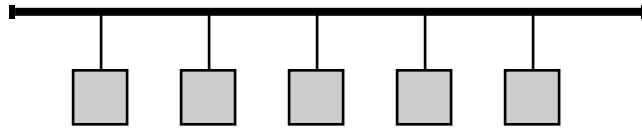


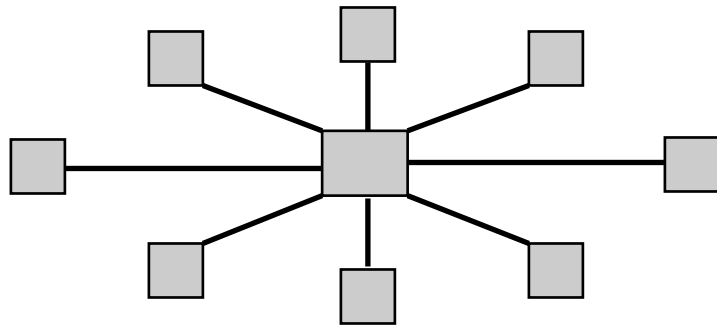
# Hoofdstuk 15

## Computernetwerken



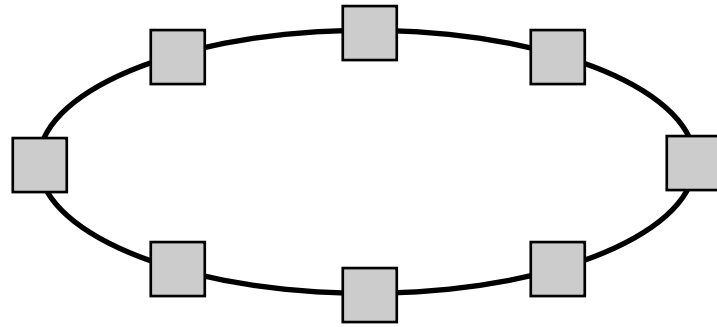
Figuur 15.1: Bustopologie.

Computersystemen en embedded systemen (LvM)



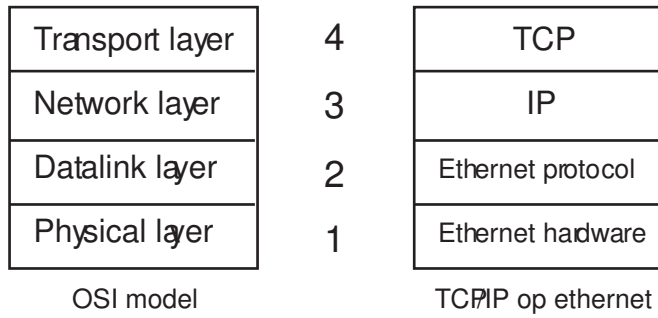
Figuur 15.2: Stertopologie.

Computersystemen en embedded systemen (LvM)



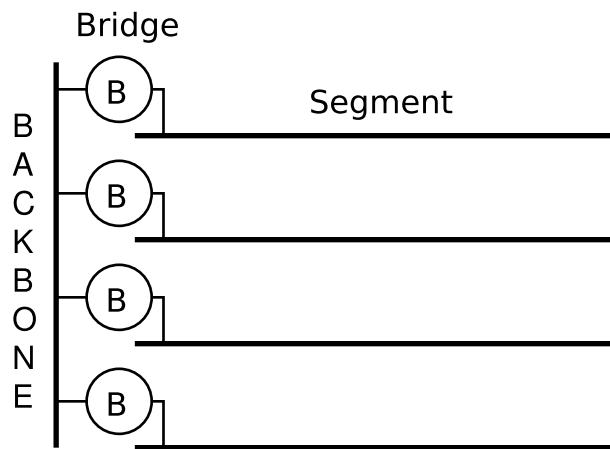
Figuur 15.3: Ringtopologie.

Computersystemen en embedded systemen (LvM)



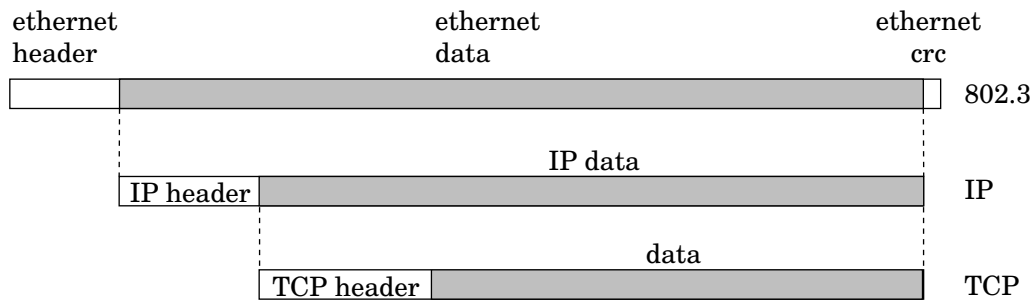
Figuur 15.4: Verband tussen OSI en TCP/IP op ethernet.

