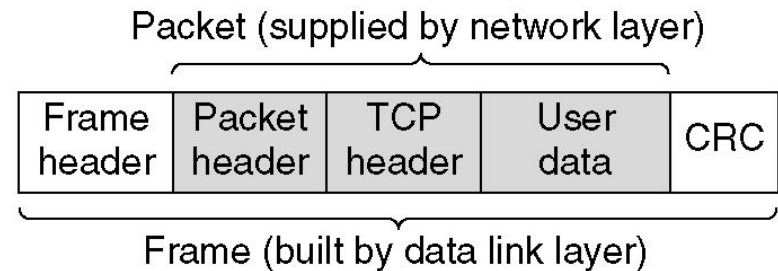


# The Network Layer

# Repeaters, Hubs, Bridges, Switches, Routers and Gateways

Application layer	Application gateway
Transport layer	Transport gateway
Network layer	Router
Data link layer	Bridge, switch
Physical layer	Repeater, hub

(a)



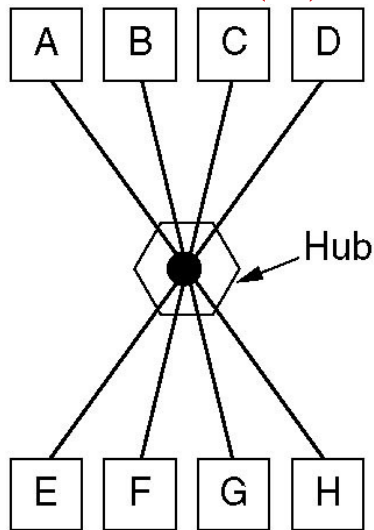
(b)

(a) Which device is in which layer.

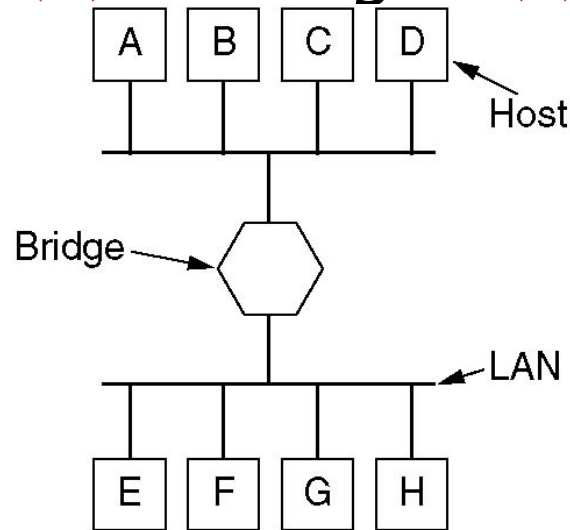
(b) Frames, packets, and headers.

# Repeaters, Hubs, Bridges, Switches, Routers and Gateways (2)

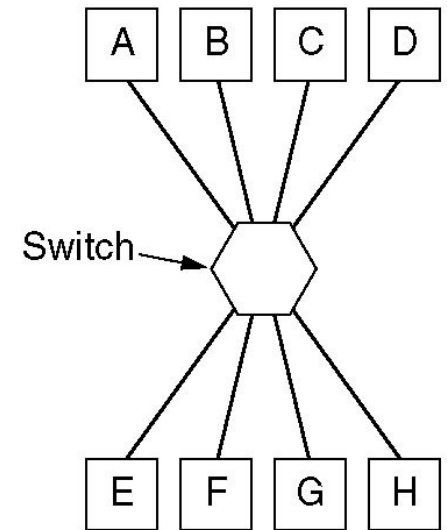
(a) A hub. (b) A bridge. (c) a switch.



