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FACULTY OF ENGINEERING & TECHNOLOGY

DCS-503 Computer Networks

Lecture-13

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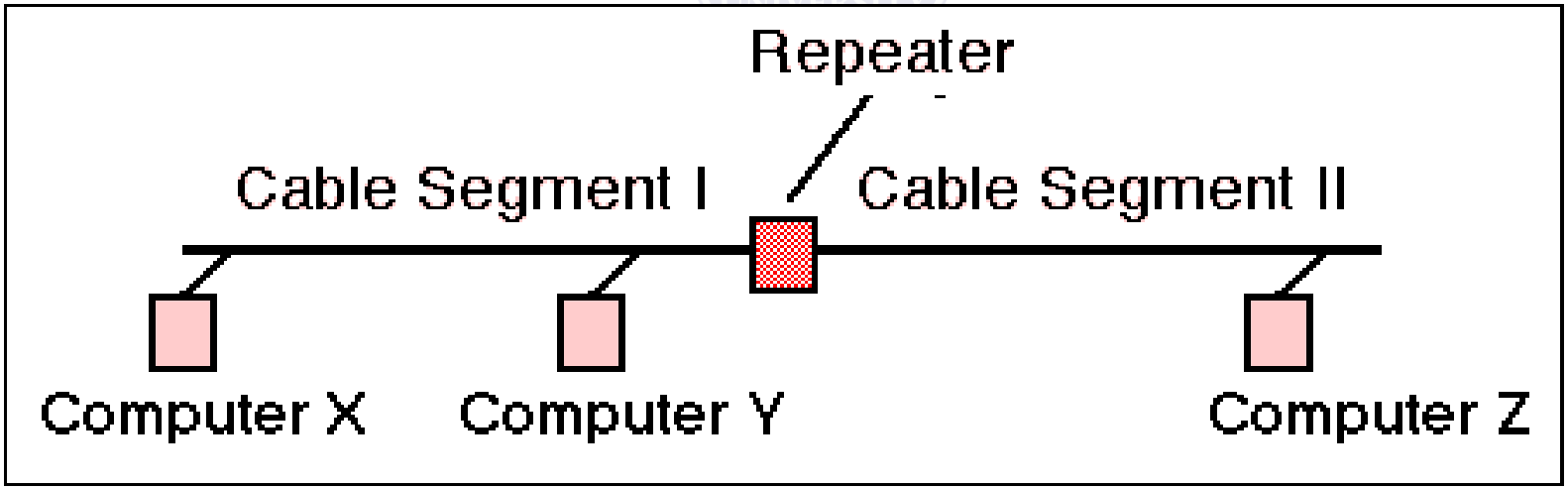
OUTLINE

- REPEATERS
- ETHERNET BRIDGE
- SWITCHED LAN
- REPEATERS, HUBS, BRIDGES, SWITCHES,

ROUTERS AND GATEWAYS

REPEATERS

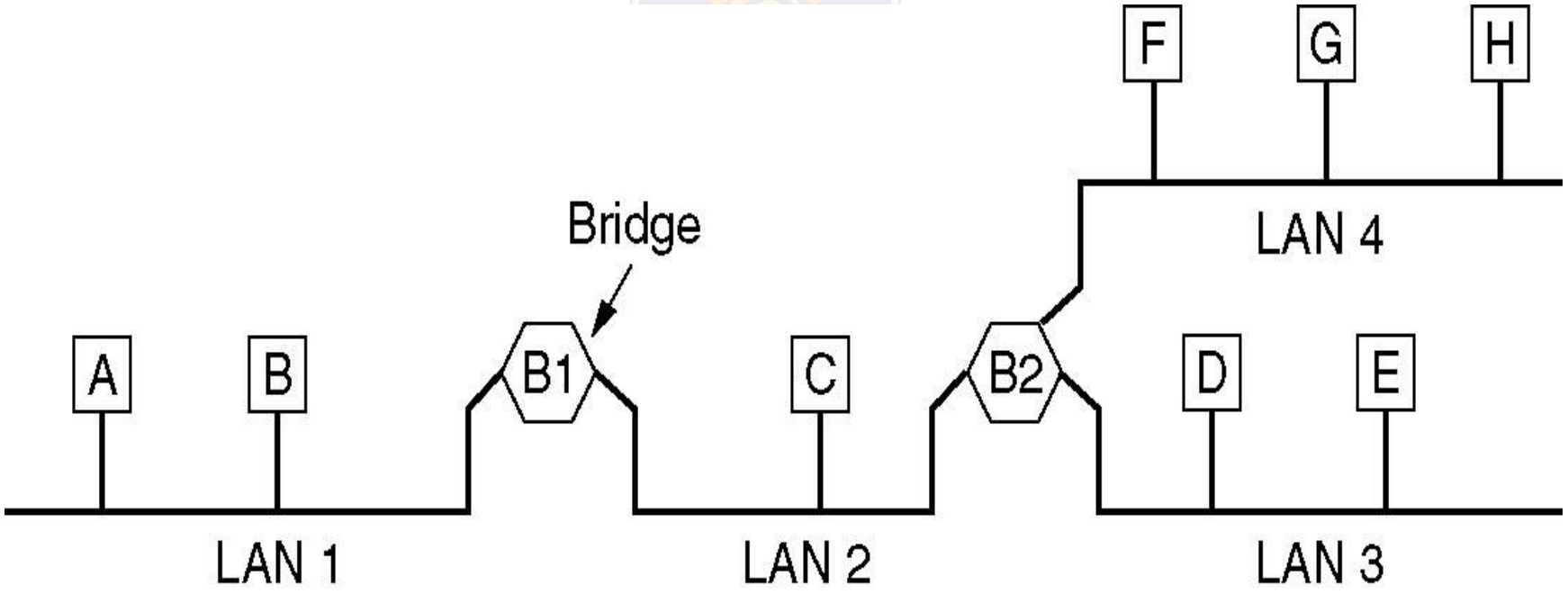
- Regenerate the signal
- Provide more flexibility in network design
- Extend the distance over which a signal may travel down a cable
- Connect together one or more Ethernet cable segments of any media type
- If an Ethernet segment were allowed to exceed the maximum length or the maximum number of attached systems to the segment, the signal quality would deteriorate.