Computersystemen en embedded systemen (LvM)



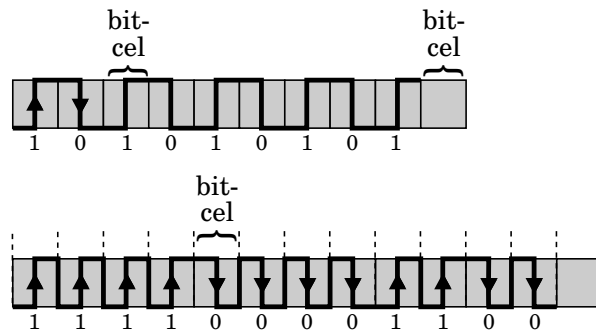
Figuur 15.5: Netwerk met een backbone.

Computersystemen en embedded systemen (LvM)



Figuur 15.6: Encapsulation van TCP in IP en van IP in ethernet.

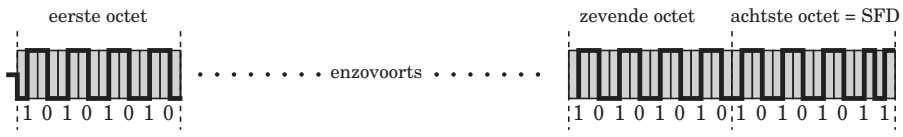
Computersystemen en embedded systemen (LvM)



Figuur 15.7: Manchester-encoding.

Computersystemen en embedded systemen (LvM)





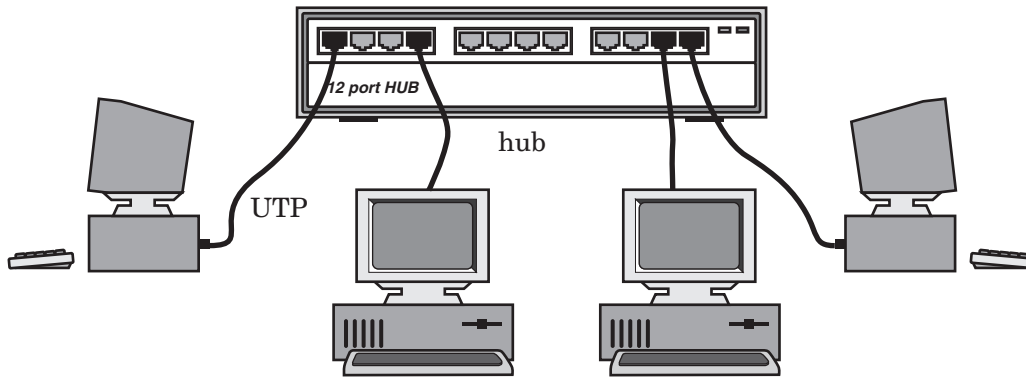
Figuur 15.8: Ethernet-preamble.

Computersystemen en embedded systemen (LvM)

preamble	SFD	DST	SRC	L/T	data	pad	CRC
7 octets	1	6	6	2	0-1500	0-46	4

Figuur 15.9: Ethernetframe.

Computersystemen en embedded systemen (LvM)



Figuur 15.10: UTP-gebaseerd ethernet.

Computersystemen en embedded systemen (LvM)



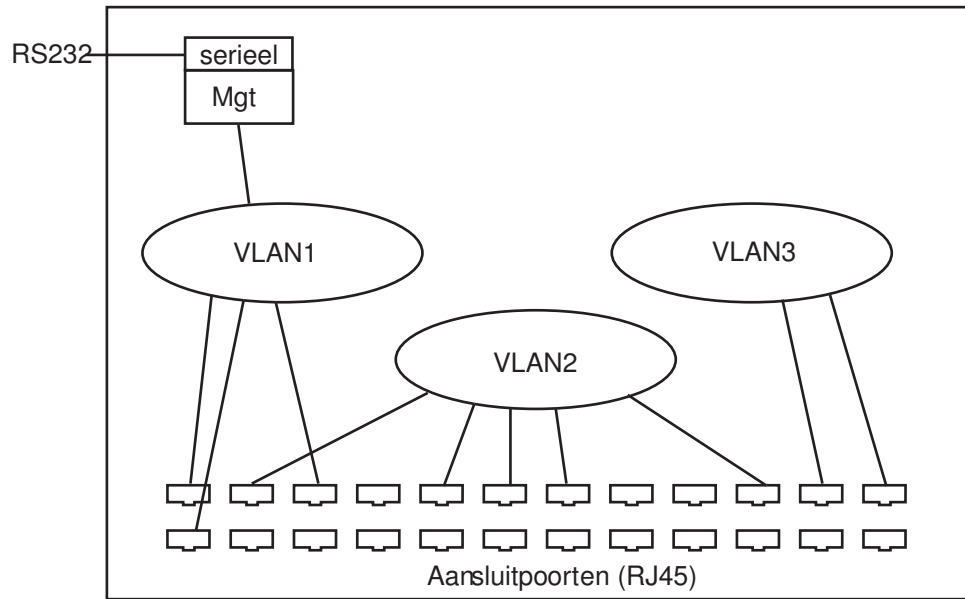
Figuur 15.11: 8-port hub met uplink.