(a)




(b)



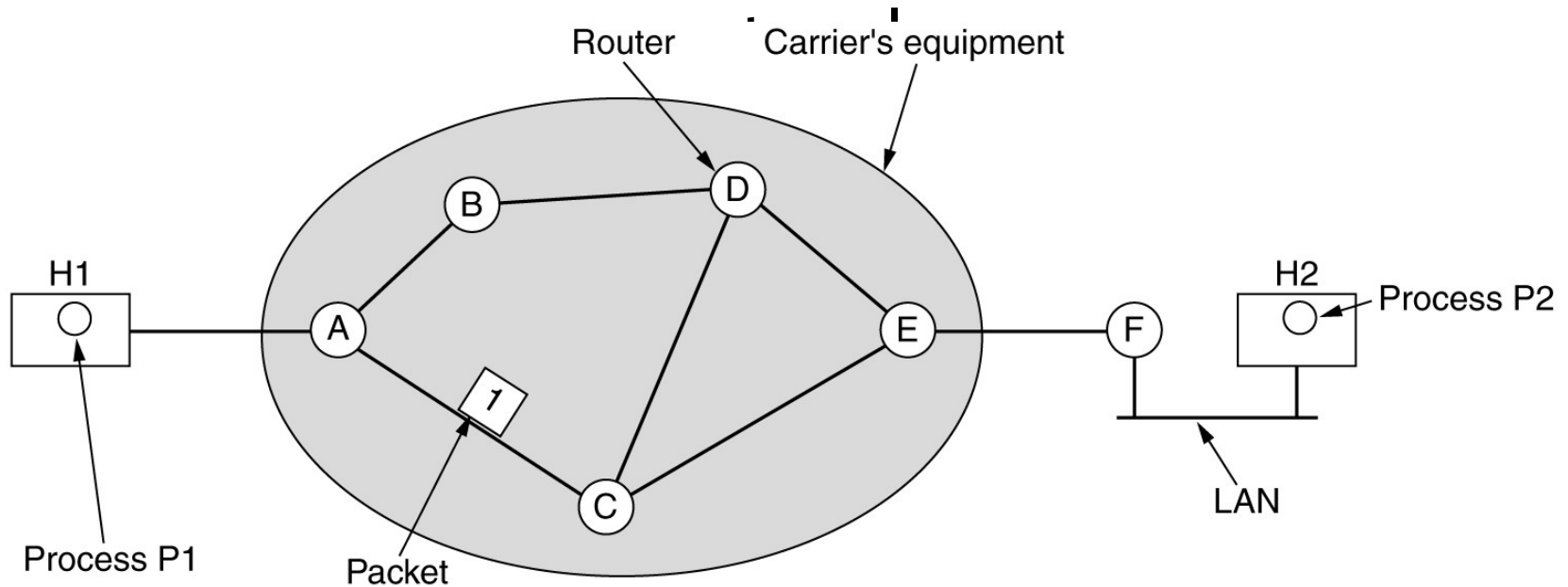
(c)

# Network Layer Design Issues

- Store-and-Forward Packet Switching
  - Services Provided to the Transport Layer
  - Implementation of Connectionless Service
  - Implementation of Connection-Oriented Service
  - Comparison of Virtual-Circuit and Datagram Subnets
- 