ETHERNET BRIDGE

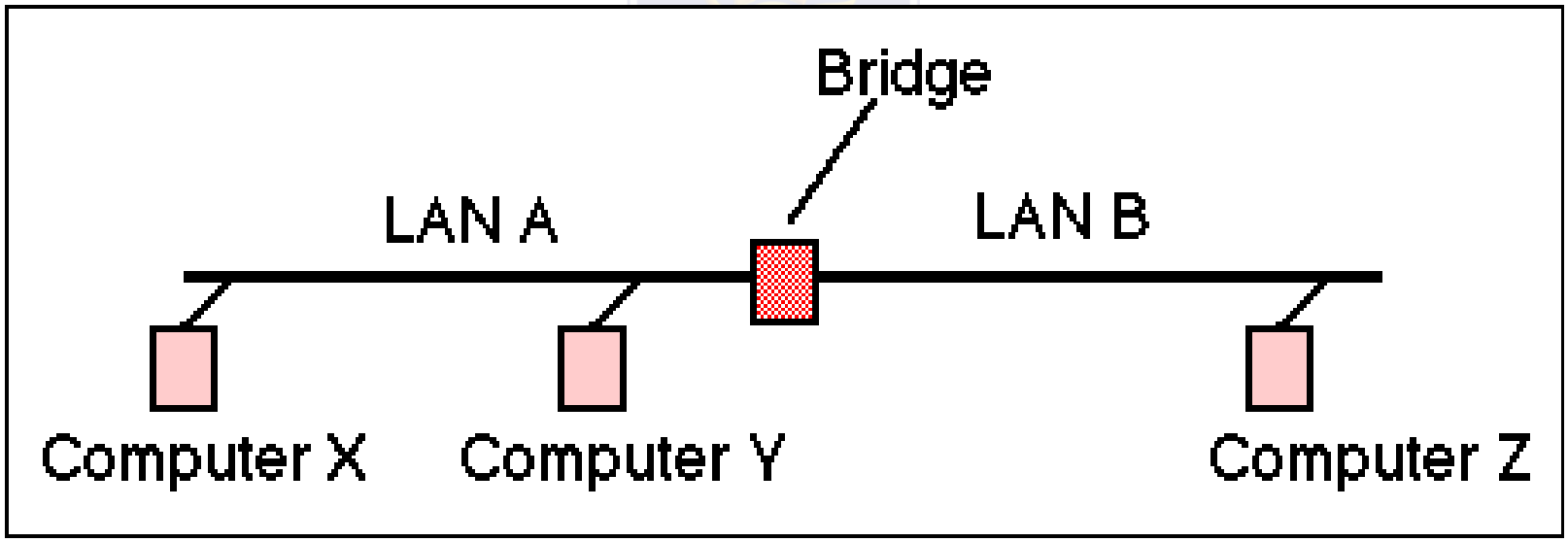
- Join two LAN segments (A,B), constructing a larger LAN
- Filter traffic passing between the two LANs and may enforce a security policy separating different work groups located on each of the LANs

A configuration with four LANs and two bridges.



