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FACULTY OF ENGINEERING & TECHNOLOGY

BCA-302Computer Networks

Lecture-14

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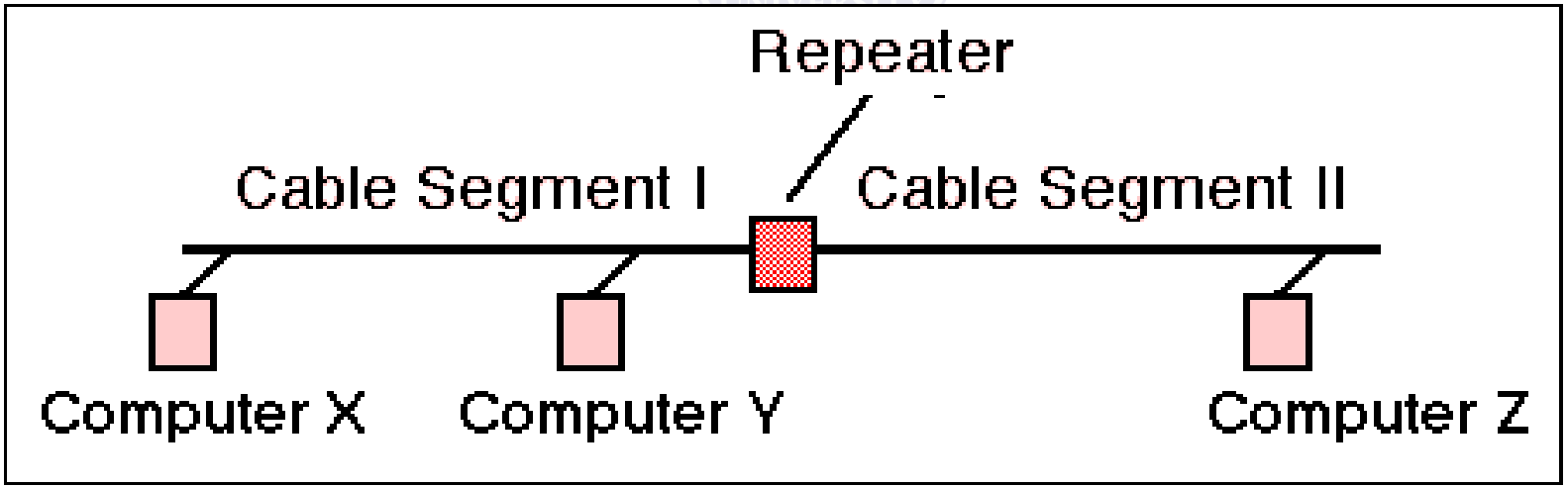
OUTLINE

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

ROUTERS AND GATEWAYS

REPEATERS

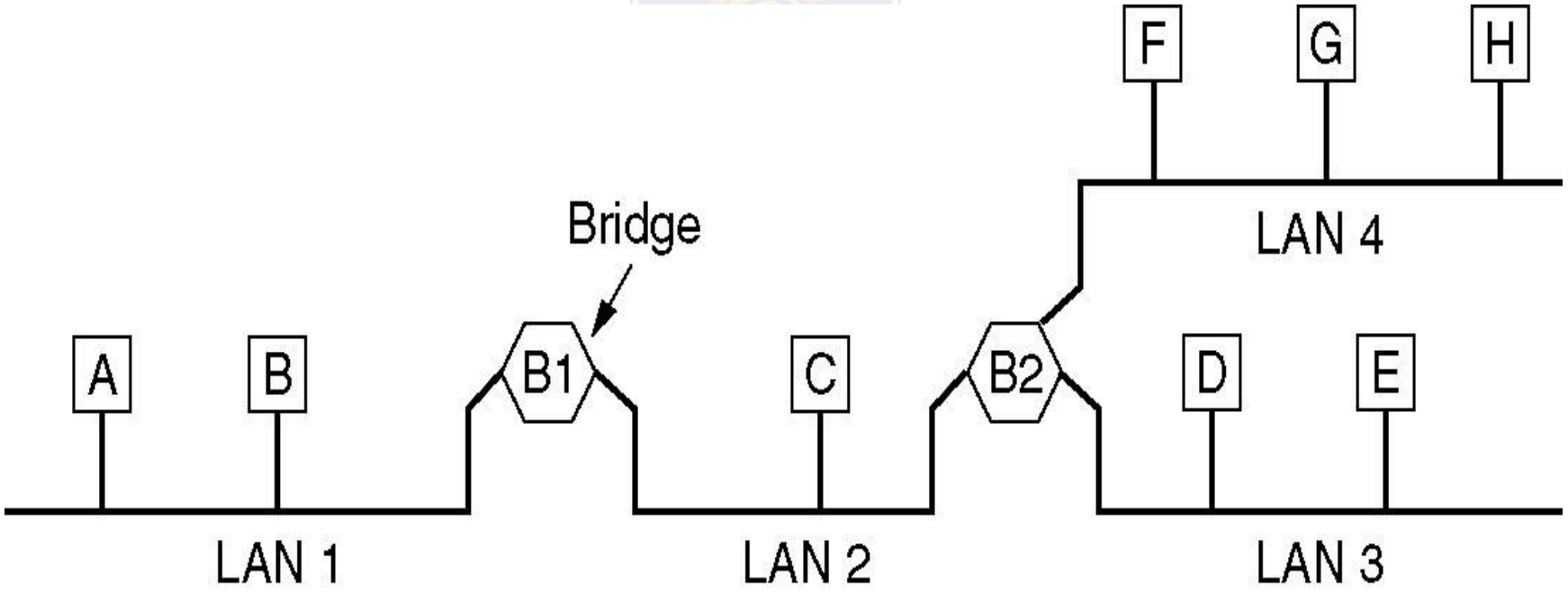
- Regenerate the signal
- Provide more flexibility in network design
- Extend the distance over which a signal may travel down a cable
- Connect together one or more Ethernet cable segments of any media type
- If an Ethernet segment were allowed to exceed the maximum length or the maximum number of attached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



