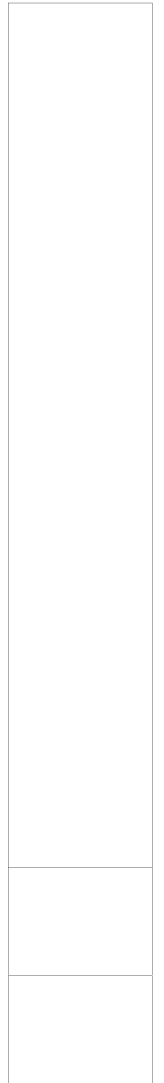


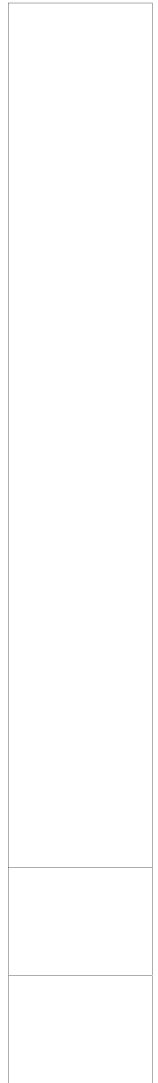
LAN devices

Foundations of computer networks



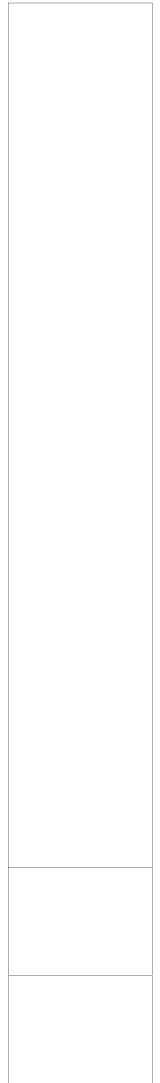
Classification of devices

- Passive elements of network
- Active equipment
 - connecting
 - processing
 - servers
 - workstations