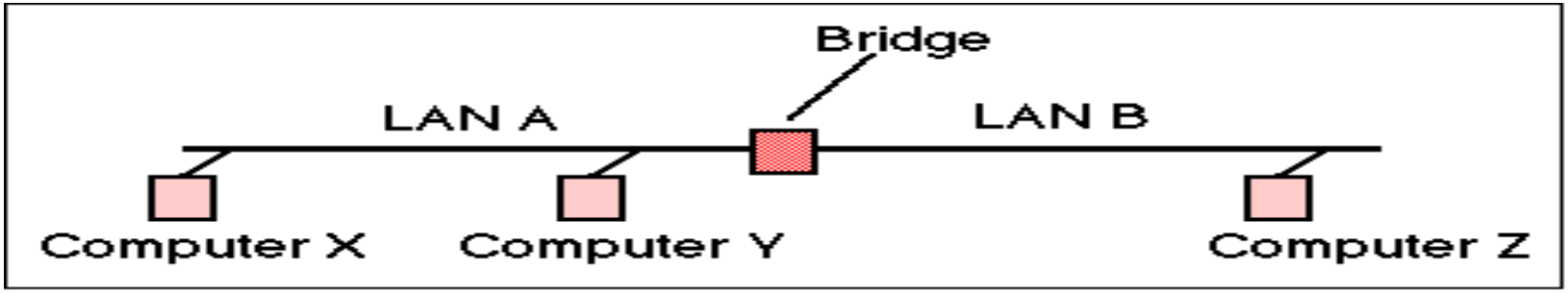
ETHERNET BRIDGES

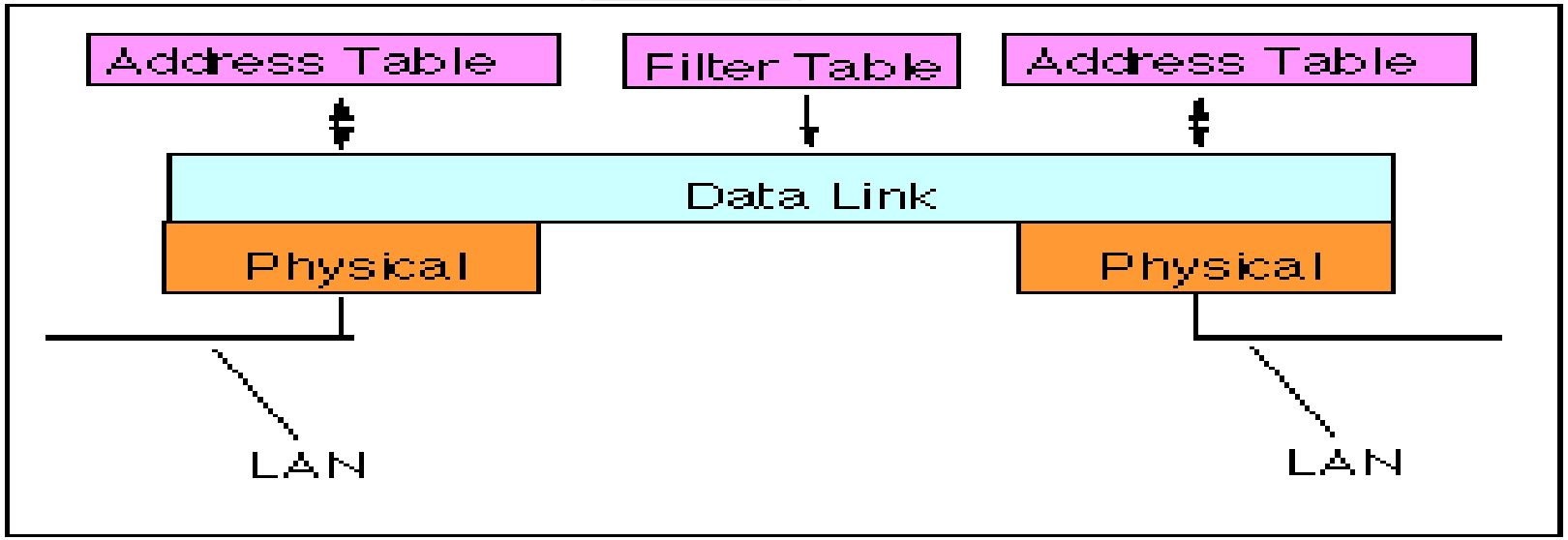
- Simplest and most frequently used to Transparent Bridge (meaning that the nodes using a bridge are unaware of its presence).
- Bridge could forward all frames, but then it would behave rather like a repeater
- Bridges are smarter than repeaters!