Computersystemen en embedded systemen (LvM)

Network layer 3	IP
Datalink layer 2	Ethernet protocol
Physical layer 1	Ethernet hardware

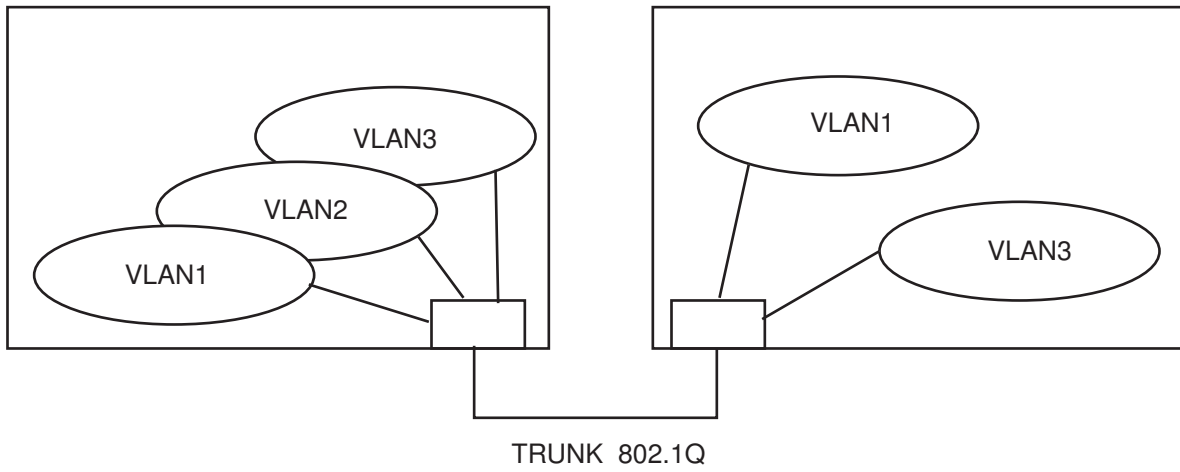
Figuur 15.12: Vergelijking tussen OSI-layers en IP op ethernet.

Computersystemen en embedded systemen (LvM)



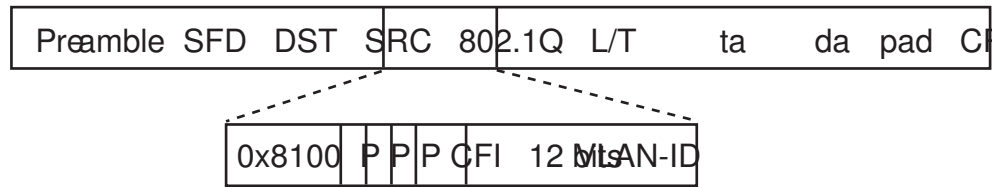
Figuur 15.13: VLAN-configuratie binnen een switch.

Computersystemen en embedded systemen (LvM)



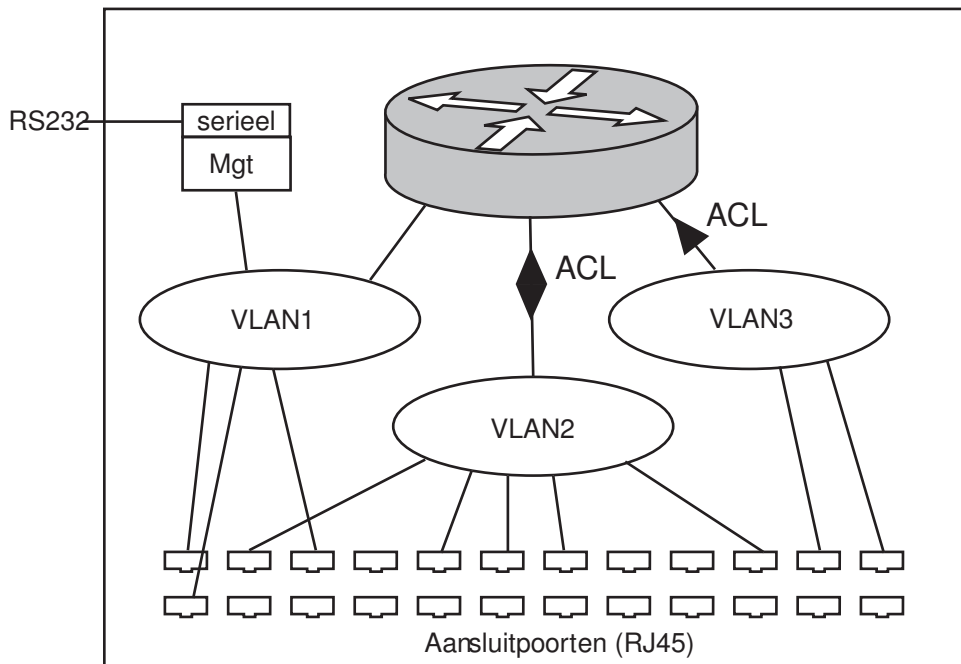
Figuur 15.14: Twee switches met VLAN's en een trunk.

