

# CHAPTER 2: DISTRIBUTED SYSTEM CONCEPTS AND ARCHITECTURES

## Characteristics of distributed systems

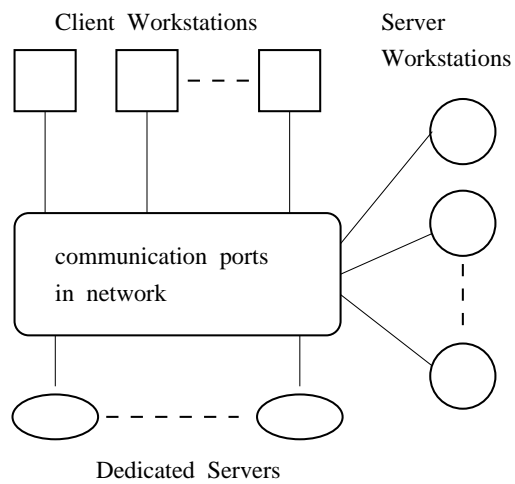
- *multiplicity*
  - multiple users
  - concurrent processes
  - replication of resources
- *dispersion*
  - distributed resources
  - decentralized control
- *Non-negligible communication delay*
- *Lack of global information*
- *Failures*

## Transparency

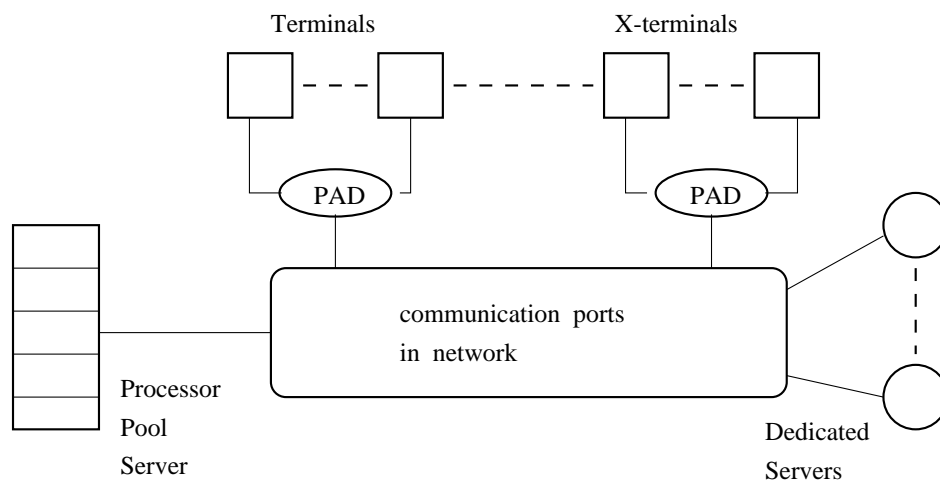
- *Access*
- *Location*
- *Migration*
- *Concurrency*
- *Parallelism*
- *Failure*
- *Performance*
- *Size*
- *Revision*