ETHERNET BRIDGE

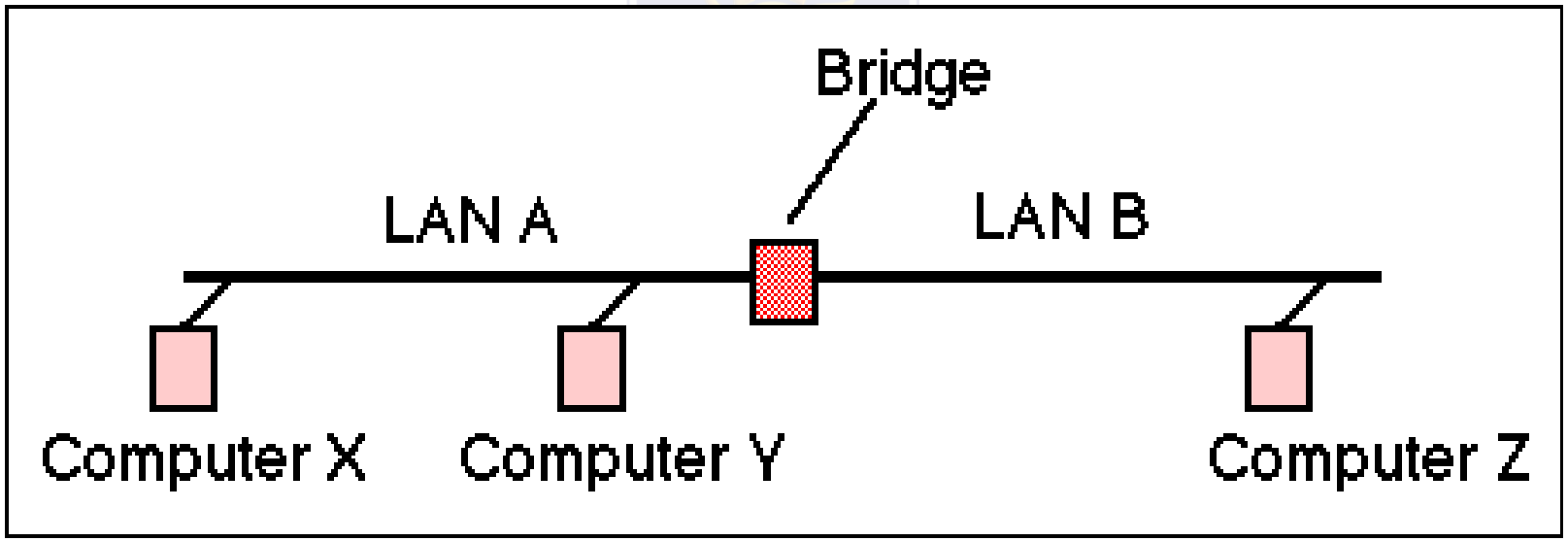
- Join two LAN segments (A,B), constructing a larger LAN
- Filter traffic passing between the two LANs and may enforce a security policy separating different work groups located on each of the LANs

A configuration with four LANs and two bridges.