Computersystemen en embedded systemen (LvM)



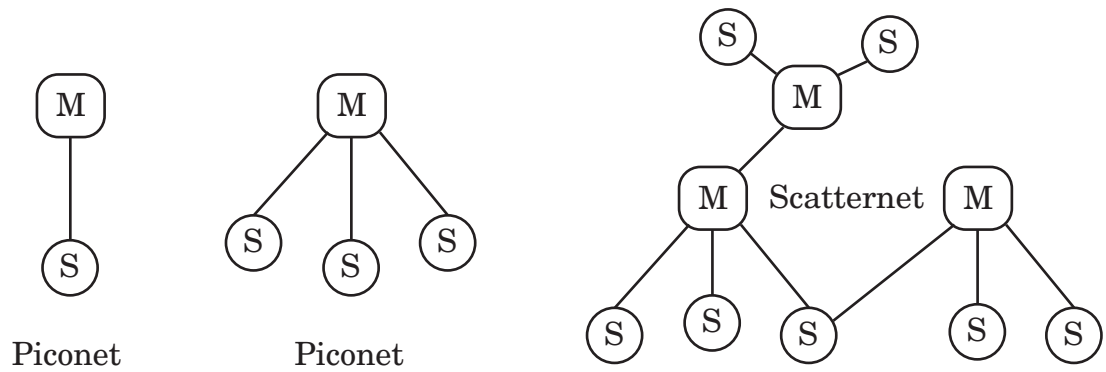
Figuur 15.15: 802.1Q-frameformat.





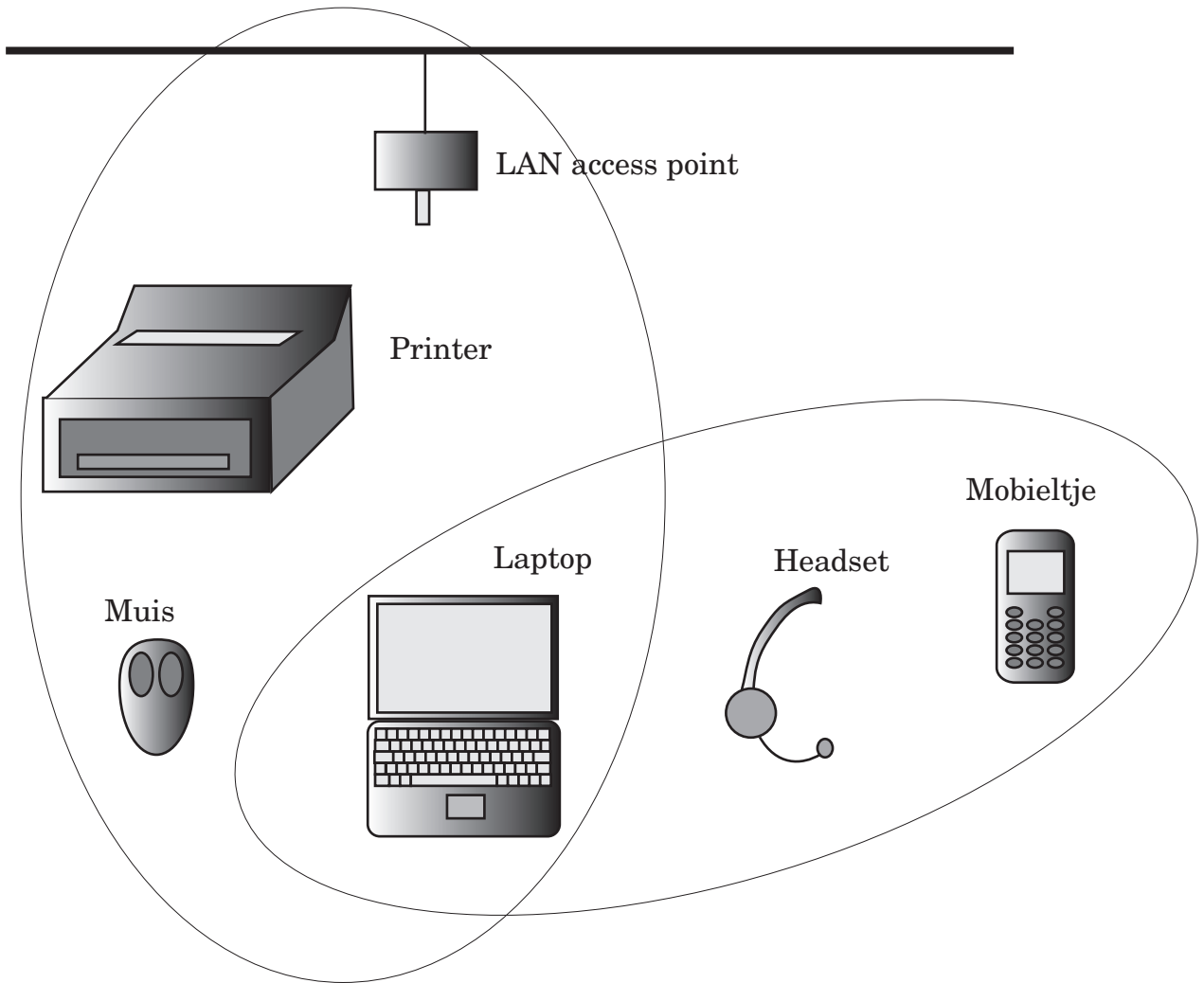
Figuur 15.16: Eenvoudig bedrijfsnetwerk met een layer 3 switch.