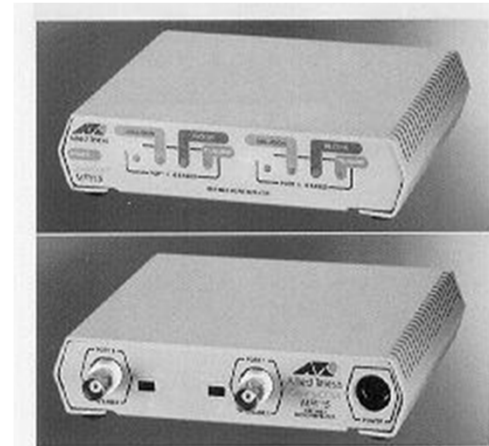
Connecting devices

- repeater (regenerator)
- hub
- bridge
- switch
- router

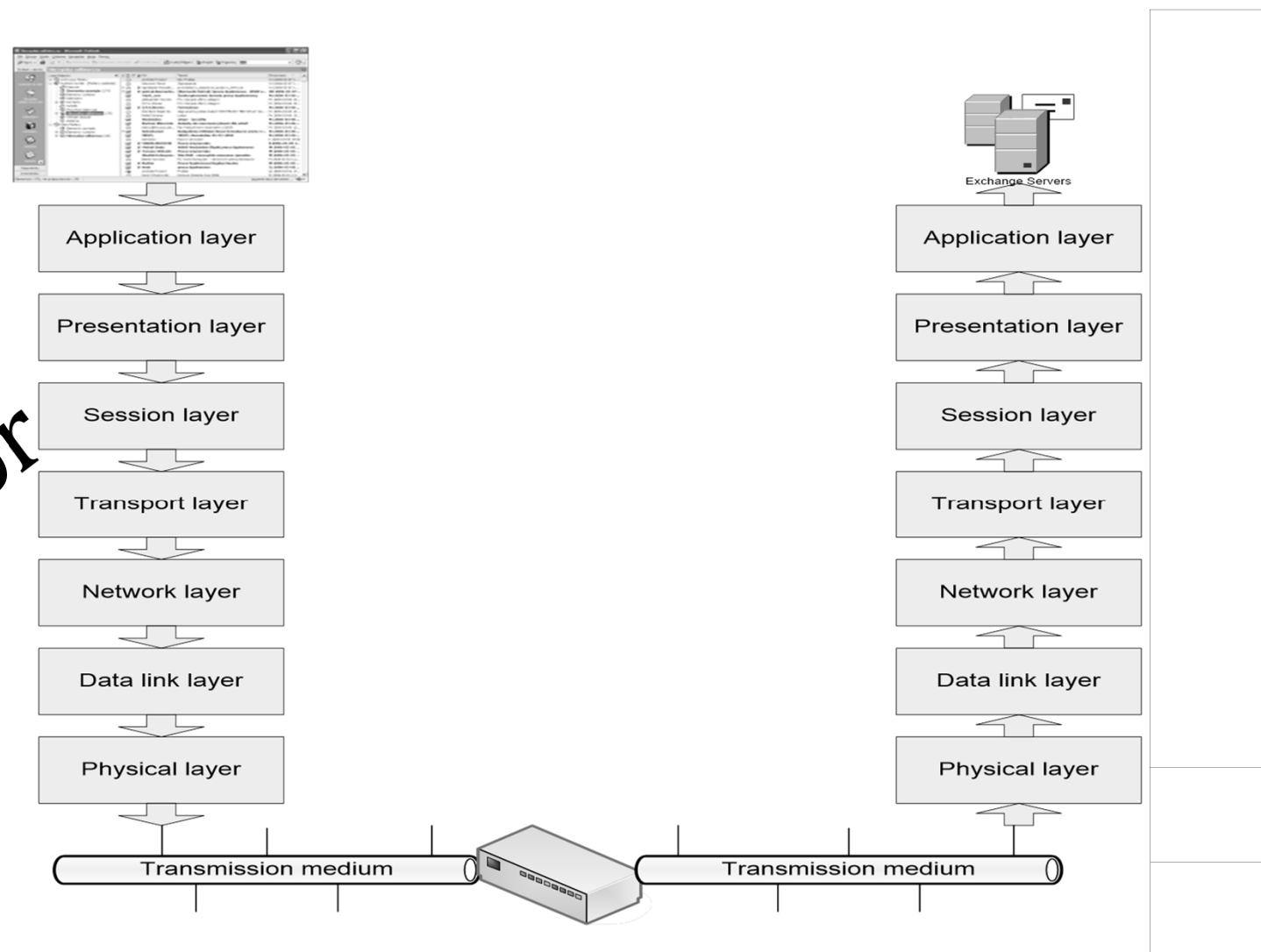


Regenerator

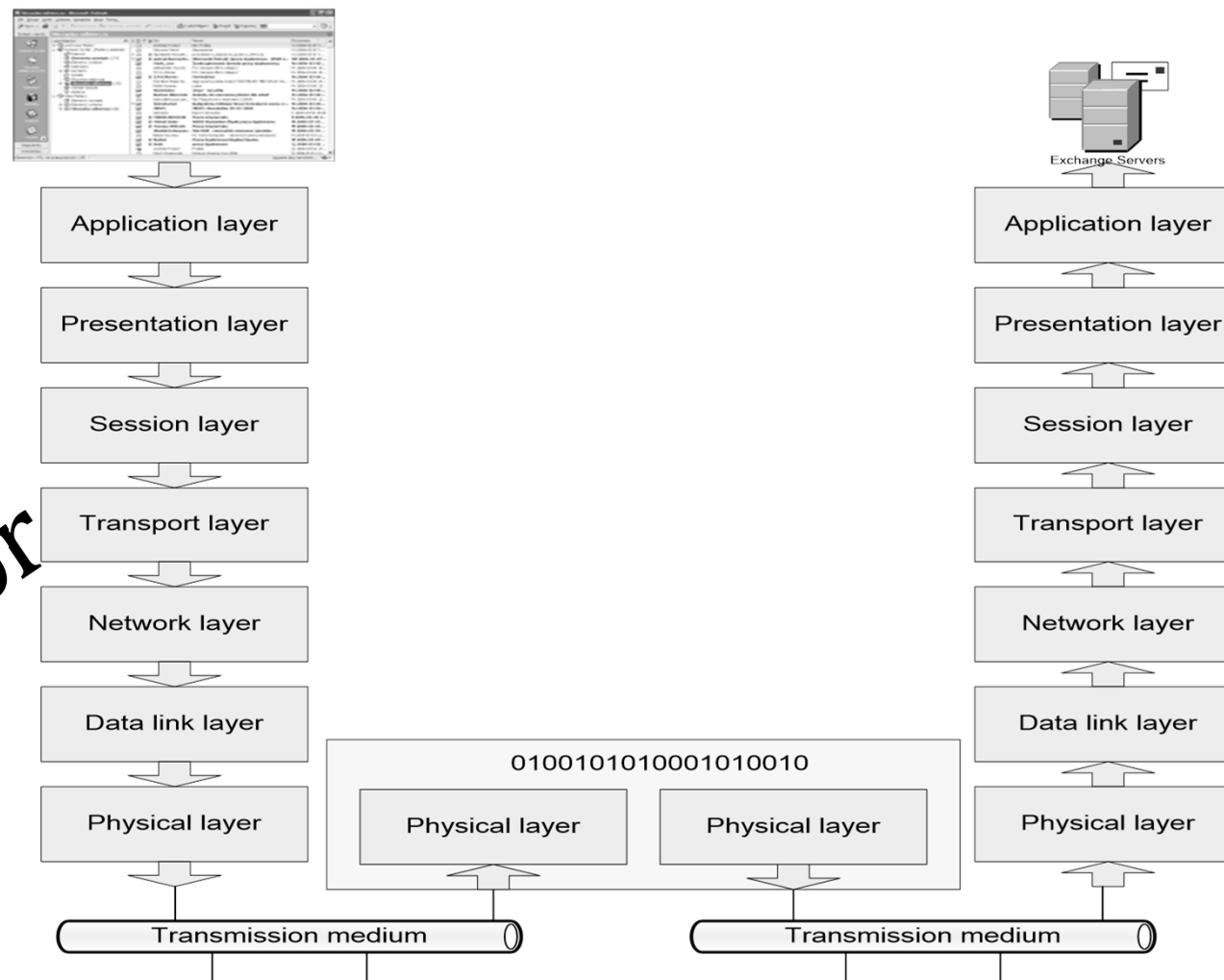
- Class I
 - delay 0,7 μ s
- Class II
 - delay 0,46 μ s



