Introduction to Information Systems

Essentials for the Internetworked E-Business Enterprise

Eleventh Edition

James A. O'Brien

Chapter 6

Telecommunications and Networks

Irwin/McGraw-Hill

Chapter Objectives

- **Identify several major developments and trends in the industries, technologies, and business applications of telecommunications and Internet technologies.**
- **Provide examples of the business value of Internet, intranet, and extranet applications.**
- **Identify the basic components, functions, and types of telecommunications networks used in business.**
- **Explain the functions of major types of telecommunications network hardware, software, media, and services.**

Trends in Telecommunications

Industry Trends More vendors, carriers, alliances, and network services, accelerated by deregulation & Internet growth

Technology Trends Extensive Internet, interconnected local & global digital networks, improved transmission channels

Application Trends More electronic commerce, enterprise collaboration, online business operations and strategic advantage in markets

Telecommunications Strategic Capabilities

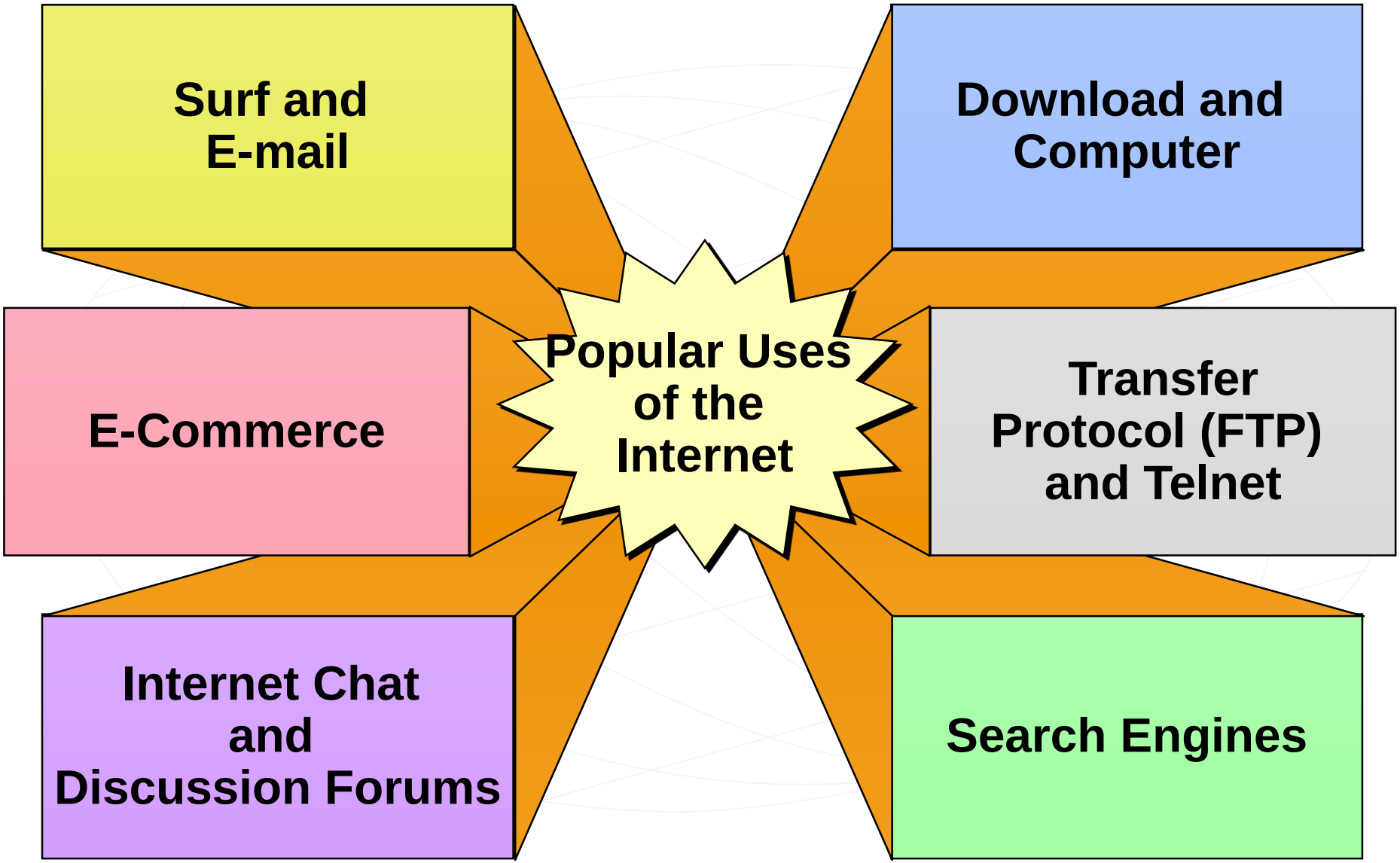
Overcome Geographic Barriers: Capture information about business transactions from remote locations.

Overcome Time Barriers: Provide information to remote locations immediately after it is requested.