Computersystemen en embedded systemen (LvM)



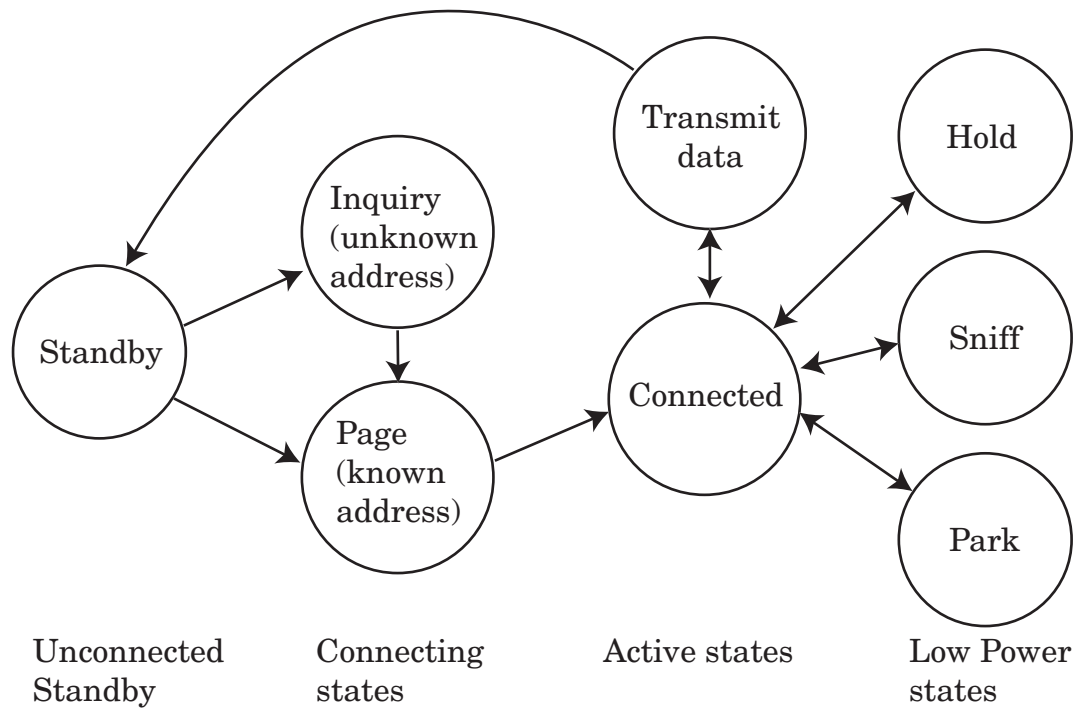
Figuur 15.17: Bluetooth-netwerken.

Computersystemen en embedded systemen (LvM)



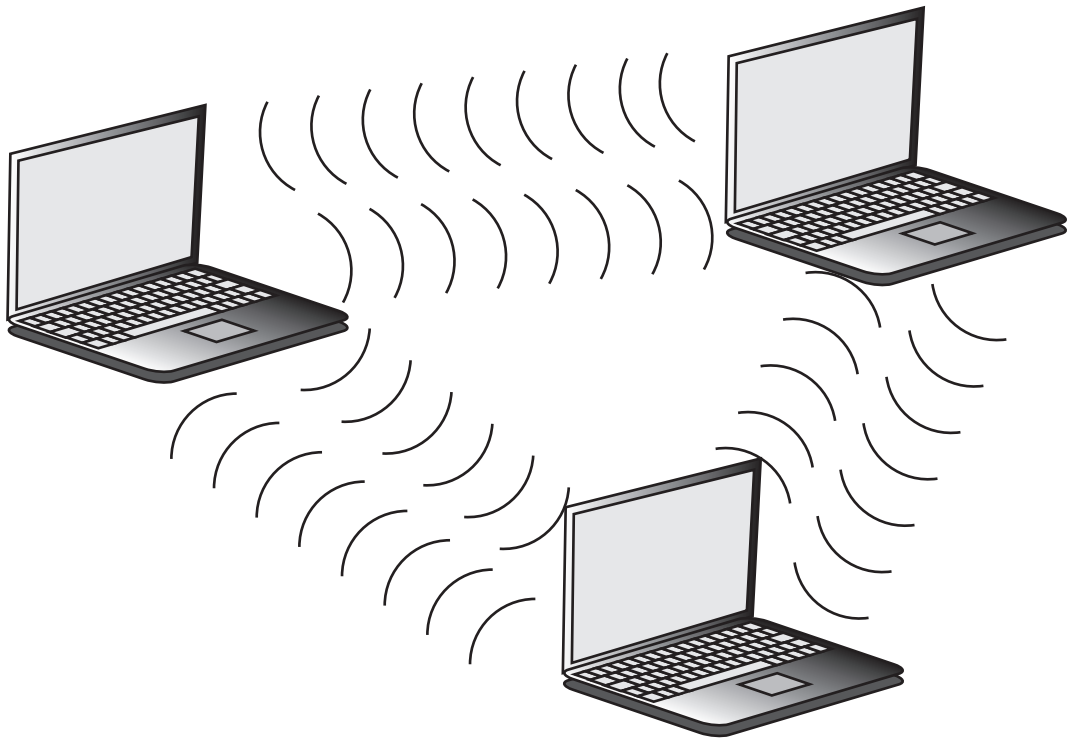
Figuur 15.18: Twee piconet in een scatternet.