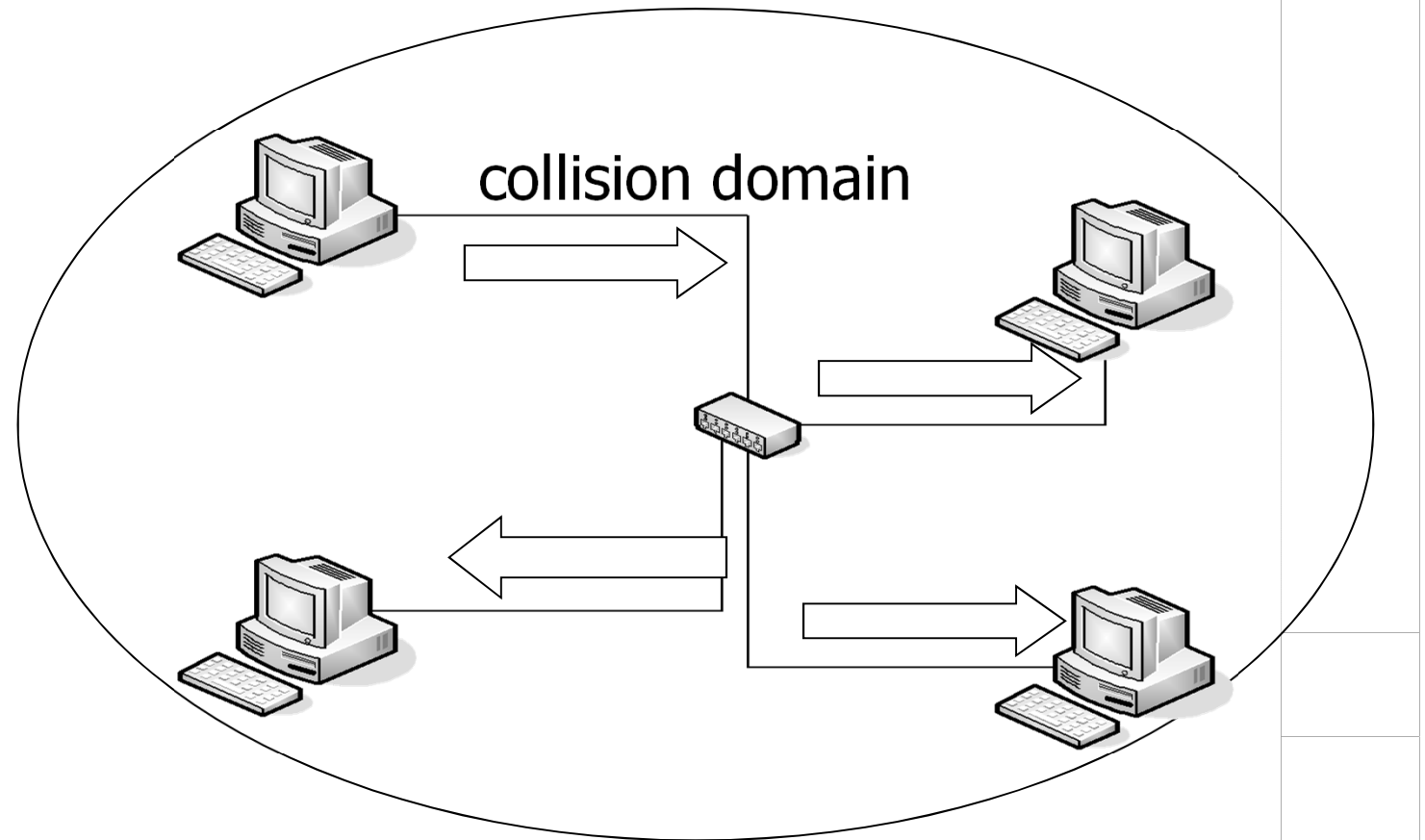
Regenerator class II



Regenerator class I