ETHERNET BRIDGES

A bridge stores the hardware addresses observed from frames received by each interface and uses this information to learn which frames need to be forwarded by the bridge.





SWITCHED LAN

- **Hub and Switched LAN**
  - hub simulates a single shared medium
  - switch simulates a bridged LAN with one computer per segment

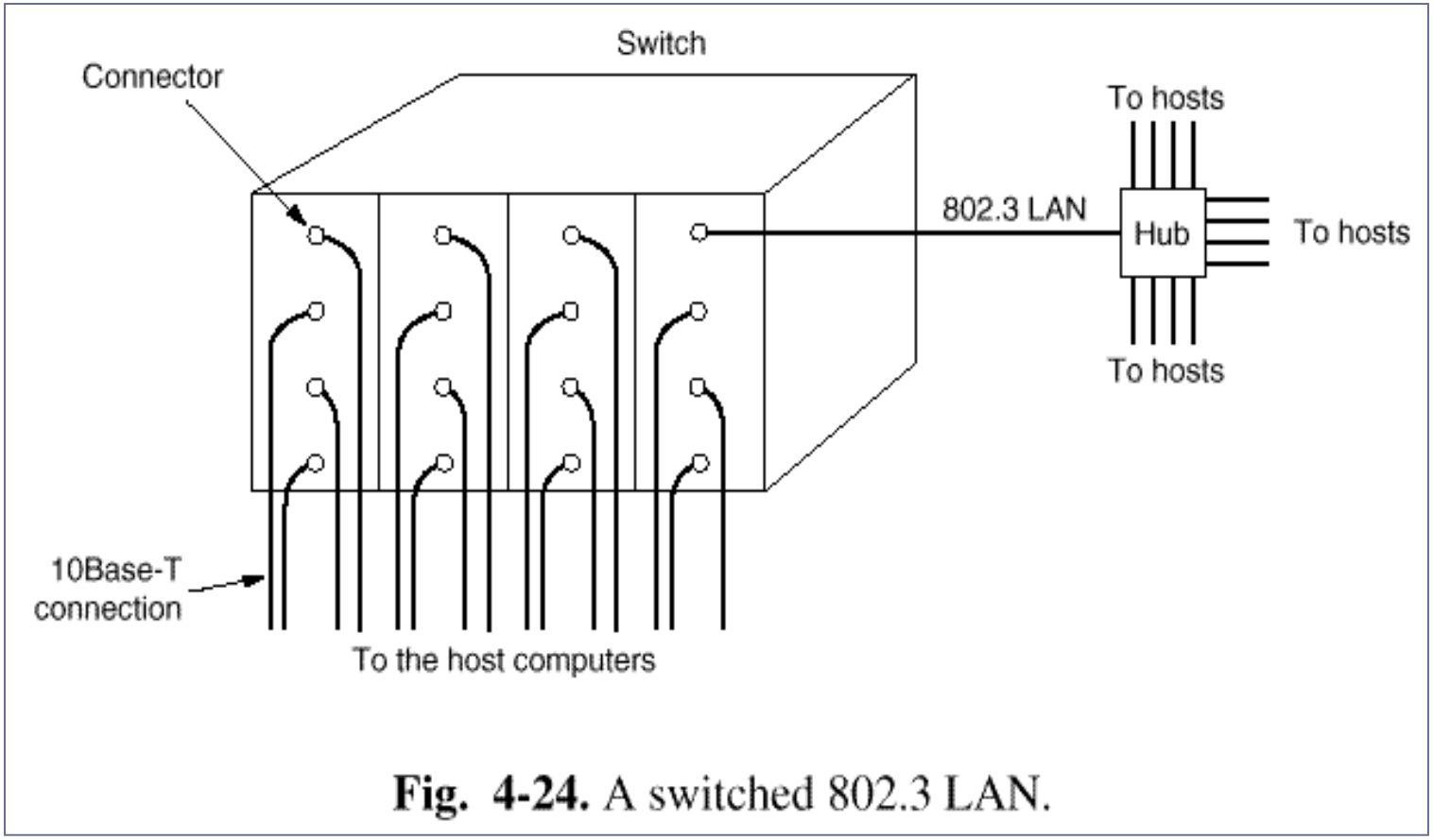
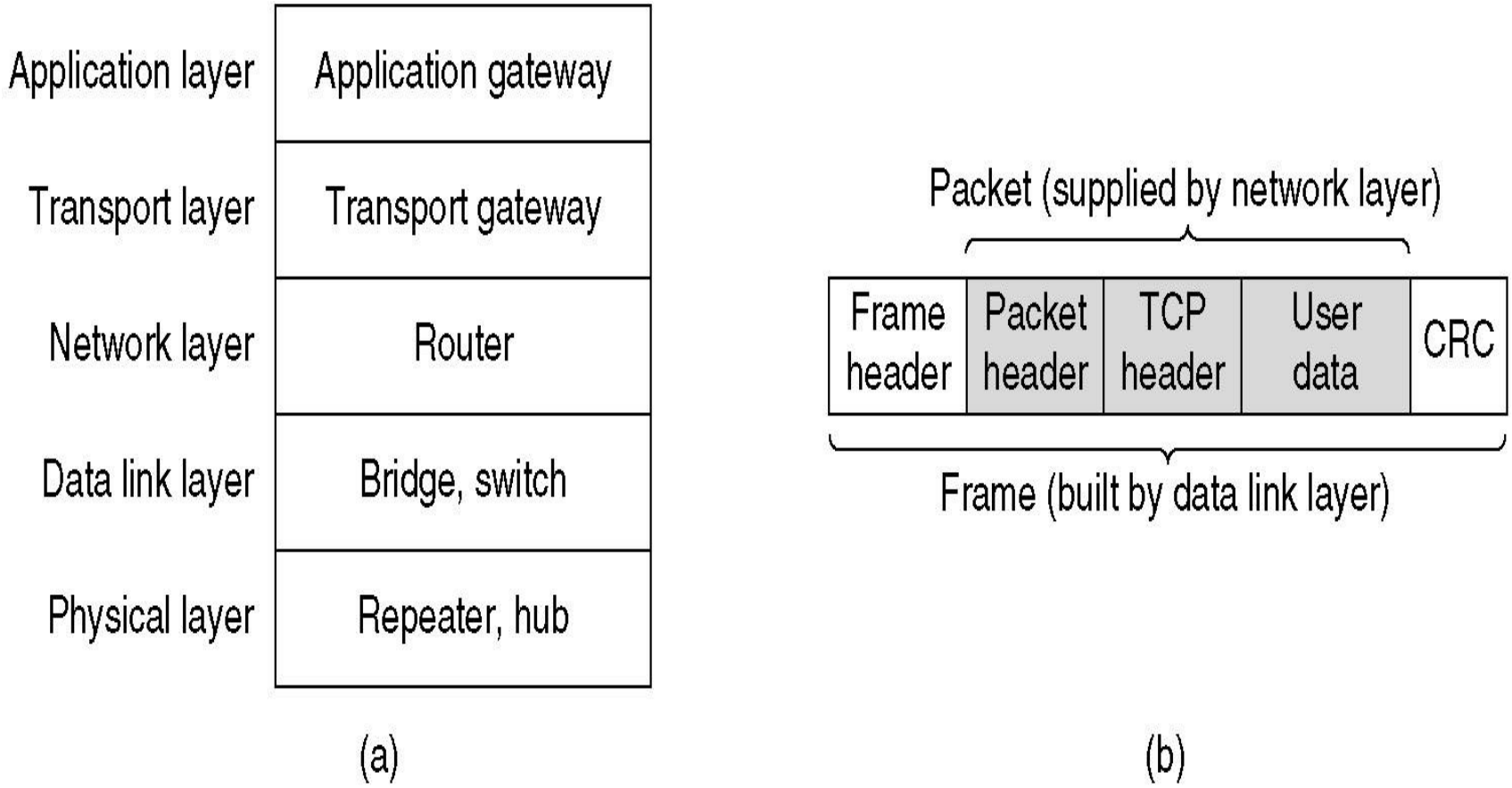