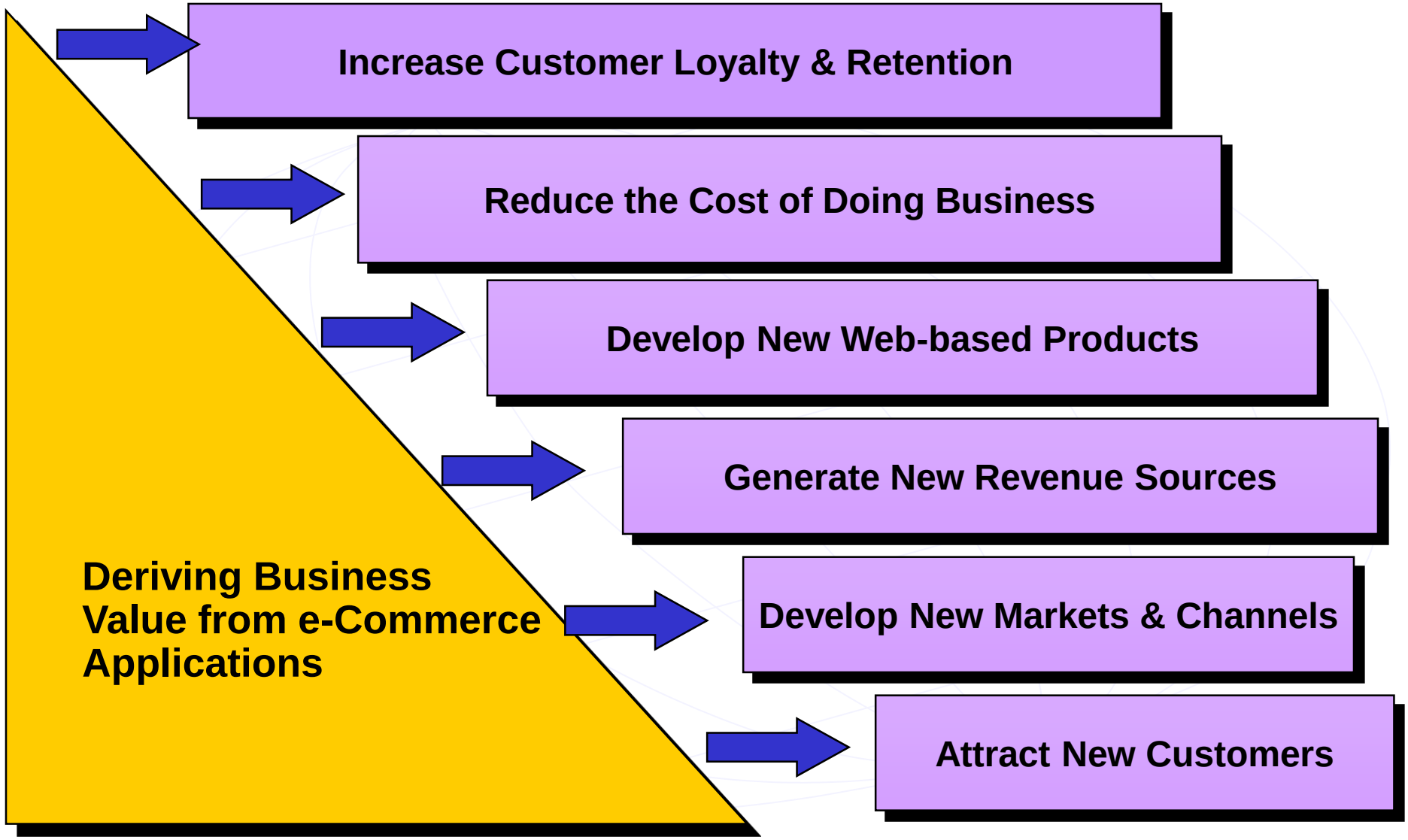
Overcome Cost Barriers: Reduce the cost of more traditional means of communications.

Overcome Structural Barriers: Support linkages for competitive advantage.