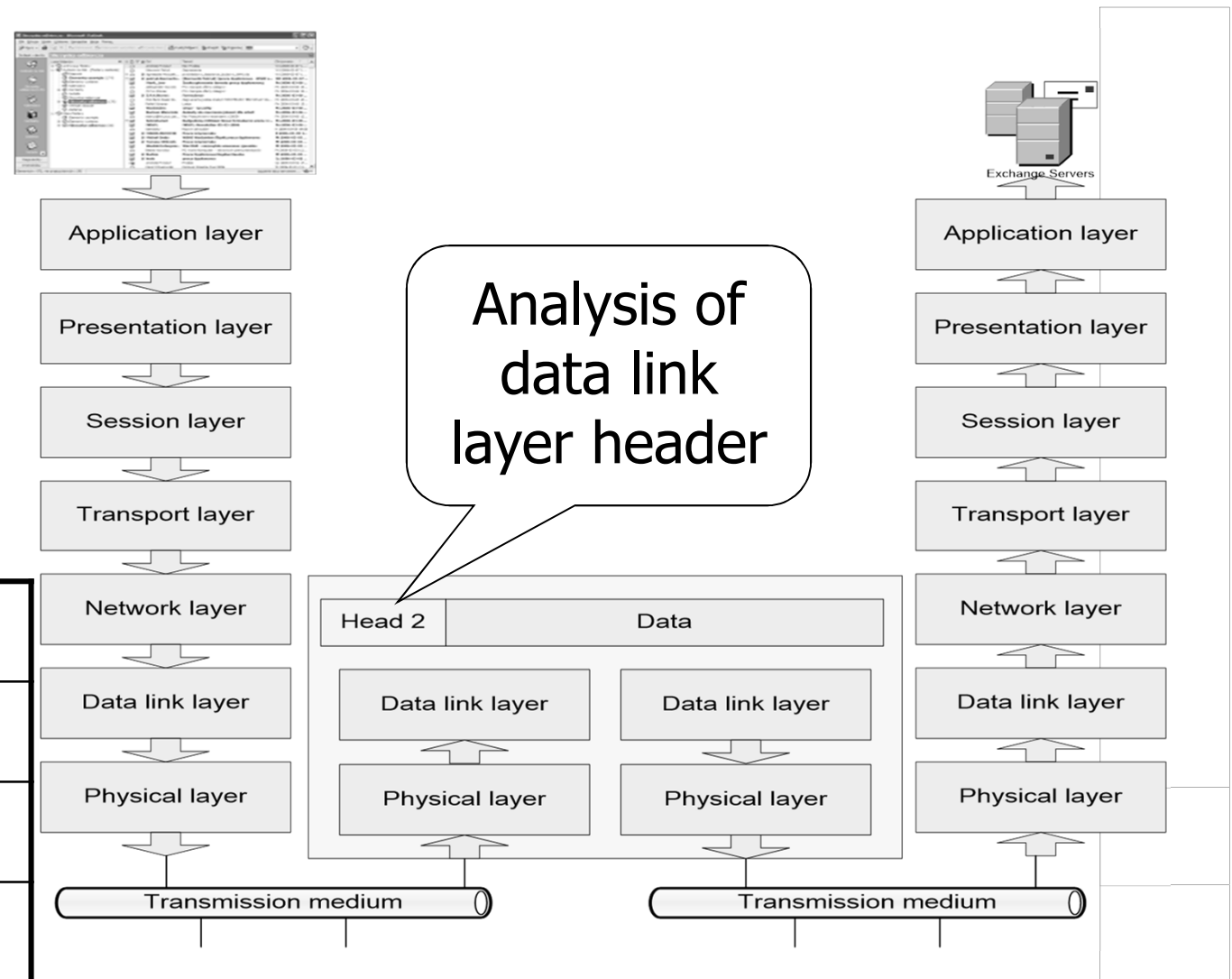


Hub

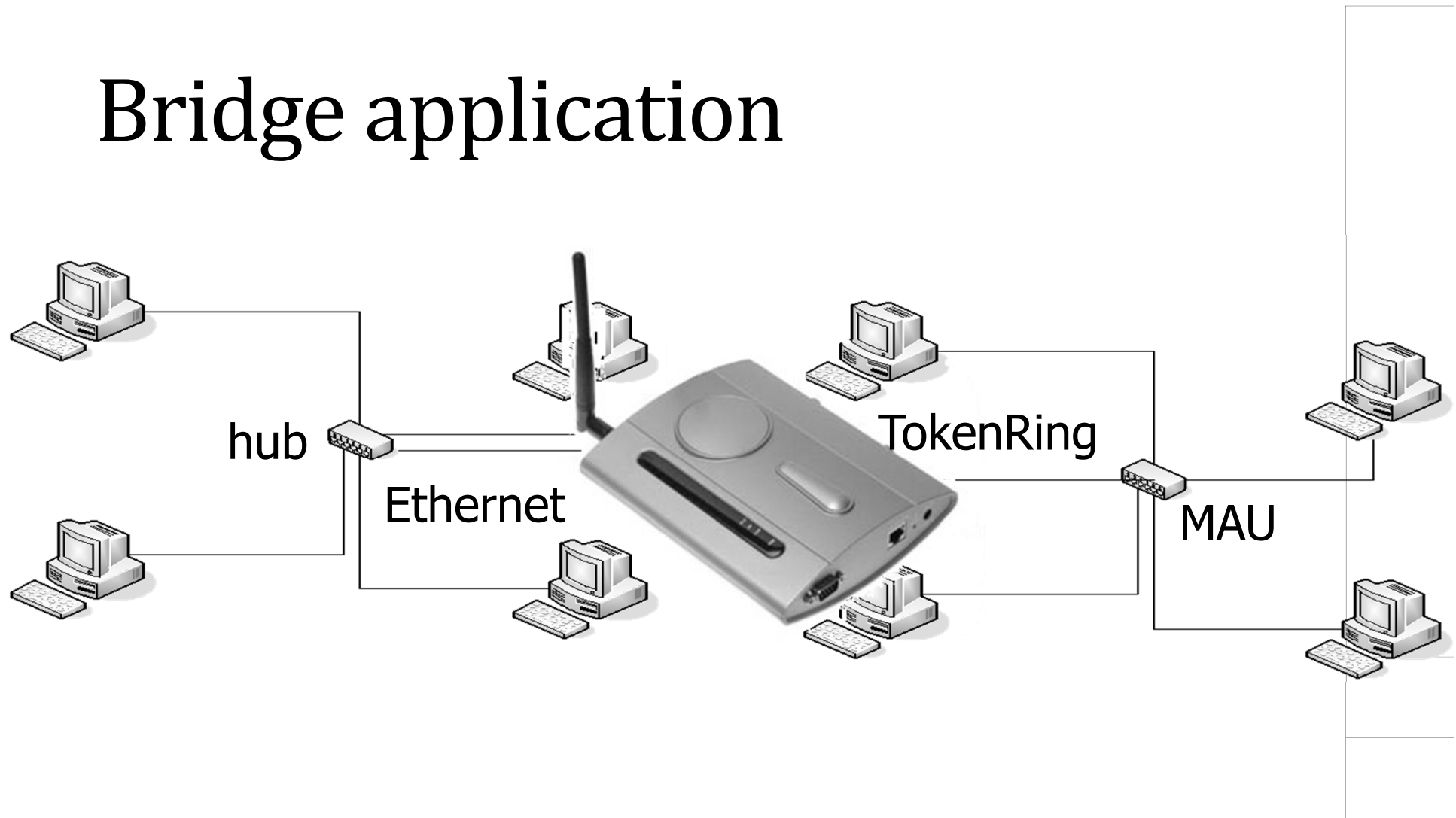


Bridge