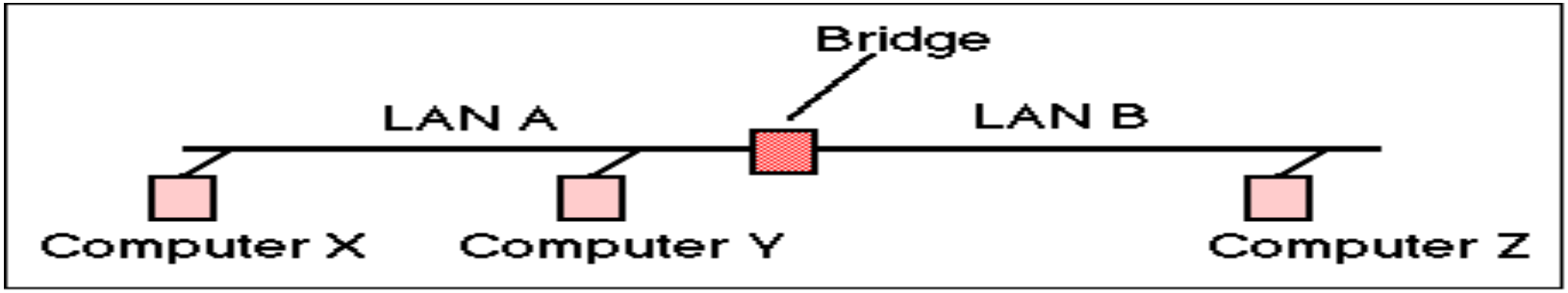
ETHERNET BRIDGES

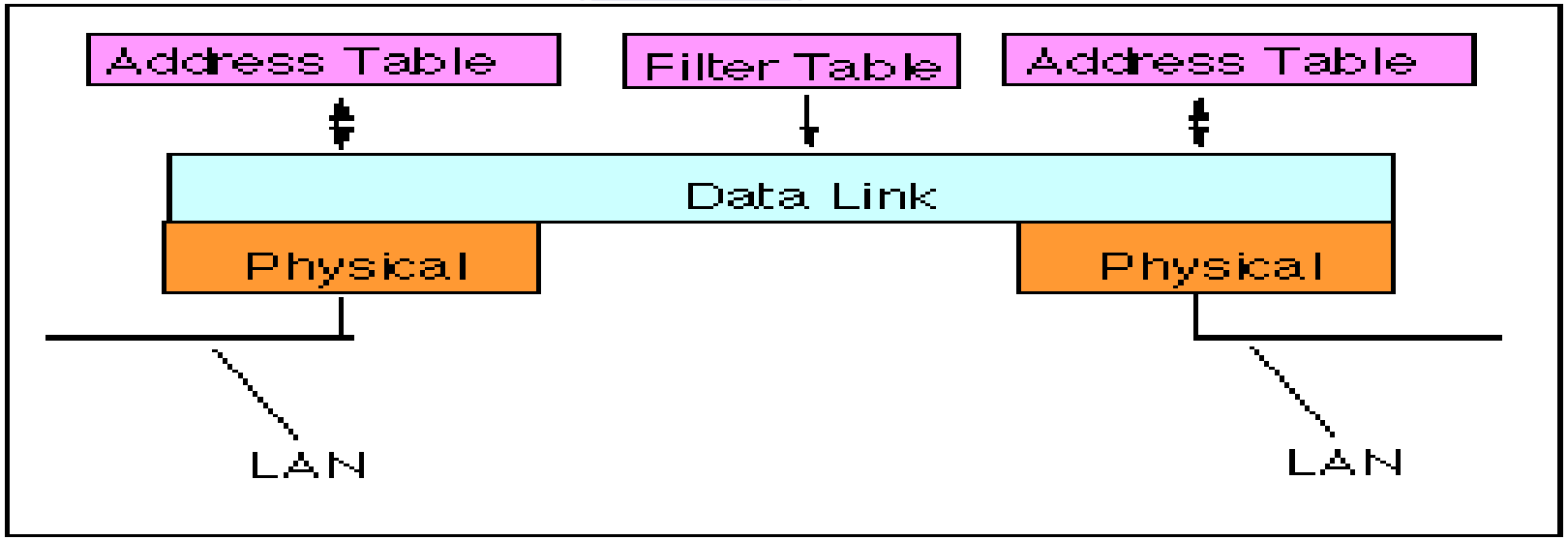
- Simplest and most frequently used to Transparent Bridge (meaning that the nodes using a bridge are unaware of its presence).
- Bridge could forward all frames, but then it would behave rather like a repeater
- Bridges are smarter than repeaters!