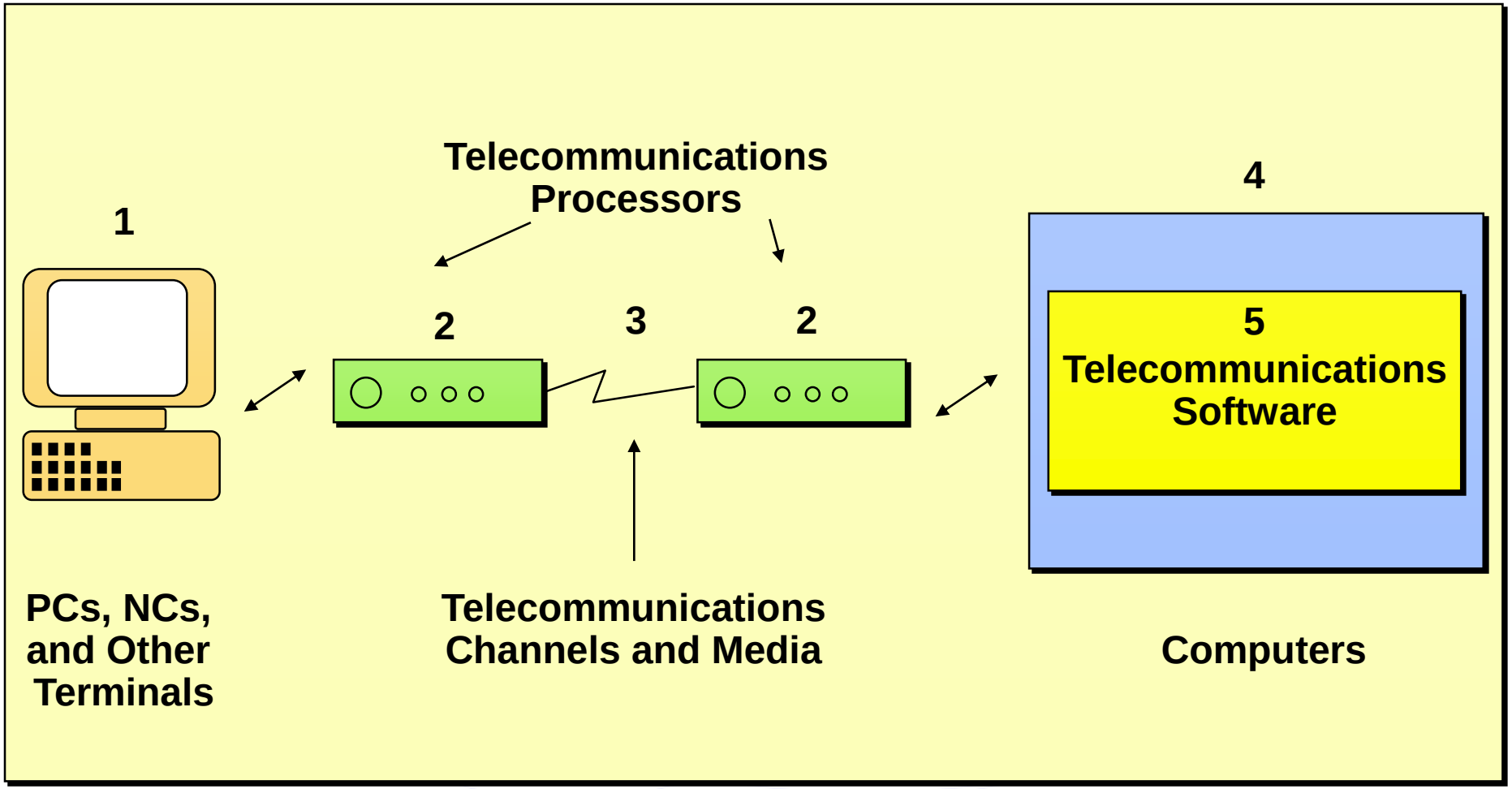
Internet Applications



Business Value from e-Commerce Applications

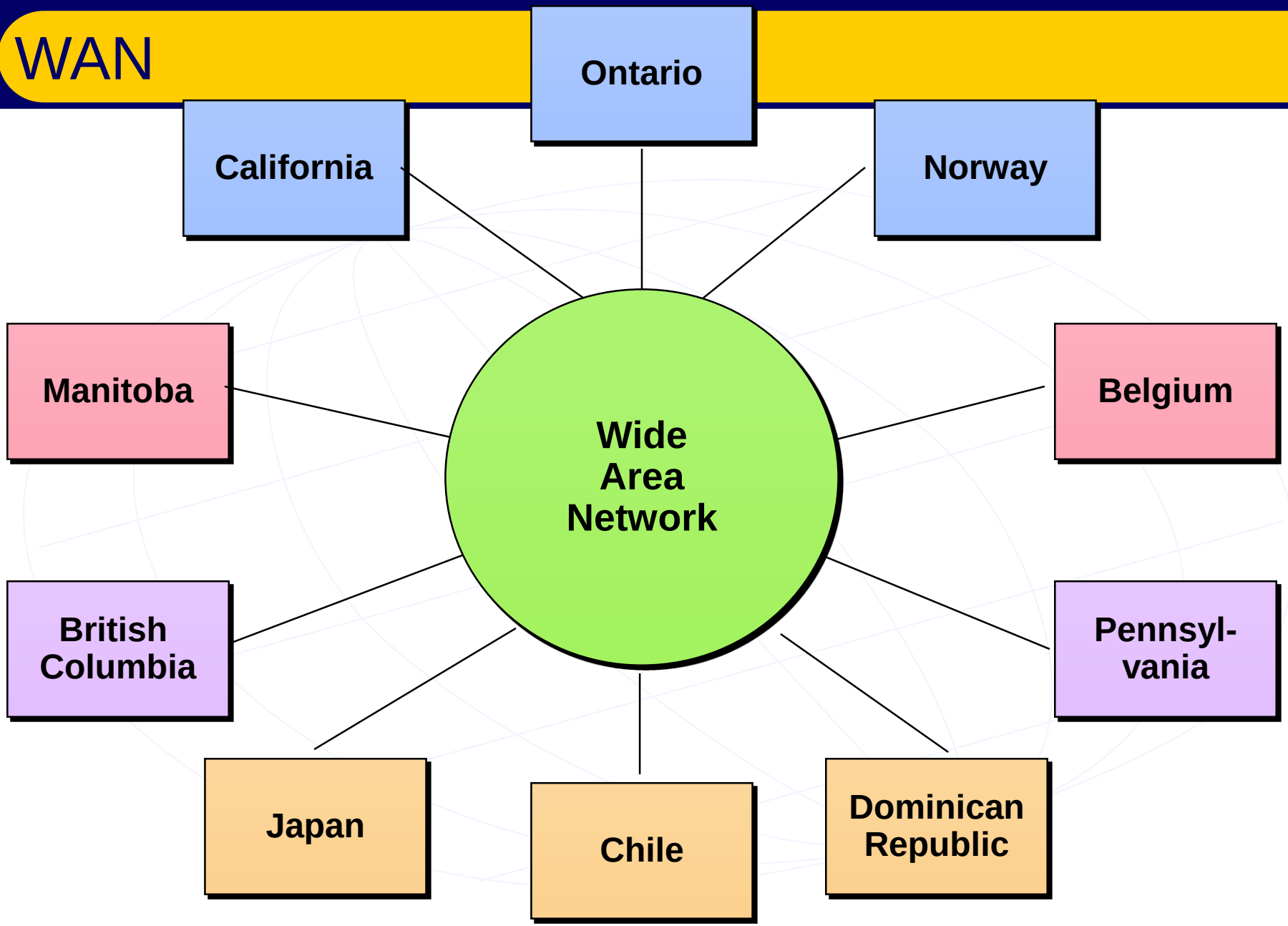