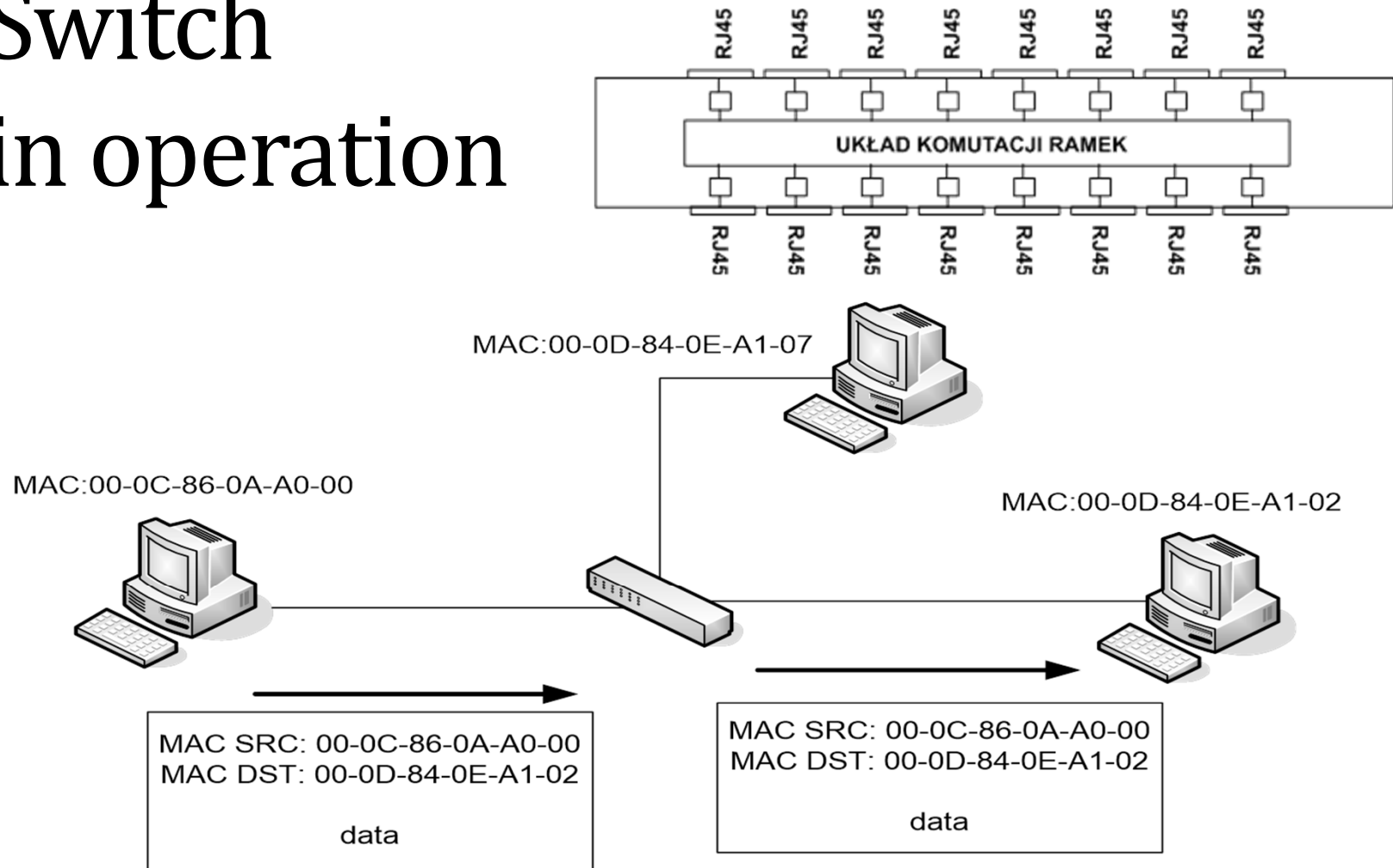
MAC address	Port
00-A0-DC-DA-43-C7	Port 0
00-A1-E1-D9-24-B9	Port 1
...	...



