SITE

PDISO1

Communication
- Identification - introduction needed
- Method - you need to use common methods
  - Language
- Speed
- Process
- Types - human
  - telecom - centralised, only interface in telephone
  - computers - embedded logic, network only manages transmission
  - converged network (VoIP, mobile internet)

mail
message → envelope → address → mailbox → post office
data unit → encapsulation → node address → sending → transmission ...

Same actors in email

circuit switching
- if broken data is lost
- faster, less reliable

× packet switching
- each packet finds its own way
- slower, fault-tolerant

Security
- new requirement - now it's simple to have malicious software
- authentication, antivirus, encryption

Scalability
- layers - core - ~~backbone~~ connection to ISP
  - routers, switches (can be in separate rooom)

(LAN) - distribution - cables and switches
  - vertical layer
- access layer - terminated as close as possible to users
  - access for end devices

Tier 1 - direct access to Internet backbone

(WAN) Tier 2 - without access to backbone whose customers are ISPs

Tier 3 - ISPs who connect end customers

Transmission parameters
Latency - delay
jitter - variance of delay
data loss - needs resending or loss of information (can cause channel congestion)
bandwidth ("speed")

Order - we want to dedicate bandwidth x urgent messages
- QoS key
- best effort strategy

History
isolated systems → terminal systems + proprietary lines → WAN + LAN (consequently client-server)

LAN
- geographically limited
- sharing resources (printers, Internet) of nearby computers
- mostly private and centralised

WAN
- public, managed by multiple organizations
- ~~to~~ data transfer

VPN
- tunnel that connects to LAN through WAN
- encrypted

Internet history
60s - packet switching
69 - Arpanet
77 - another network connected to ARPANET backbone
83 - TCP/IP dominates
80s TCP/IP into BSD UNIX

Request for Comments (RFC)
- Internet "standardization", information, best practices
- many rules are too restrictive → users and servers violate
- recommendation receiver: tolerant sender: conservative

IETF.ORG/rfc.html