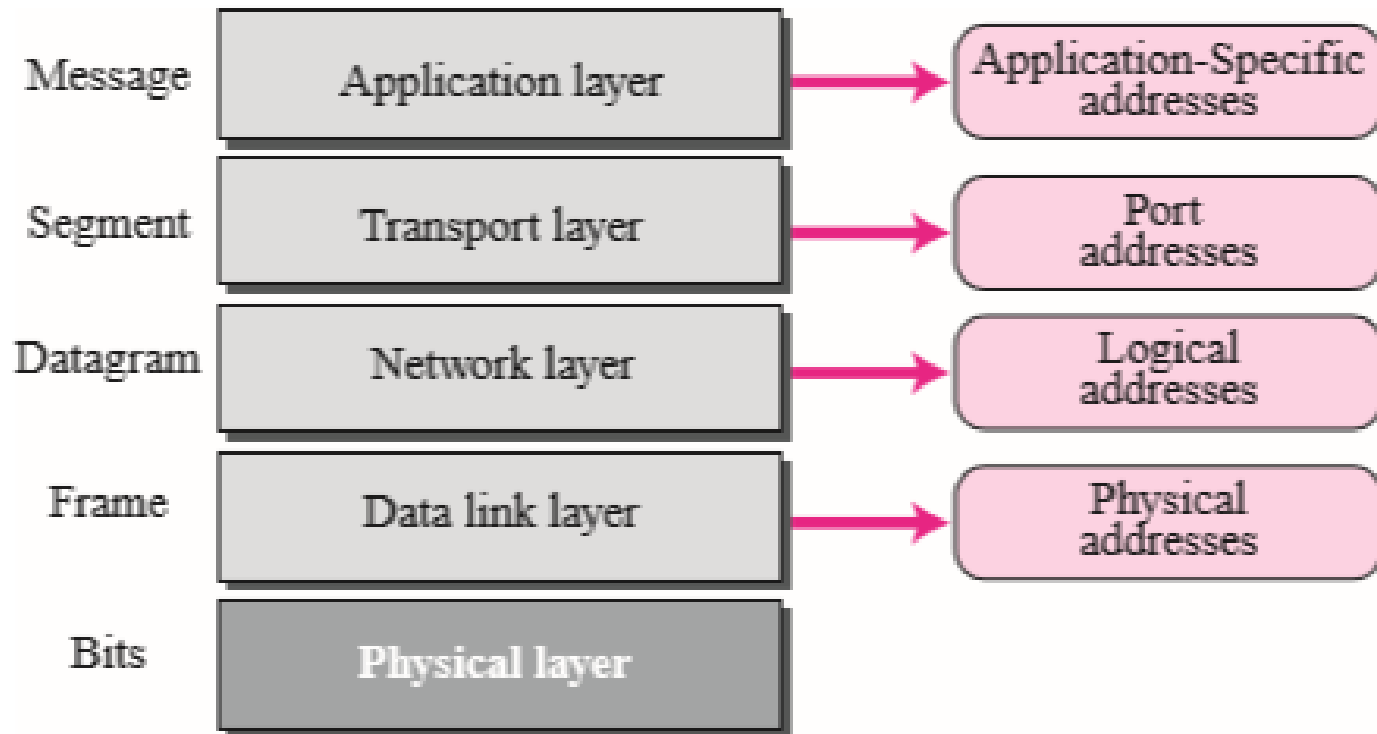
TCP/IP Suite

34



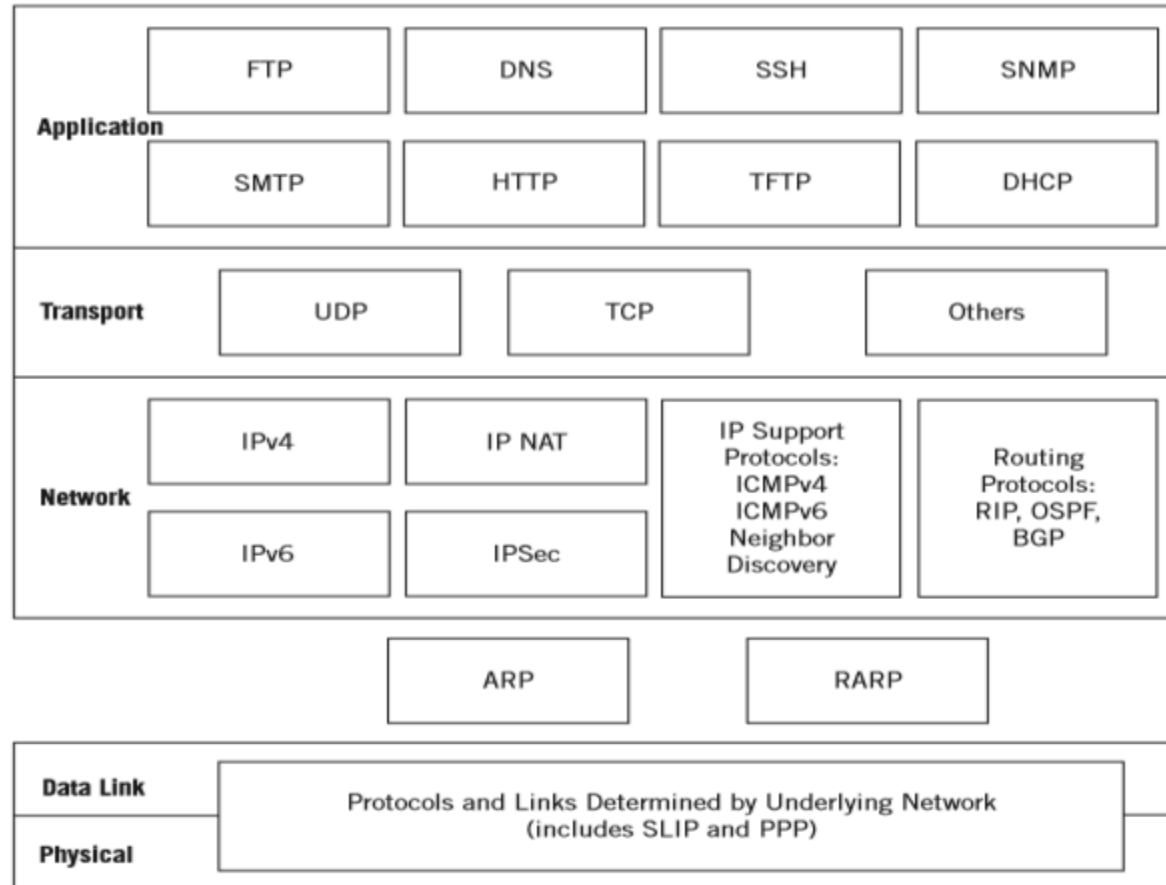
TCP/IP Suite Addressing

35



TCP/IP Suite

36



TCP/IP Suite

37

Demo

References

38

Chapter 1, 2 in “TCP/IP protocol suite”.

Chapter 1 in “the illustrated networks”

Questions