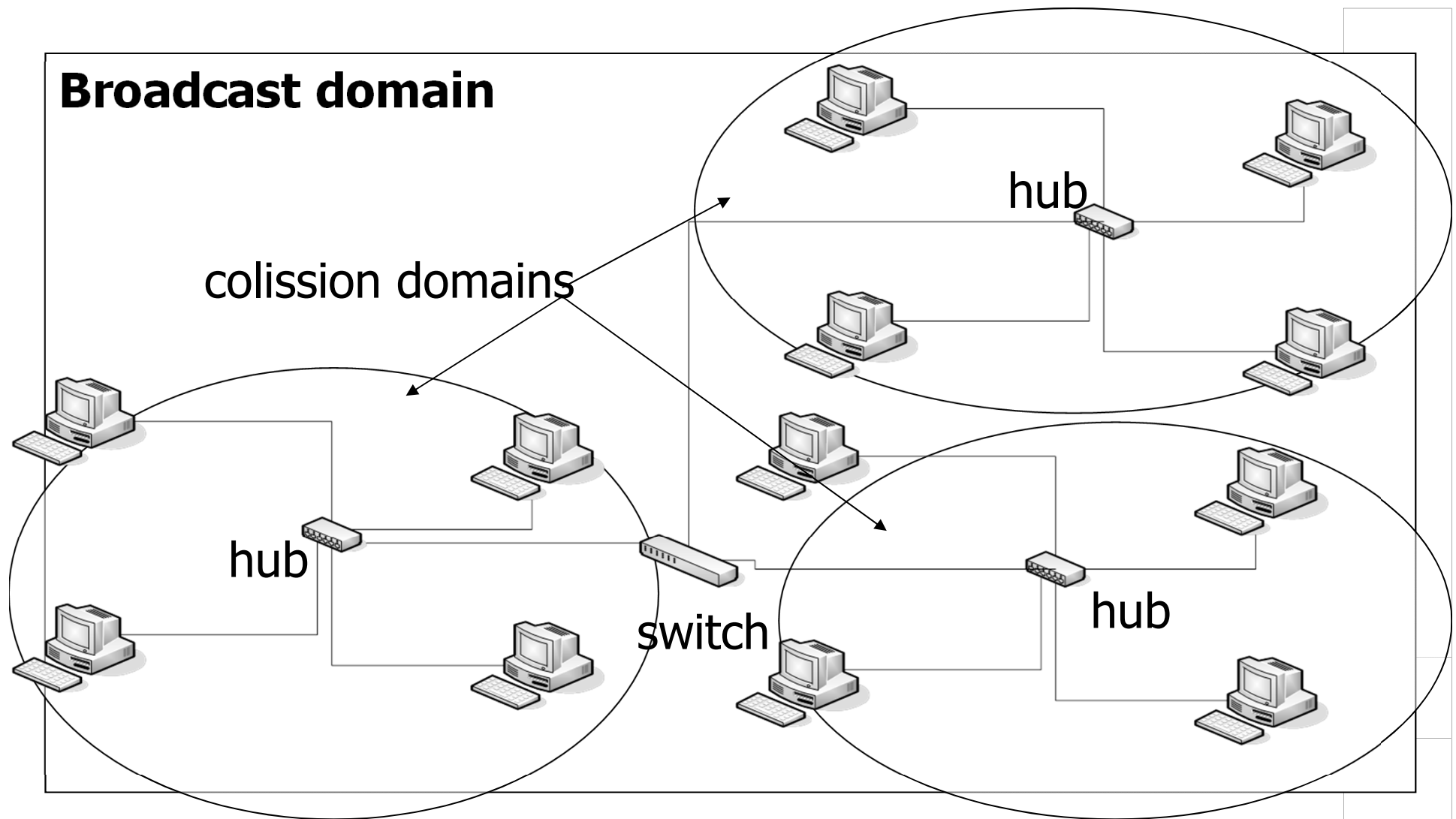
Bridge application



Switch in operation

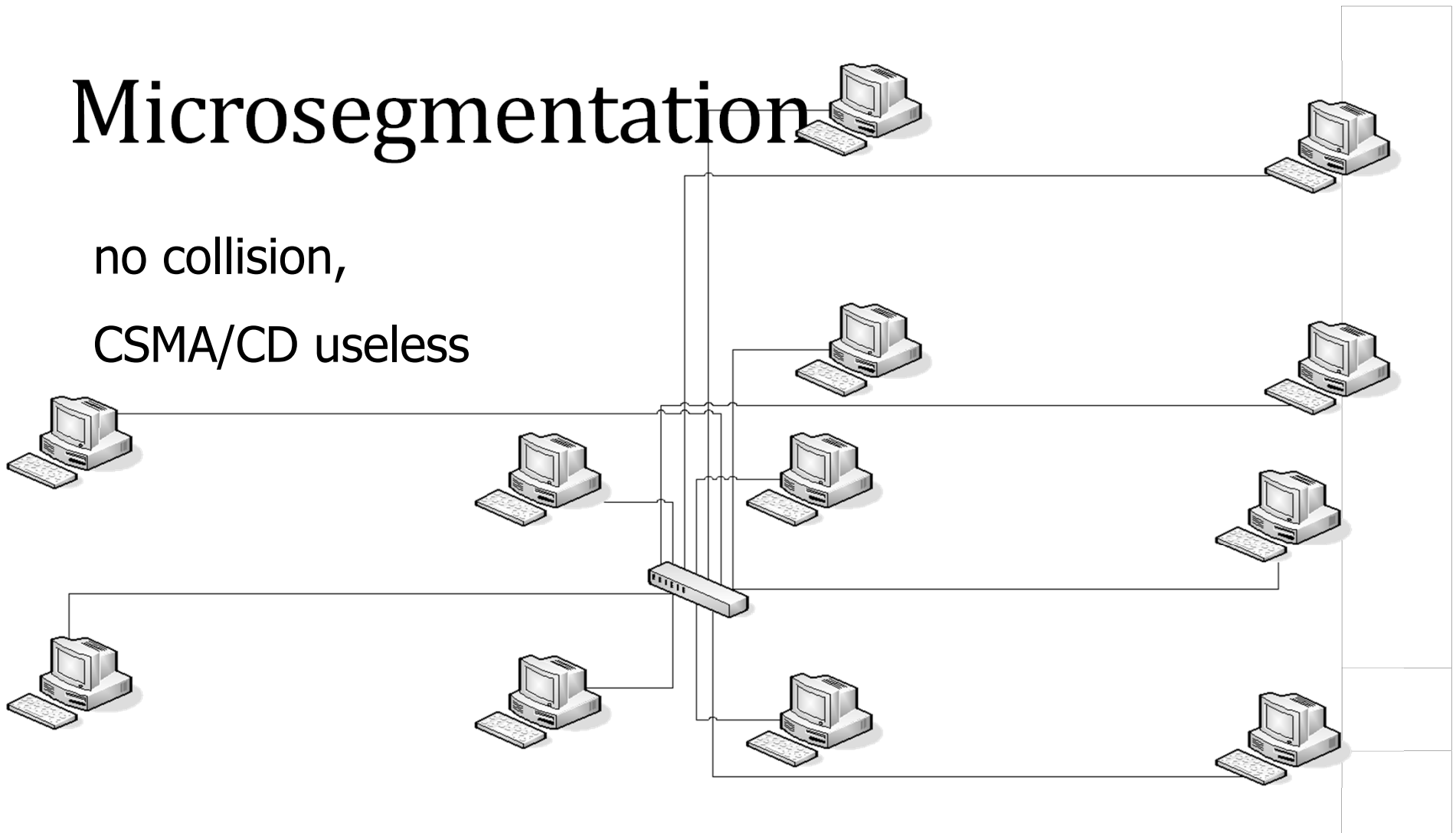


Broadcast domain



Microsegmentation

no collision,
CSMA/CD useless



Router



Application layer



Analysis of
network
layer header



Exchange Servers