Basic Components in a Telecommunications Network

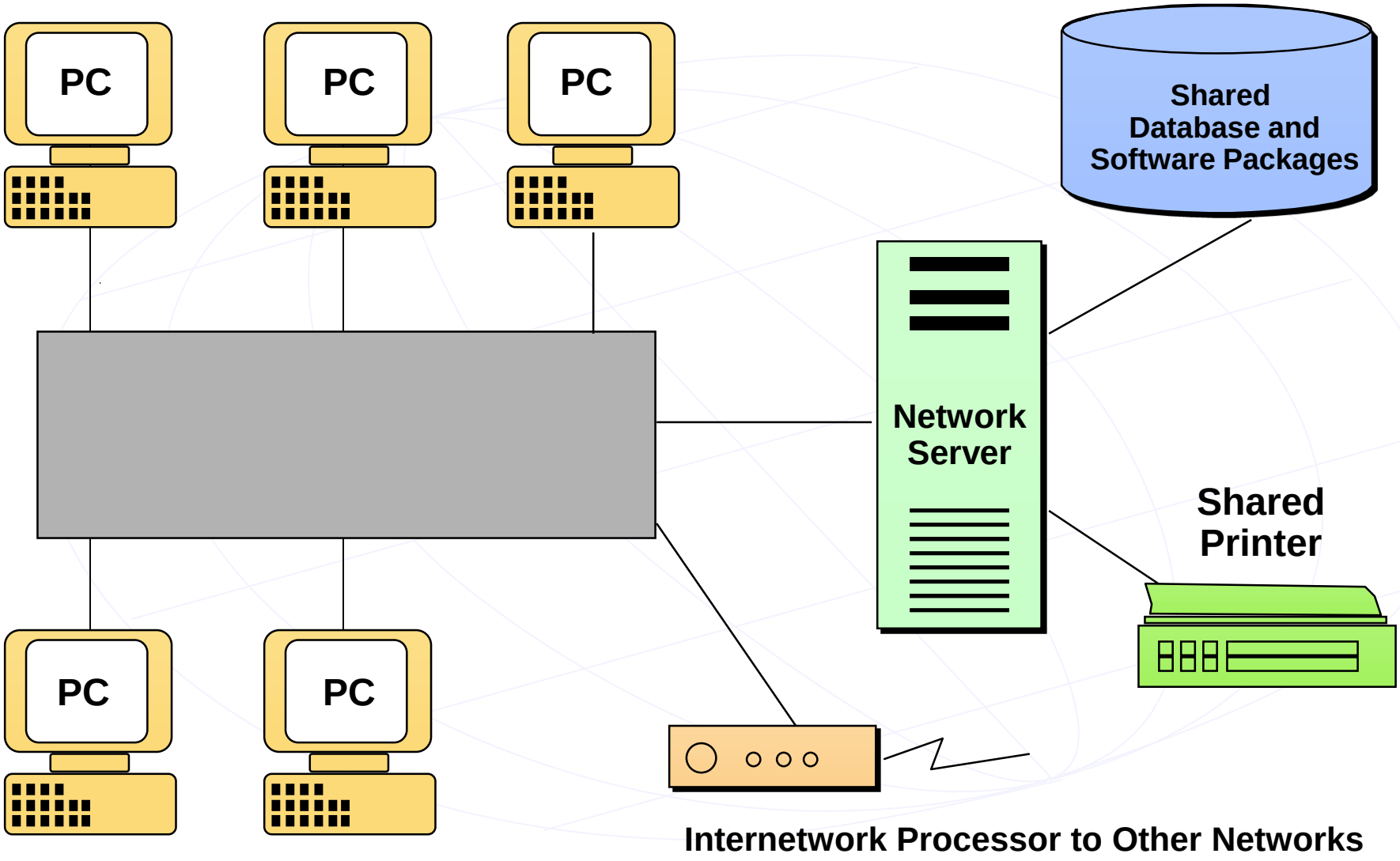


Wide Area Networks

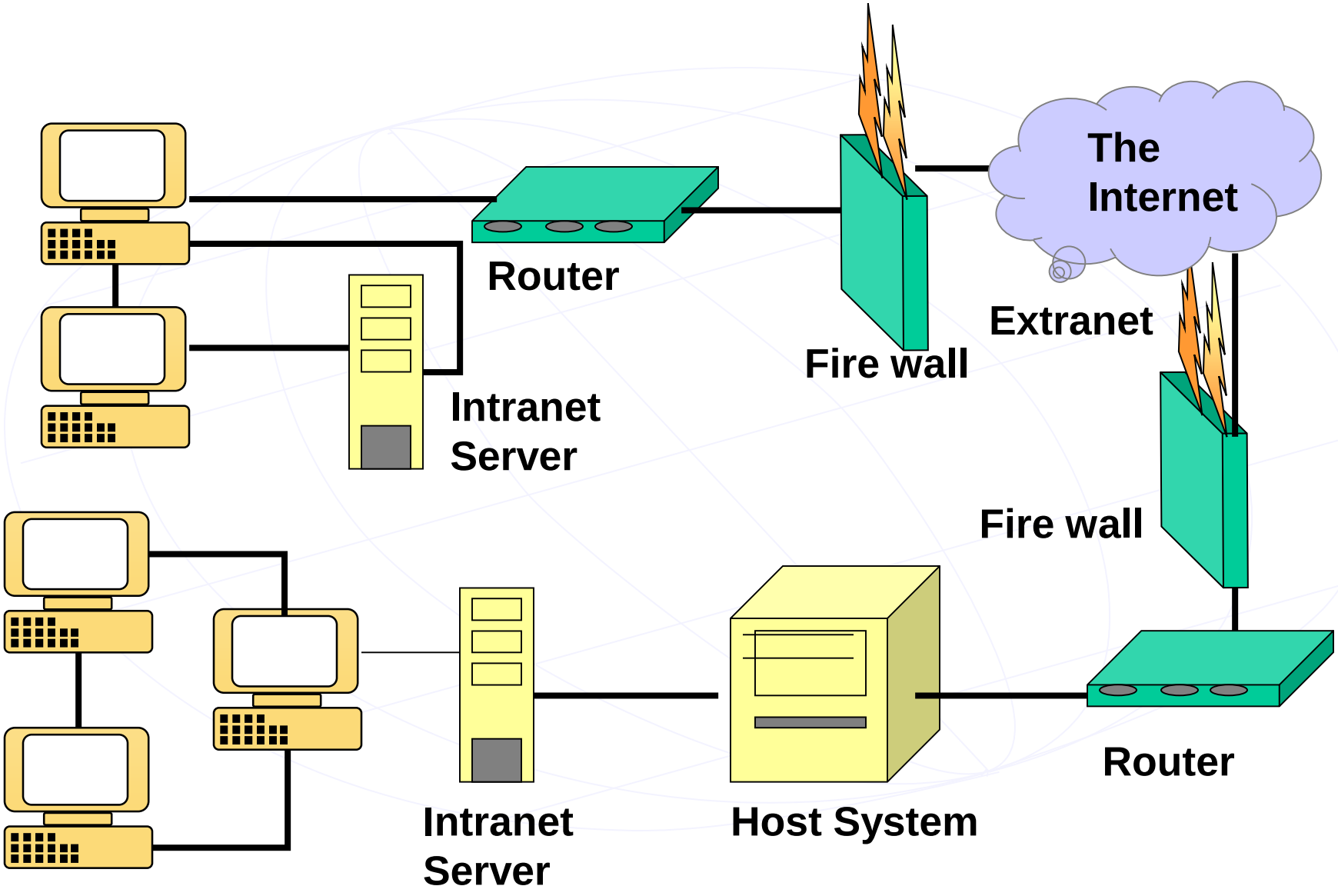
WAN