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

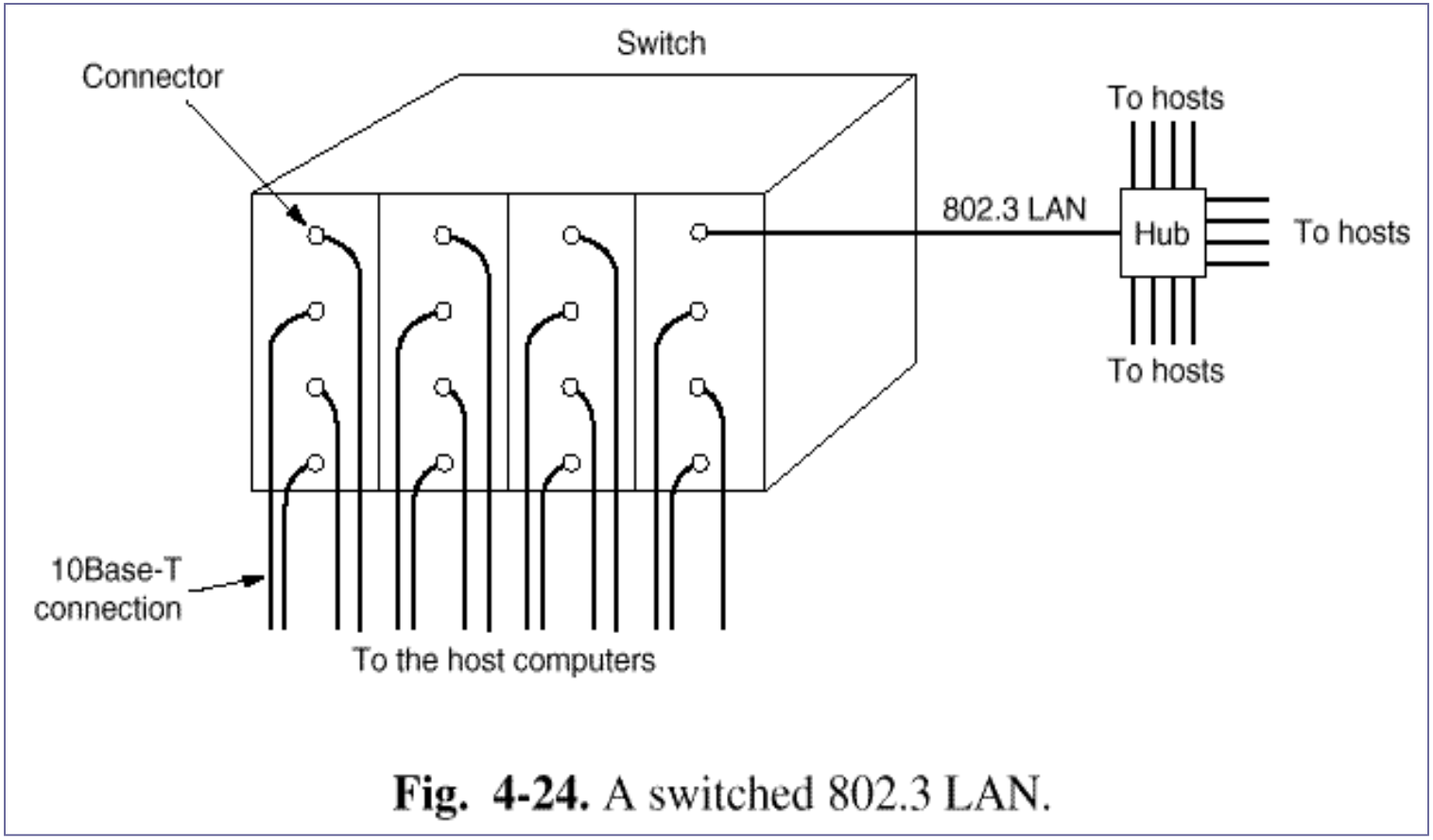
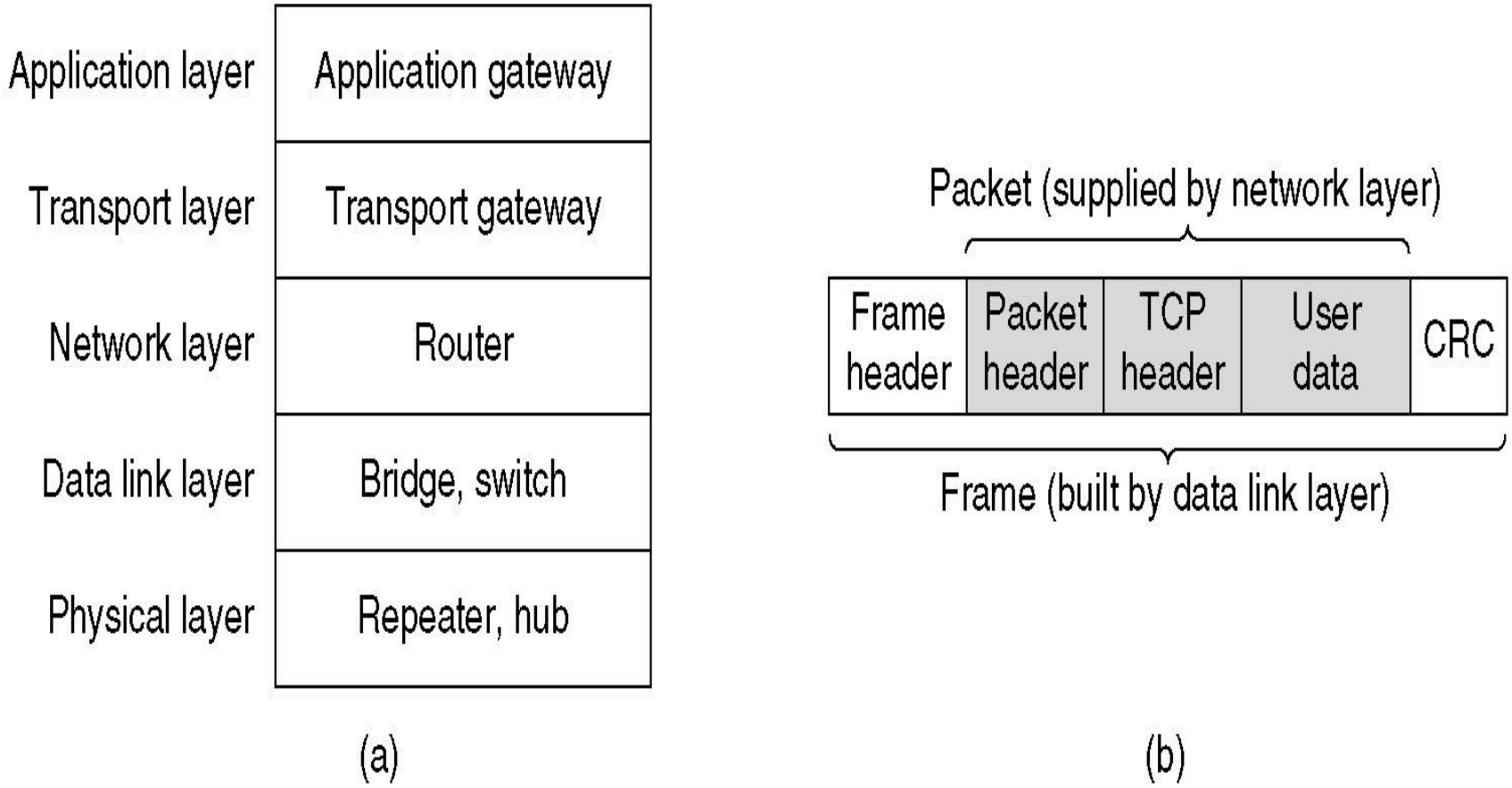