Computersystemen en embedded systemen (LvM)



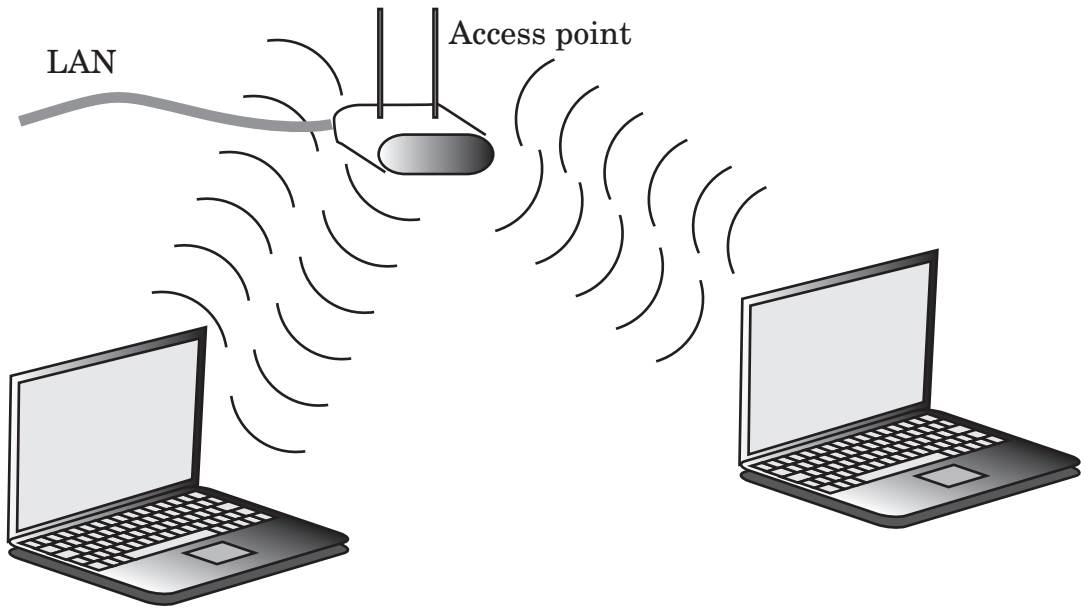
Figuur 15.19: Bluetooth state-transition diagram.

Computersystemen en embedded systemen (LvM)



Figuur 15.20: Point-to-point wireless network.

Computersystemen en embedded systemen (LvM)



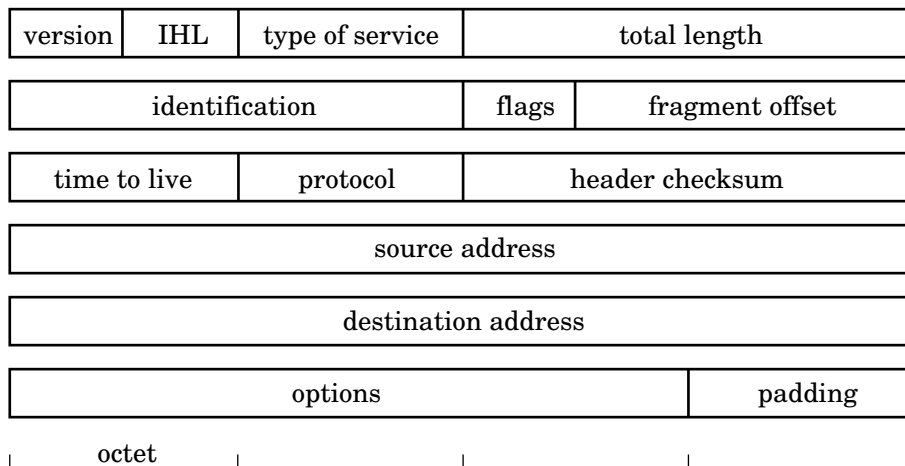
Figuur 15.21: Access-point met vast LAN.

Computersystemen en embedded systemen (LvM)



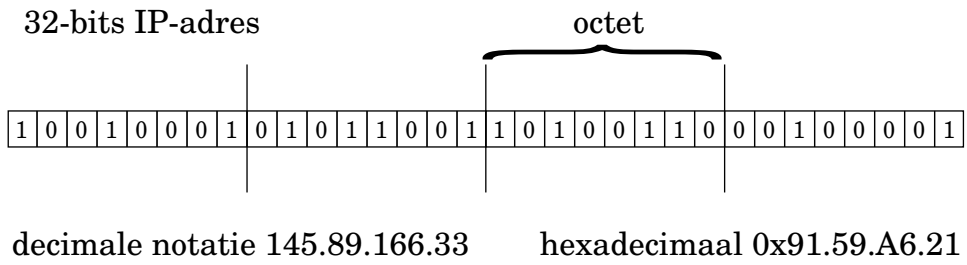
Figuur 15.22: MIMO configuratie.