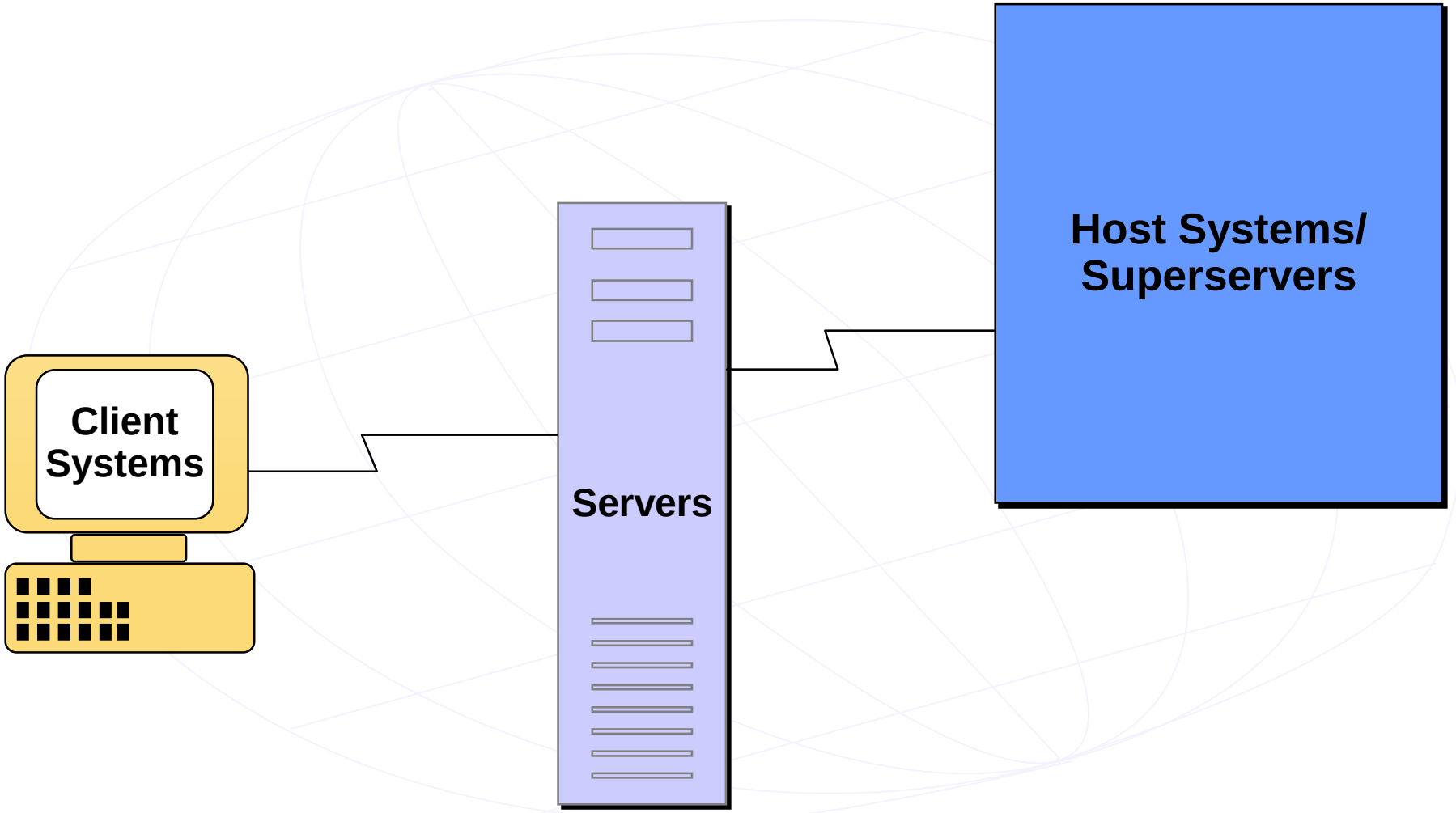
Local Area Networks



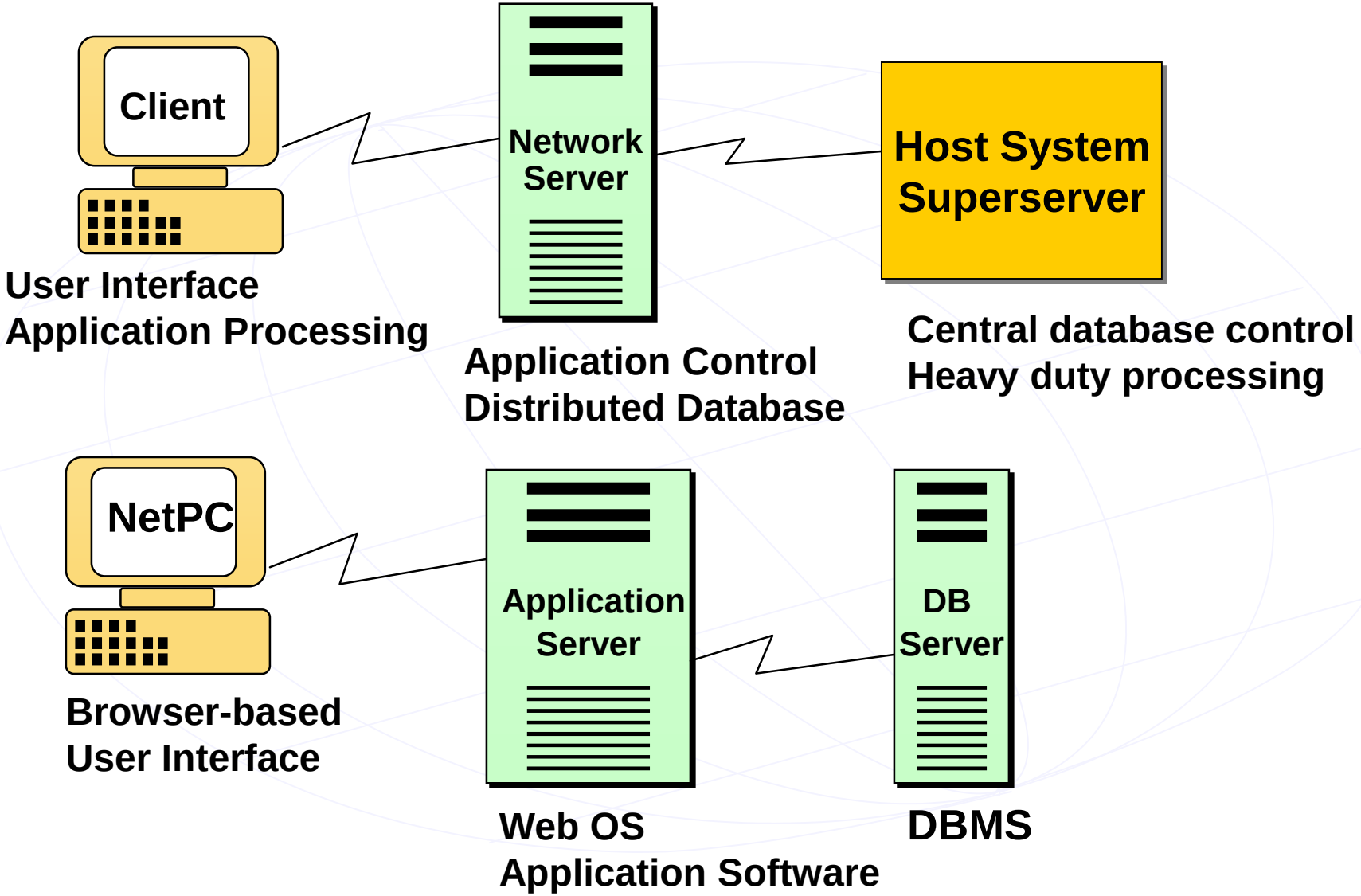
Other E-business Networks



Client Server Networking