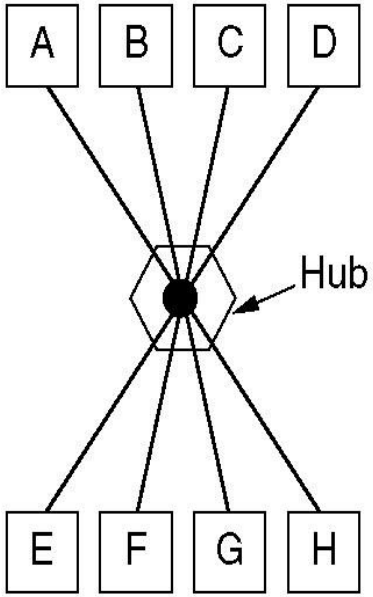
Fig. 4-24. A switched 802.3 LAN.

REPEATERS, HUBS, BRIDGES, SWITCHES, ROUTERS AND GATEWAYS

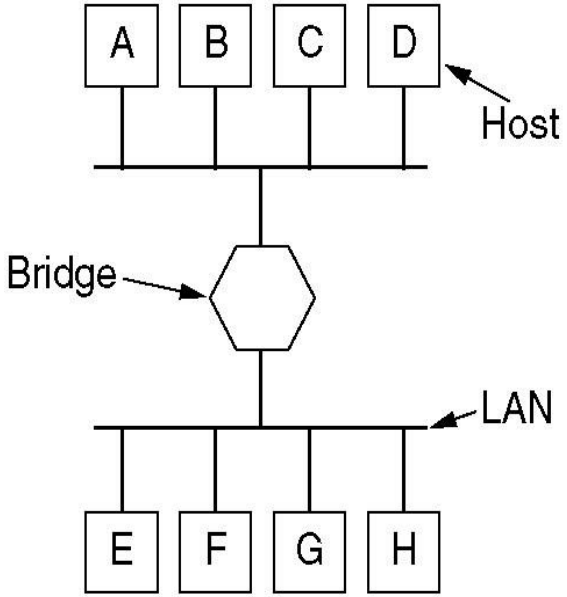


(a) Which device is in which layer.
(b) Frames, packets, and headers

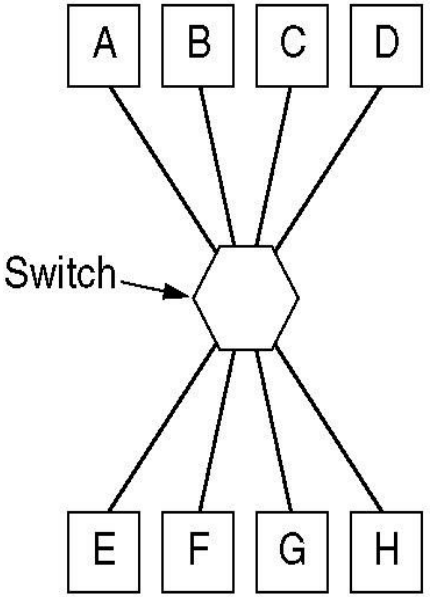
REPEATERS, HUBS, BRIDGES, SWITCHES, ROUTERS AND GATEWAYS



(a)



(b)



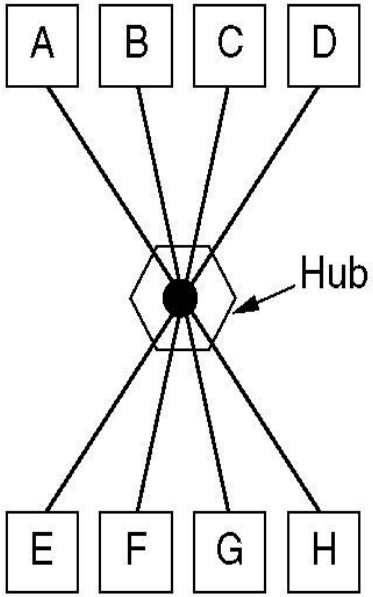
(c)