Computersystemen en embedded systemen (LvM)



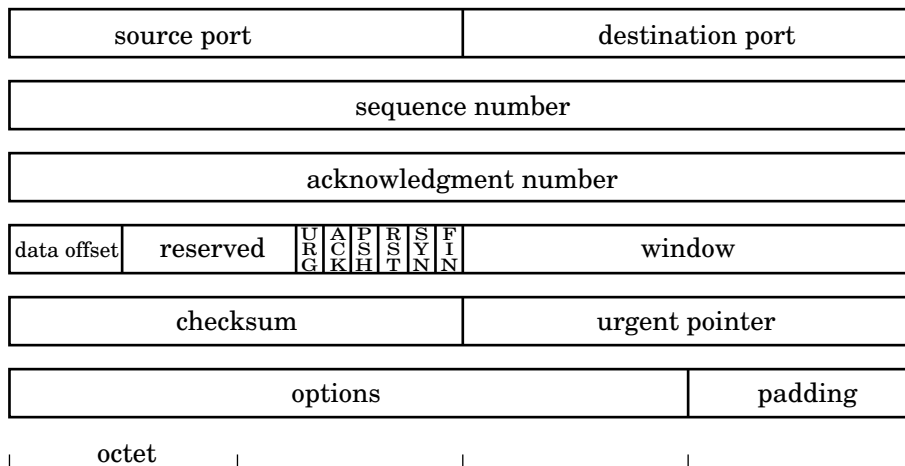
Figuur 15.23: IP-header.



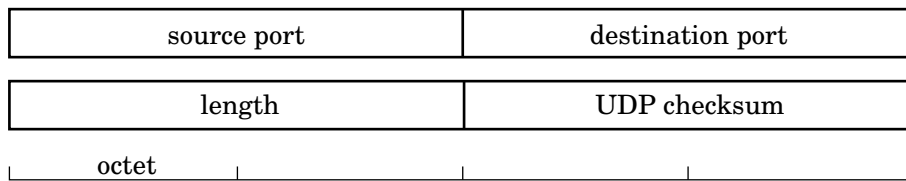


Figuur 15.24: IP-adres.

Computersystemen en embedded systemen (LvM)



Figuur 15.25: TCP-header.

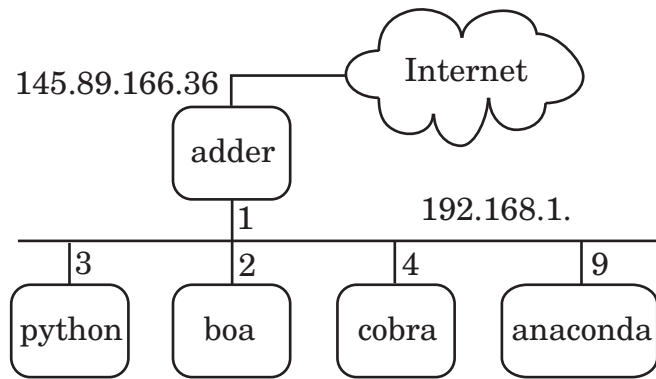


Figuur 15.26: UDP-header.

file transfer protocol (FTP)	hypertext transfer protocol (HTTP)	telnet	networknews transfer protocol (NNTP)	simple mail transfer protocol (SMTP)
TCP of UDP				
IP				
ethernet / token-ring / FDDI / token-bus, enzovoort				

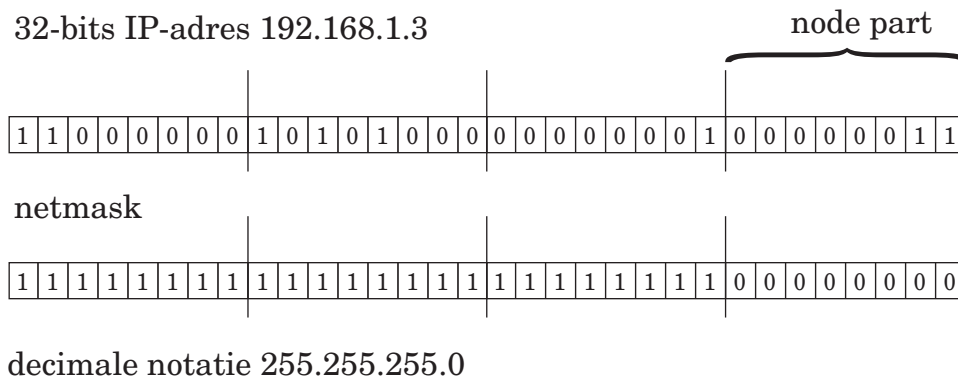
Figuur 15.27: Protocol-stack voor TCP/IP.

Computersystemen en embedded systemen (LvM)

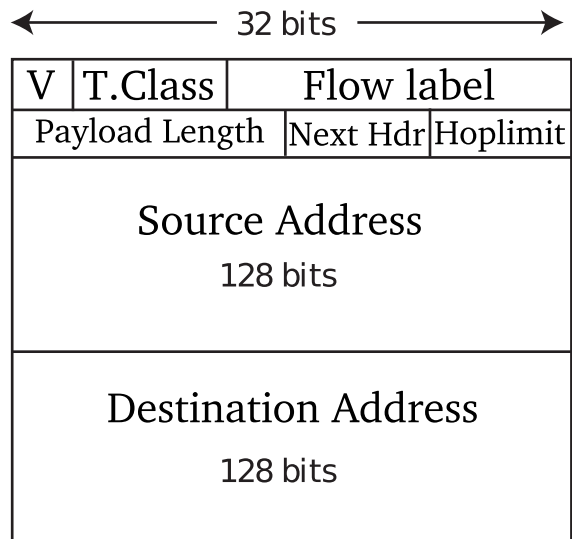


Figuur 15.28: Eenvoudig netwerk met router.