Application layer

Presentation layer

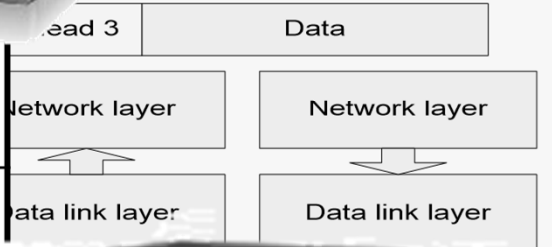
Session layer

Transport layer

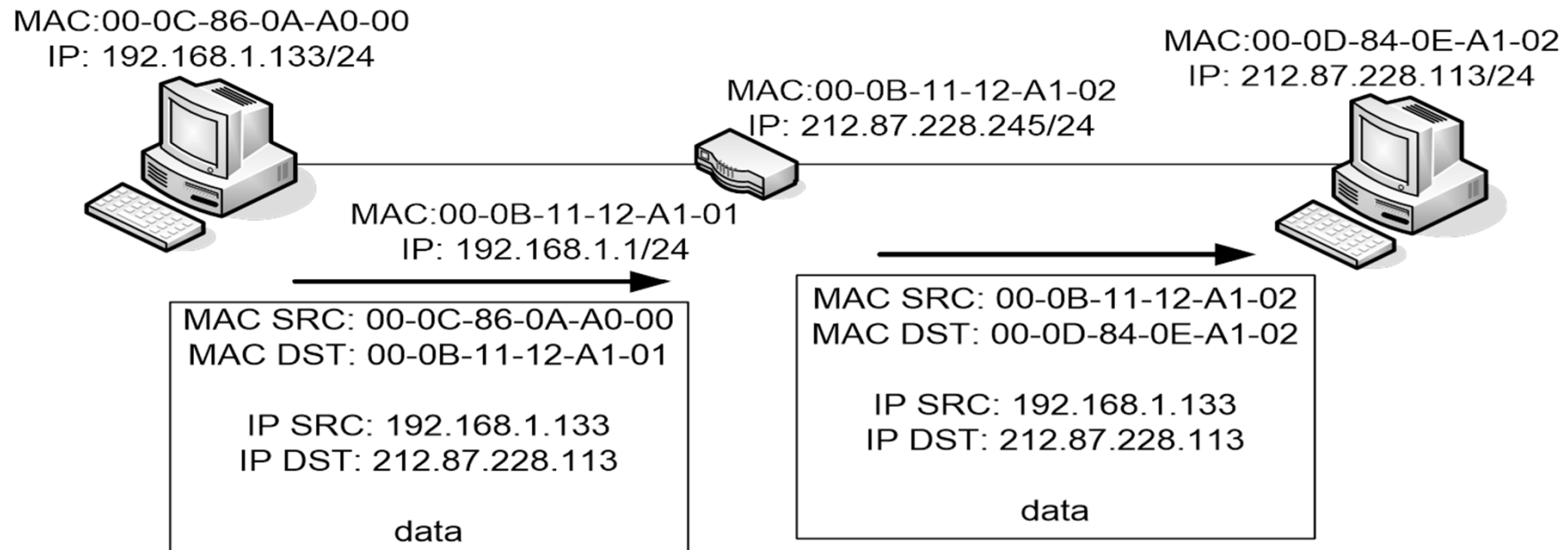
Network layer

Data link layer

network address	Next hop address	Metrics
212.87.228.*	212.87.227.1	2
192.168.1.*	192.168.3.1	
...		...