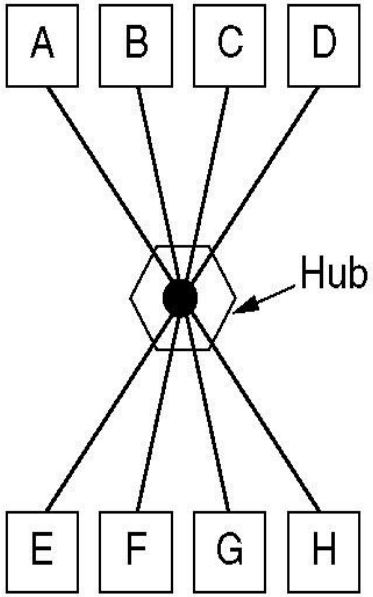
Fig. 4-24. A switched 802.3 LAN.

REPEATERS, HUBS, BRIDGES, SWITCHES, ROUTERS AND GATEWAYS

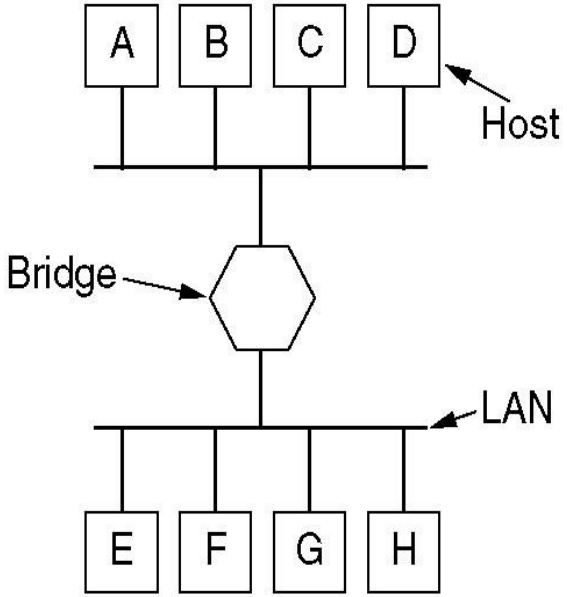


(a) Which device is in which layer.
(b) Frames, packets, and headers

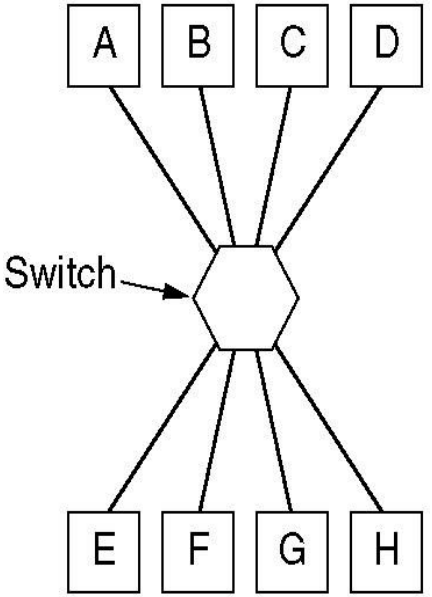
REPEATERS, HUBS, BRIDGES, SWITCHES, ROUTERS AND GATEWAYS



(a)



(b)



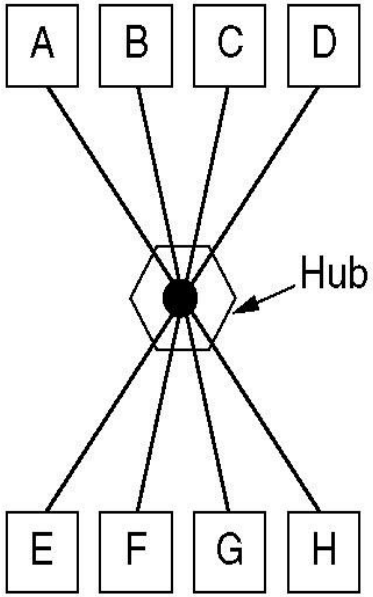
(c)

(a)Hub

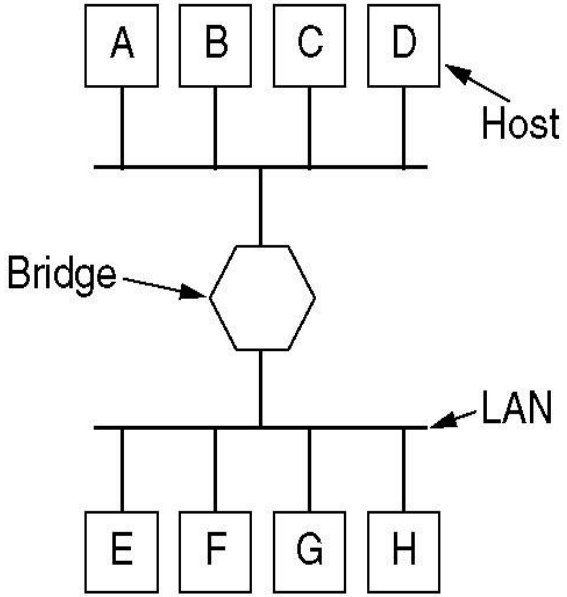
(b)Bridge

(c) Switch

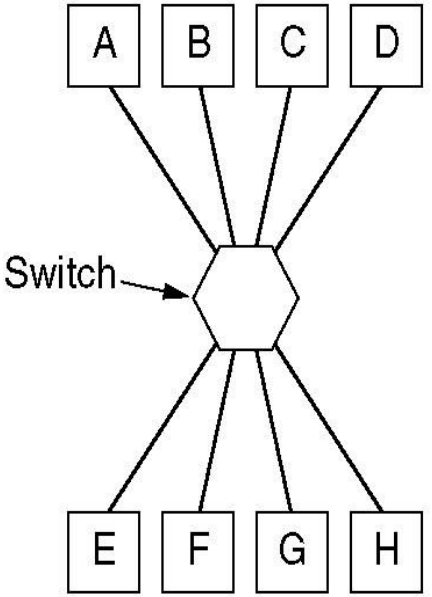
REPEATERS, HUBS, BRIDGES, SWITCHES, ROUTERS AND GATEWAYS



