

Classification of Computer Networks (1/4)

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Computer communication systems can be classified according to different criteria, e.g. based on

- scale, application characteristics, connection type, ...

Classification based on scale:

- | | | |
|---------------|--------------------|---------------------------------|
| ■ 0.1 m | Circuit board | Multiprocessor system |
| ■ 1 m | System | Multiprocessor cluster |
| ■ 10 m | Spatial scope | PAN - Personal Area Network |
| ■ 1 km | Building, campus | LAN - Local Area Network |
| ■ 10 km | City | MAN - Metropolitan Area Network |
| ■ 100-1000 km | Country, continent | WAN - Wide Area Network |
| ■ 10.000 km | Planet | Internet |

Distinction between **distributed systems** and **computer networks**

■ Similarities:

- amalgamation of many physically and logically distinct computer components
- individual components are spatially distributed and work autonomously, but at the same time cooperatively

■ Differences:

- in distributed systems the services provided by the individual system components are transparent, accordingly the user cannot attribute them to a specific component
- computer networks are controlled by a network operating system that coordinates the processing steps of a user request

Function sharing

- Combines special computers or systems with special peripheral equipment or special data sets

Load sharing

- The load is distributed between connected computers

Data sharing

- Connects systems with particular data sets

Security sharing

- In the event that one system fails, another system takes over the function

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Homogeneous / inhomogeneous computer network

- All computers are the same / a different type

Public / private computer network

- Public access / access just for a limited group of users

VPN – Virtual Private Network

- Internet-based while acting like a private network