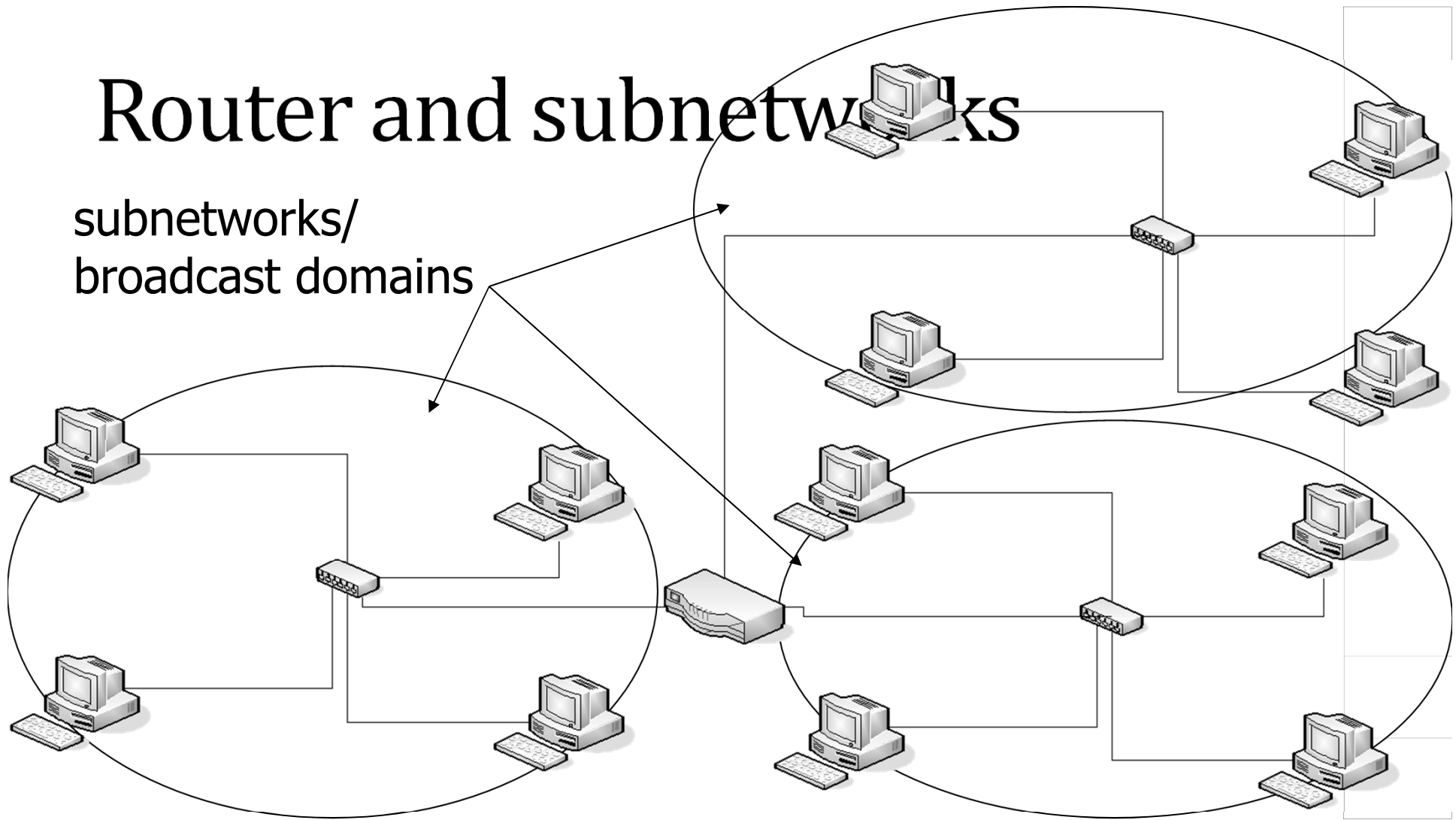


Router in operation



Router and subnetworks

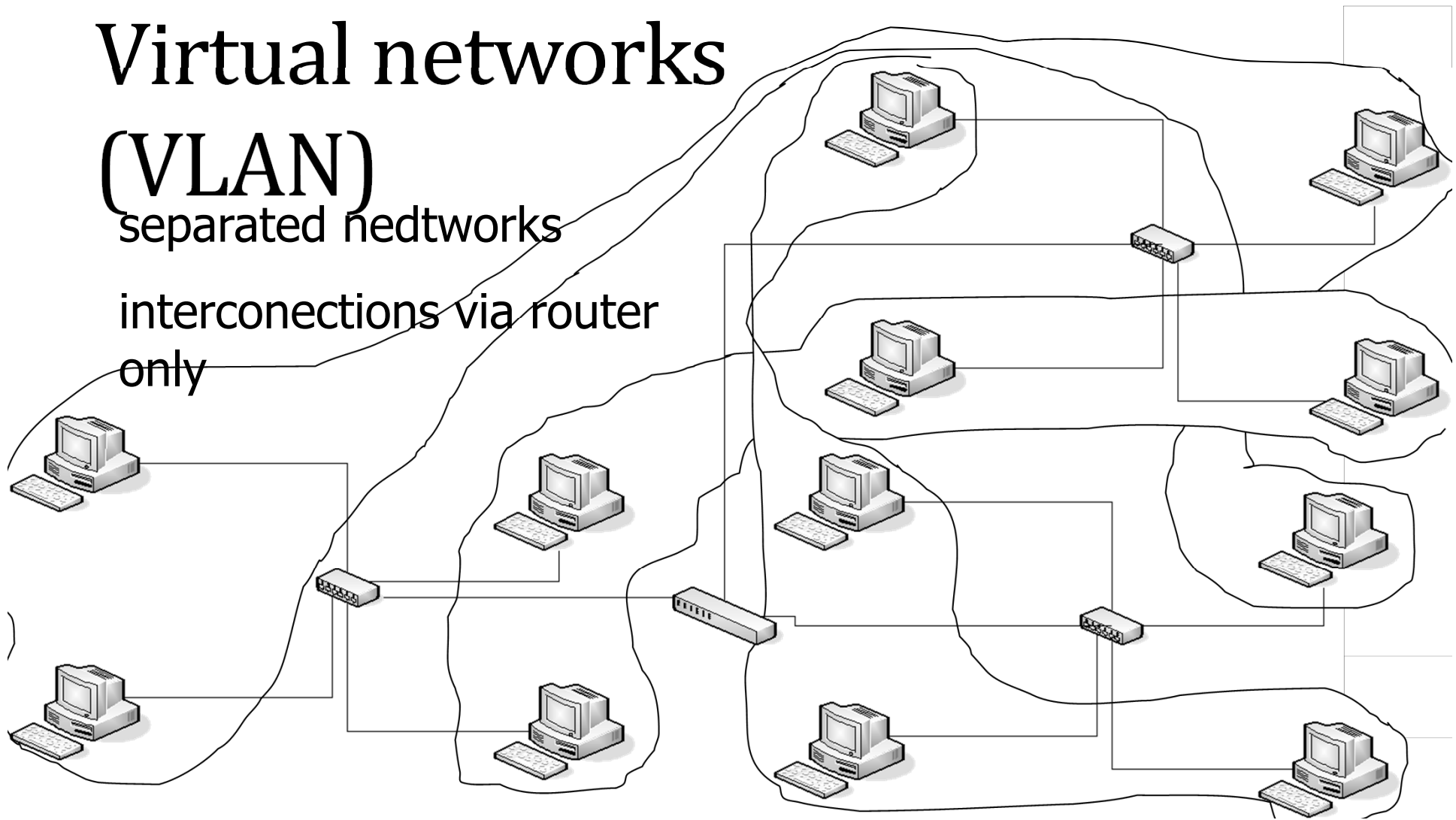
subnetworks/
broadcast domains



Virtual networks (VLAN)

separated networks

interconnections via router
only



Server tasks

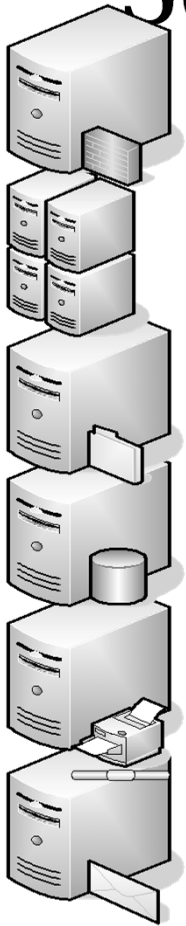
- Storage
 - software
 - data
- Access control – safety
- Monitoring (register)
- Data protection – backup



virtualization



Servers classification



- Communication server

connection management, access control, remote access, routing, ...

- Application server

share computing power, eg. a

- File (storage) server

store resources databases usually perform a query language BD, e.g. SQL

- Database server

mediates the use of common printers - supports print queue

- Print sevwer

- Mail exchanger

manages the course consignments and mailboxes, and often contact base (work 24/7)

Workstations

- Graphics workstations
- Workstations
- Mobile workstations
- Desktops
- Think clients
- Graphics terminal
- Text terminal



- data processing
- database clients (klient-serwer)