## Distributed system architectures

### The workstation-server model

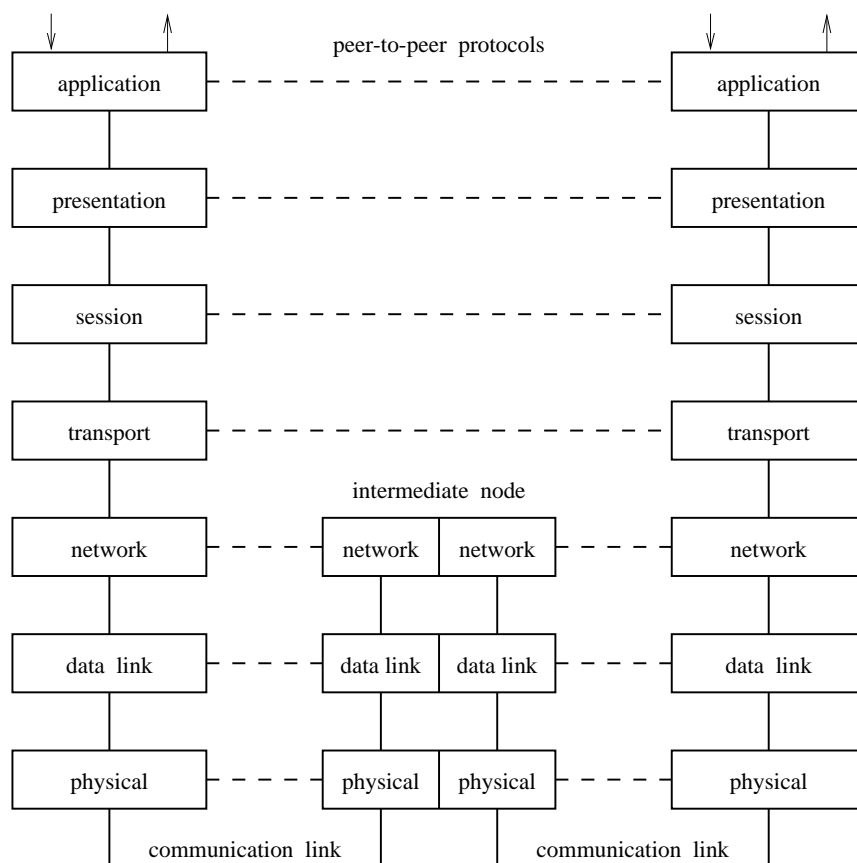


### The processor-pool model

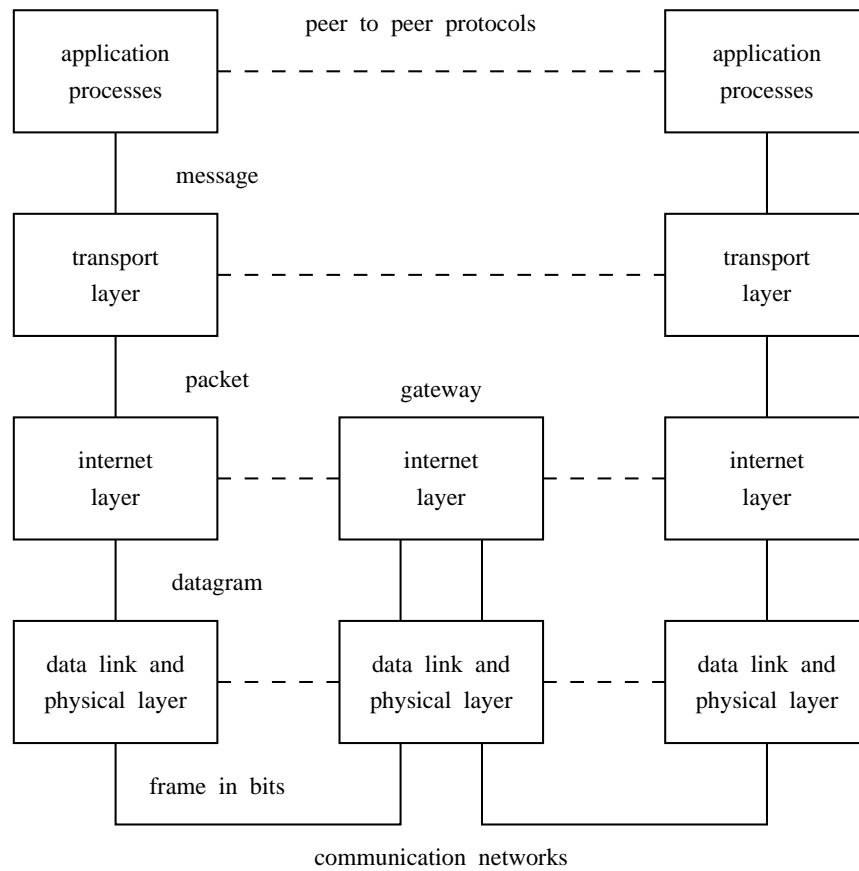


# Communication network architectures

## OSI protocol suite



## TCP/IP protocol suite



## Major design issues

- *Object models and naming schemes*: object, client/server, name server
- *Distributed coordination*: synchronization and distributed algorithms
- *Interprocess communication*: socket and RPC
- *Distributed resources*: sharing and replication
- *Fault-tolerance and security*: redundancy, recovery, protection

## DCE example