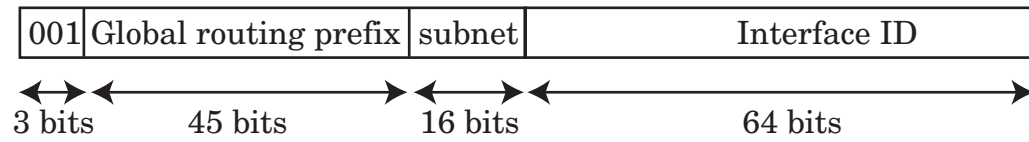
Computersystemen en embedded systemen (LvM)



Figuur 15.29: IP-adres en netmask.



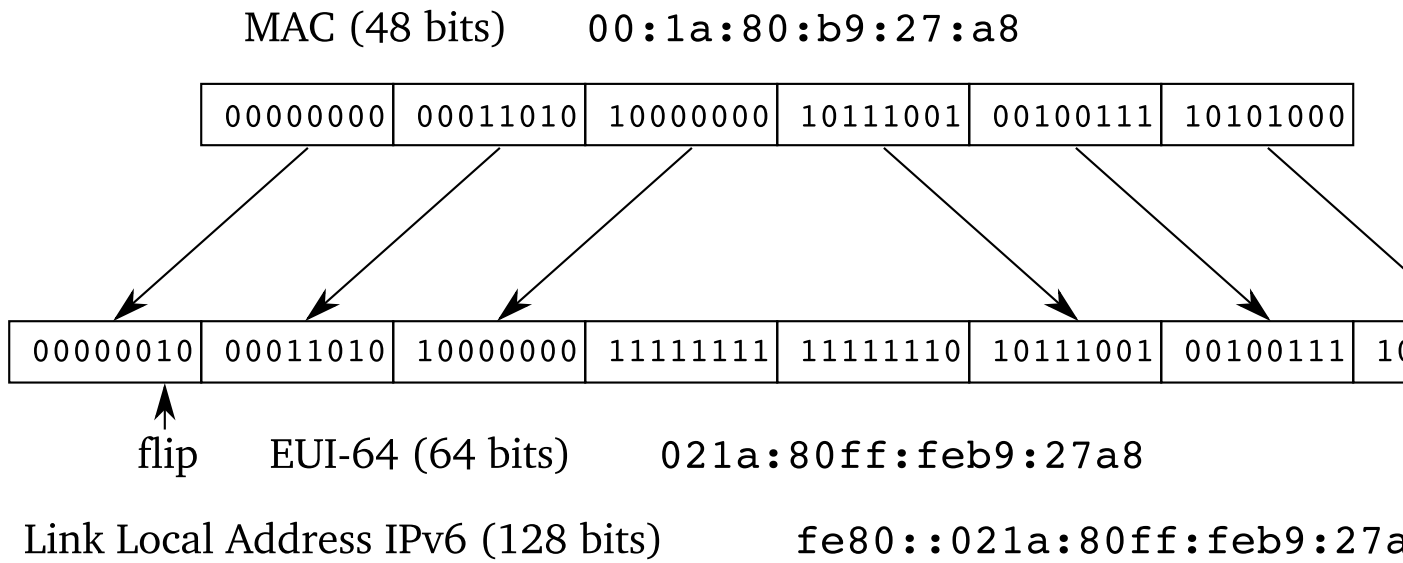
Figuur 15.30: IP versie 6 header.



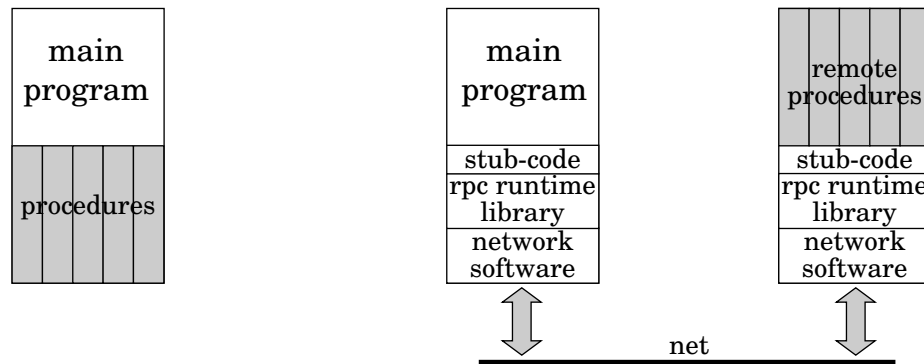
Figuur 15.31: Globaal IP versie 6 adres.

Computersystemen en embedded systemen (LvM)





Figuur 15.32: SLAAC IPv6-adres volgens de EUI-64 methode.



Figuur 15.33: Lokale en remote procedure call.

Computersystemen en embedded systemen (LvM)