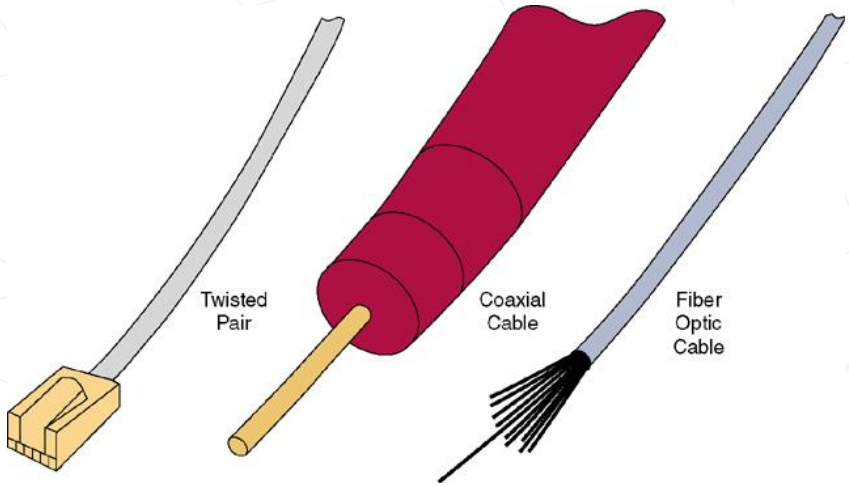


Client/Server Networks and Network Computing



Telecommunications Communication Media

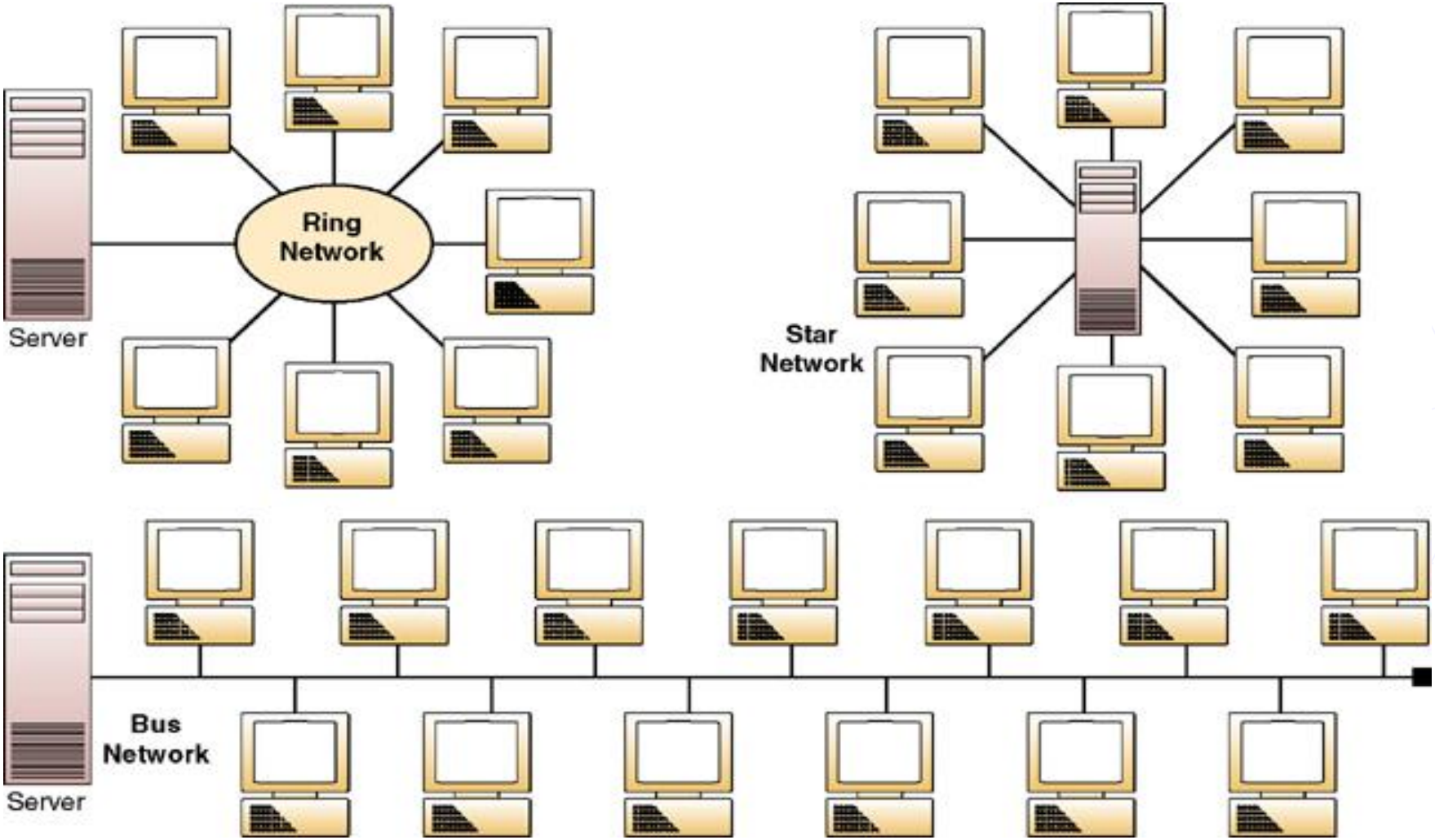
- Twisted Pair
- Coaxial Cable
- Fiber Optics
- Terrestrial Microwave
- Communication Satellites
- Cellular Technologies
- Wireless LAN