(a)Hub

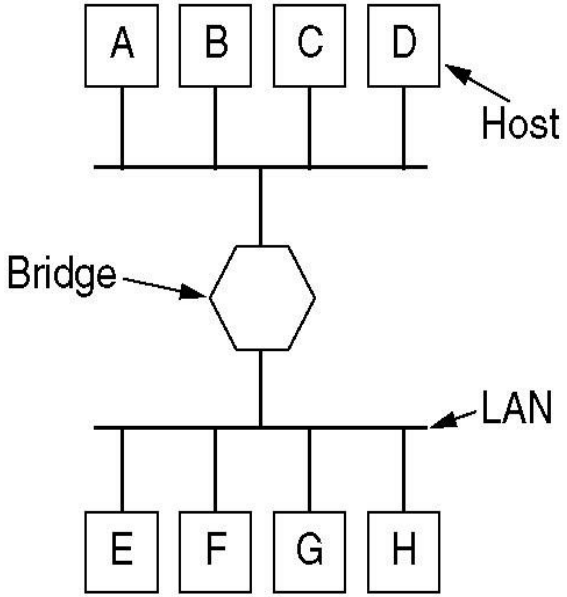
(b)Bridge

(c) Switch

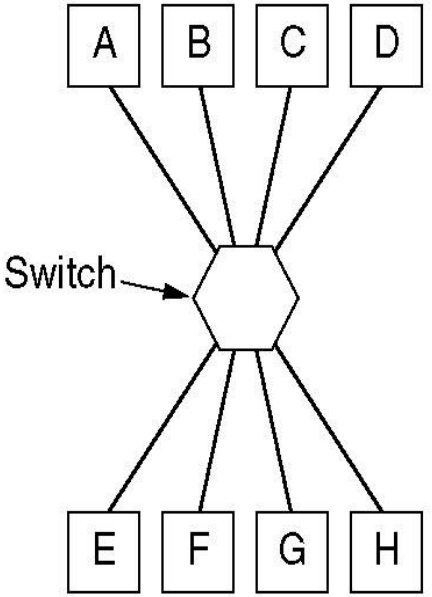
REPEATERS, HUBS, BRIDGES, SWITCHES, ROUTERS AND GATEWAYS



(a)



(b)



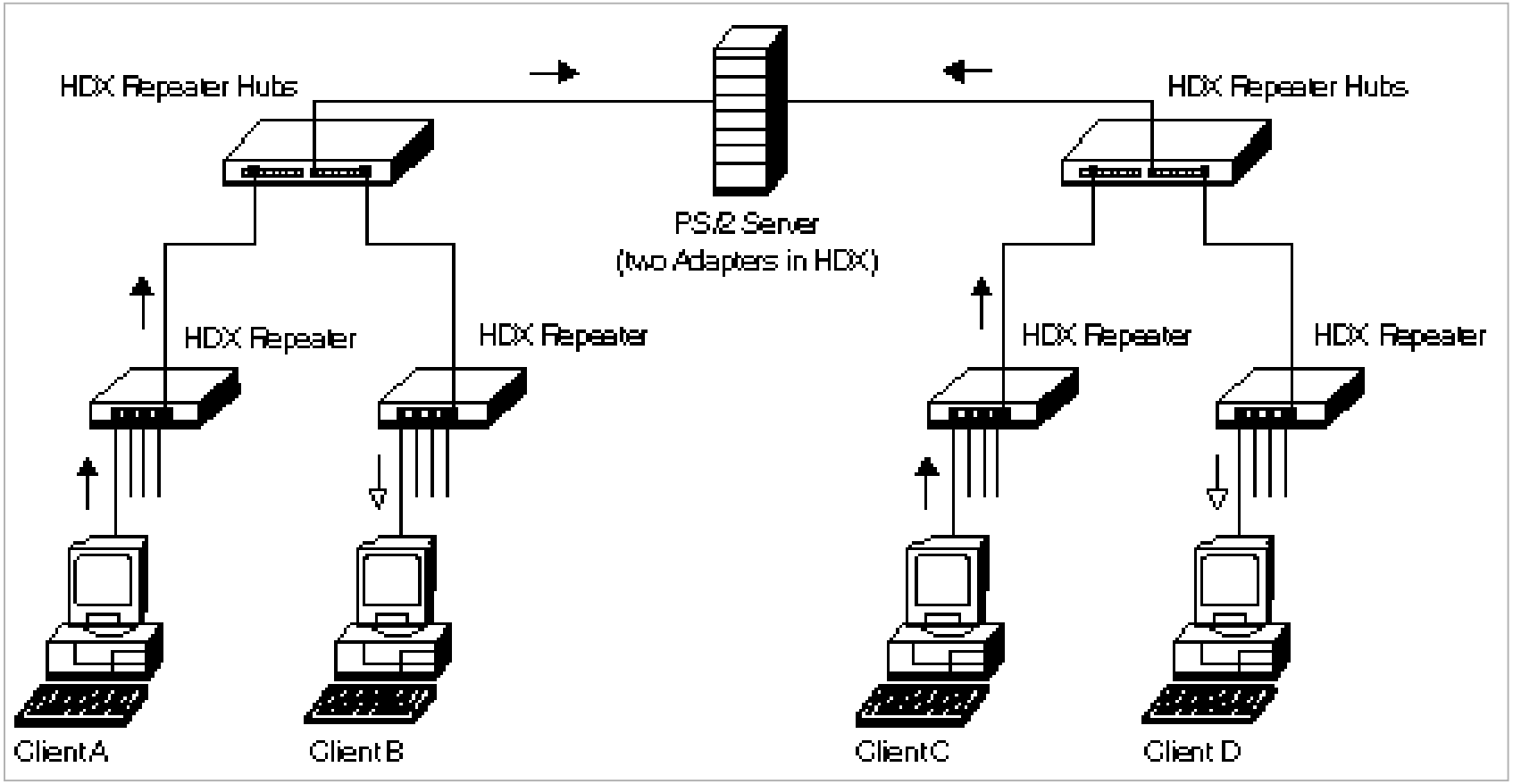
(c)