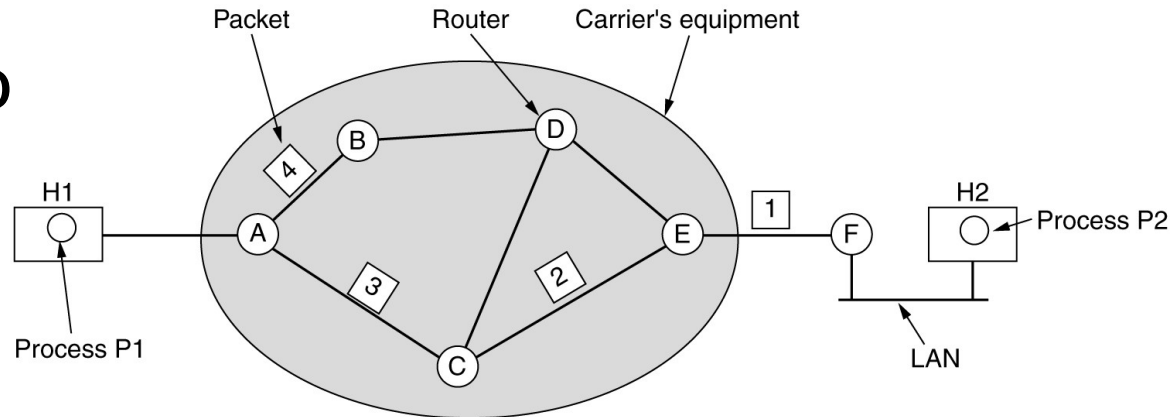
# Store-and-Forward Packet Switching

The environment of the network layer



# Implementation of Connectionless Service

Ro



A's table

initially	later
A   -	A   -
B   B	B   B
C   C	C   C
D   B	D   B
E   C	E   B
F   C	F   B
Dest. Line	

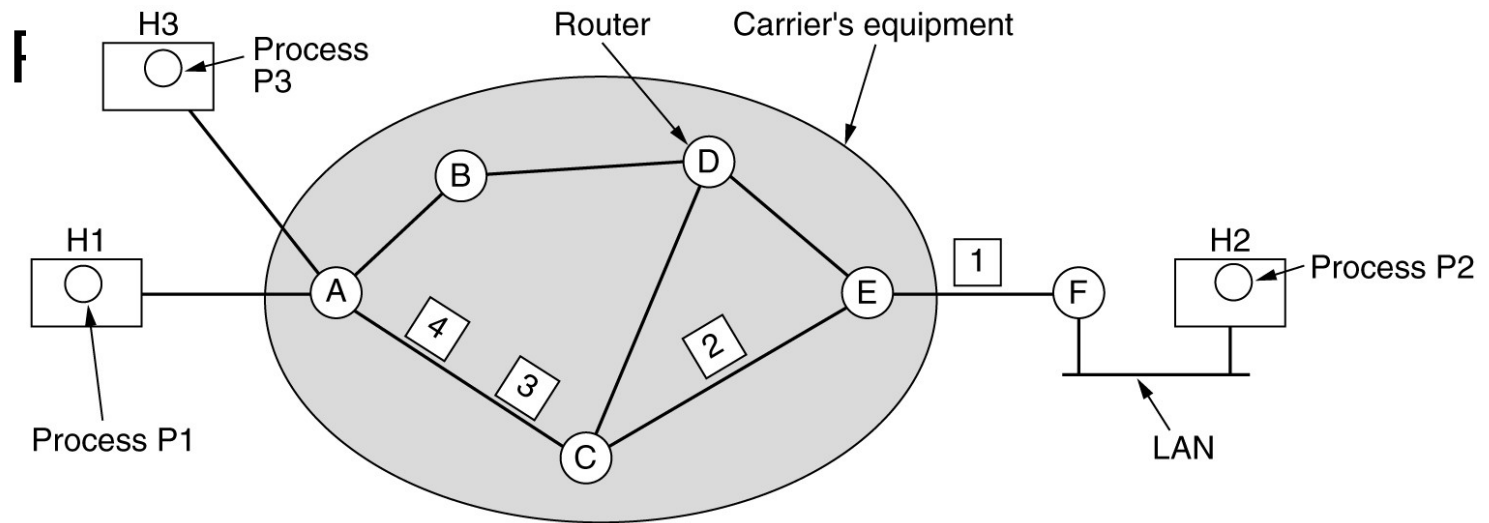
C's table

A   A
B   A
C   -
D   D
E   E
F   E

E's table

A   C
B   D
C   C
D   D
E   -
F   F

# Implementation of Connection-Oriented Service



A's table				C's table				E's table			
H1	1	C	1	A	1	E	1	C	1	F	1
H3	1	C	2	A	2	E	2	C	2	F	2
In		Out									

**Thank you**