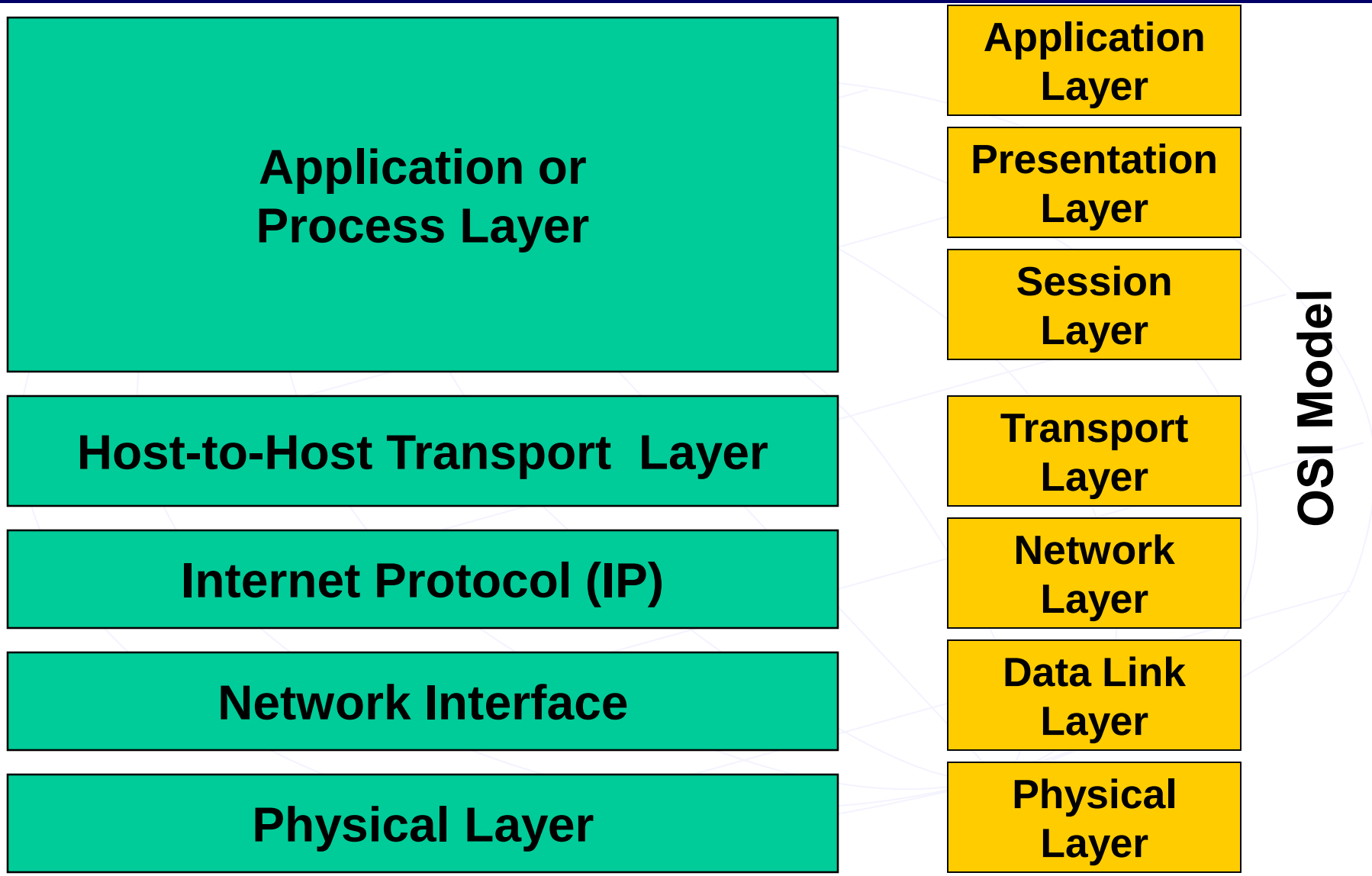
Telecommunications Processors and Software

- Modems
- Multiplexers
- Internetwork Processors
  - Switches
  - Routers
  - Hubs
  - Gateways
- Fire walls
- Network Operating System
- Telecommunications Monitor
- Middleware
- Network Management Software

Network Topologies



The Internet's TCP/IP



Chapter Summary

- Organizations are becoming internetworked enterprises that use the Internet, intranets, and other telecommunications networks to support e-business.
- Telecommunications has entered a deregulated and fiercely competitive environment with many vendors, carriers, and services
- A major trend is towards pervasive use of the Internet and its technologies to build interconnected enterprise and global networks.

Chapter Summary (cont)

- The major components of any telecommunications network are:
  - Terminals,
  - Telecommunications processors,
  - Communication channels,
  - Computers, and
  - Telecommunications software.
- There are several basic types of telecomm networks, including wide area networks (WANs) and local area networks (LANs).

Chapter Summary (cont)

- Key telecommunications network alternatives include telecommunications media, processors, software, channels, and architectures.