(a)



(b)



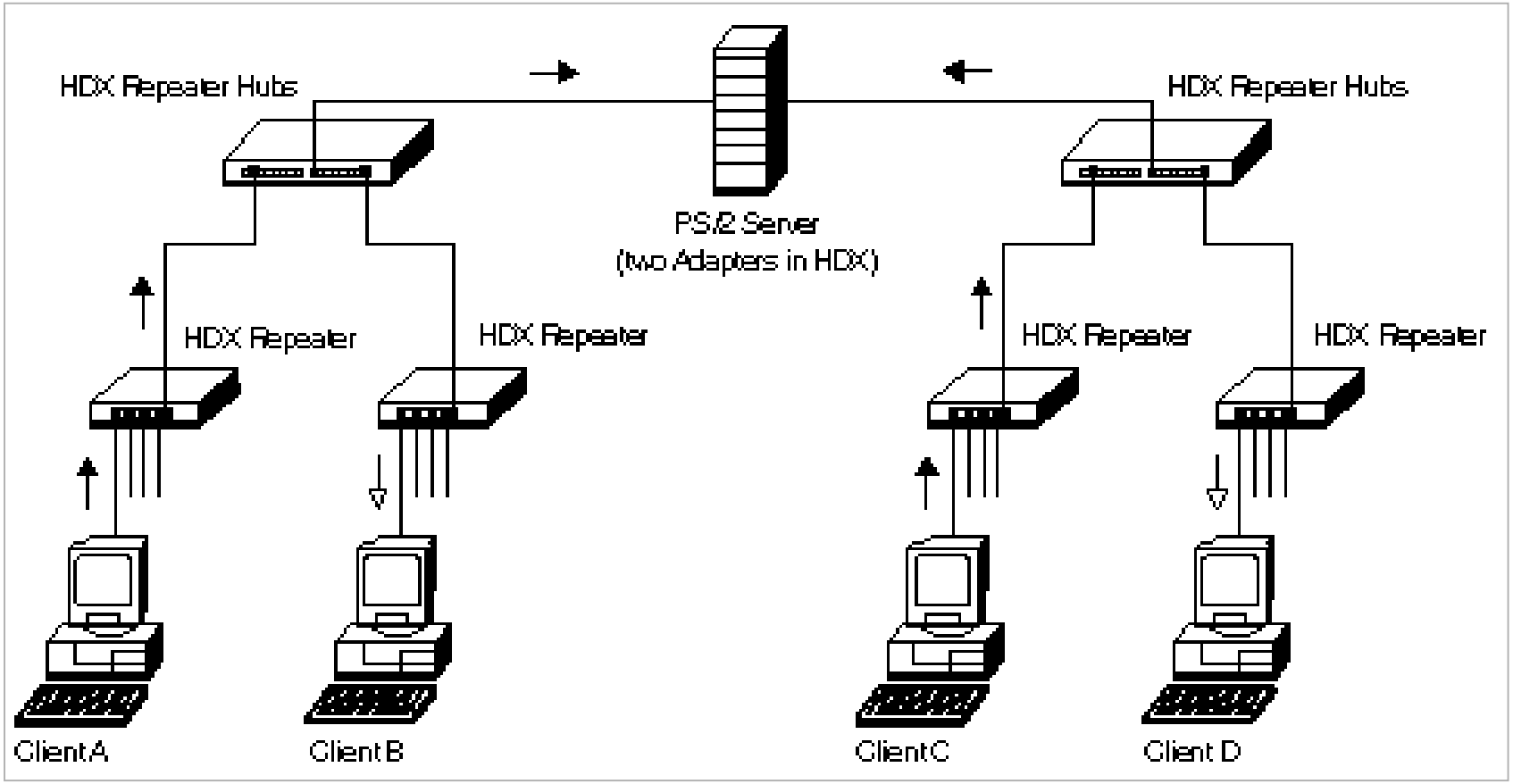
(c)