(a)Hub

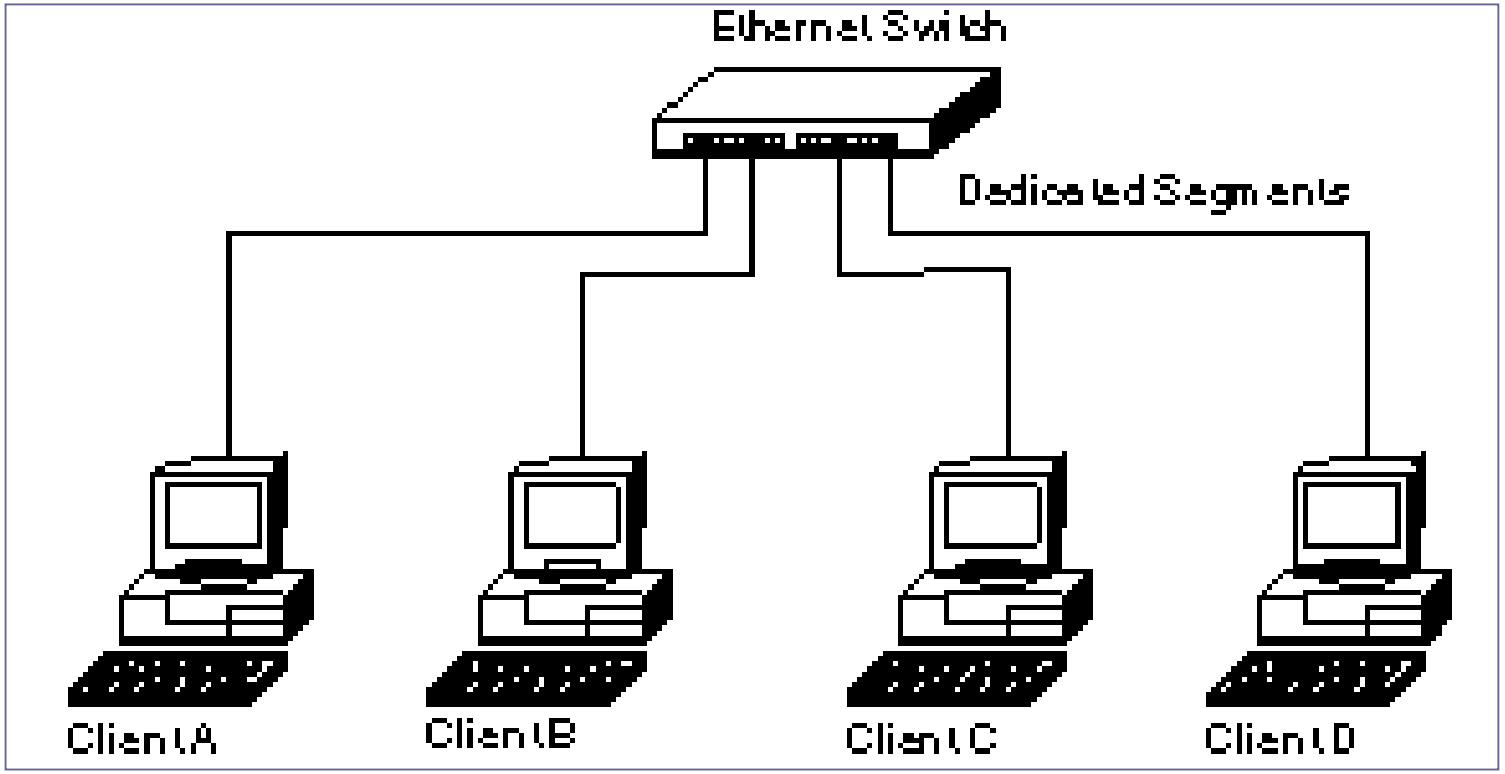
(b)Bridge

(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	Which layer is used to link the network support layers and user support layers?	session layer	data link layer	transport layer	network layer
2	TCP/IP model was developed _____ the OSI model.	prior to	after	simultaneous to	with no link to
3	Which layer is responsible for process to process delivery in a general network model?	network layer	transport layer	session layer	data link layer
4	Which address is used to identify a process on a host by the transport layer?	physical address	logical address	port address	specific address
5	Which layer provides the services to user?	application layer	session layer	presentation layer	physical layer

REFERENCES

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