(a)Hub

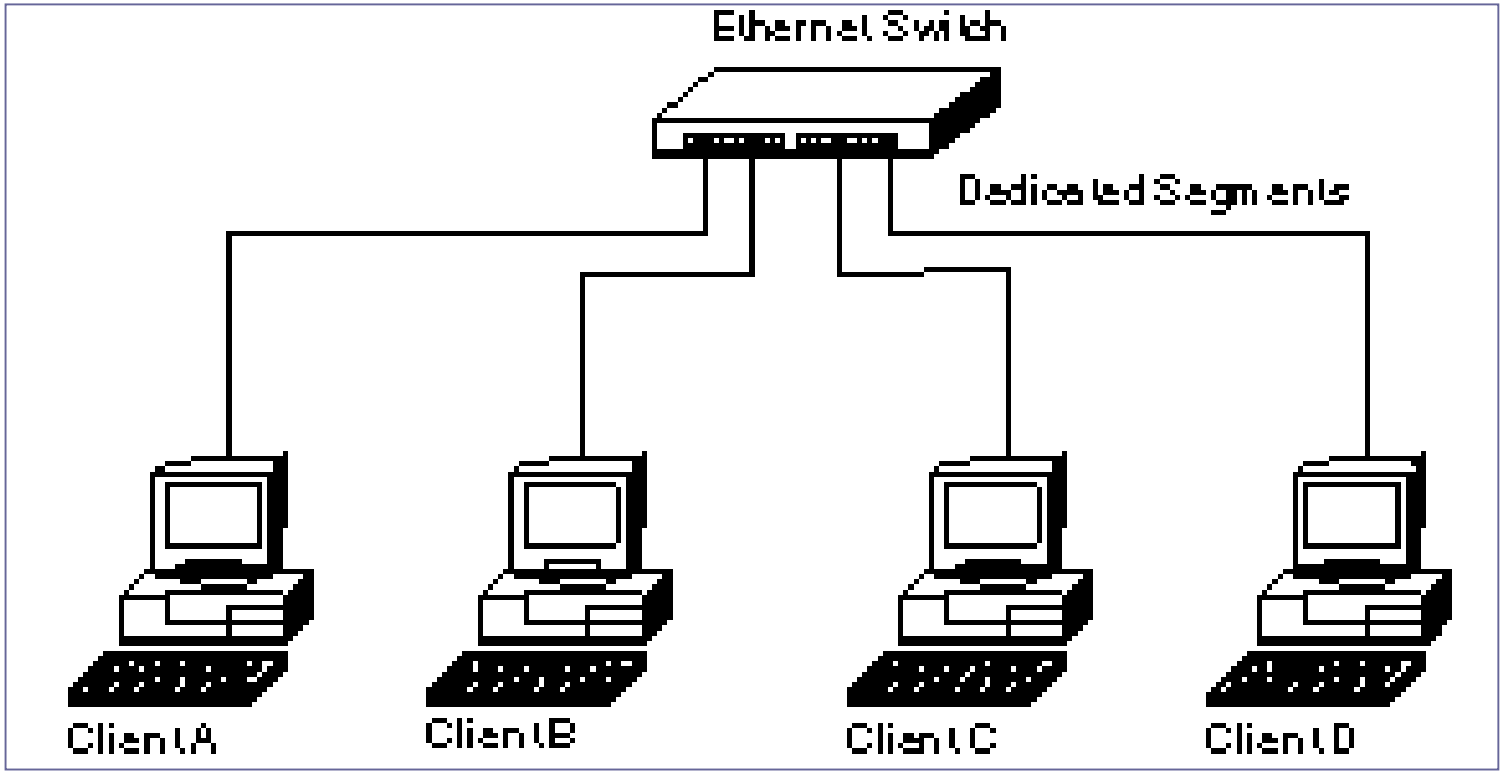
(b)Bridge

(c) Switch

REPEATERS/ HUBS



SWITCHES


Ethernet Switch
Dedicated Segments
Client A
Client B
Client C
Client D

Multiple Choice Question

MUTIPLE CHOICE QUESTIONS:

Sr no	Question	Option A	Option B	OptionC	OptionD
1	Communication between a computer and a keyboard involves _____ transmission.	Automatic	Half-duplex	Full-duplex	Simplex
2	A _____ is the physical path over which a message travels.	Path	Medium	Protocol	Route
3	Which of this is not a network edge device?	PC	Smartphones	Servers	Switch
4	A _____ set of rules that governs data communication.	Protocols	Standards	RFCs	Servers
5	Three or more devices share a link in _____ connection.	Unipoint	Multipoint	Point to point	Simplex

REFERENCES

- http://www.engppt.com/2009/12/networking-fourozan-ppt-slides.html