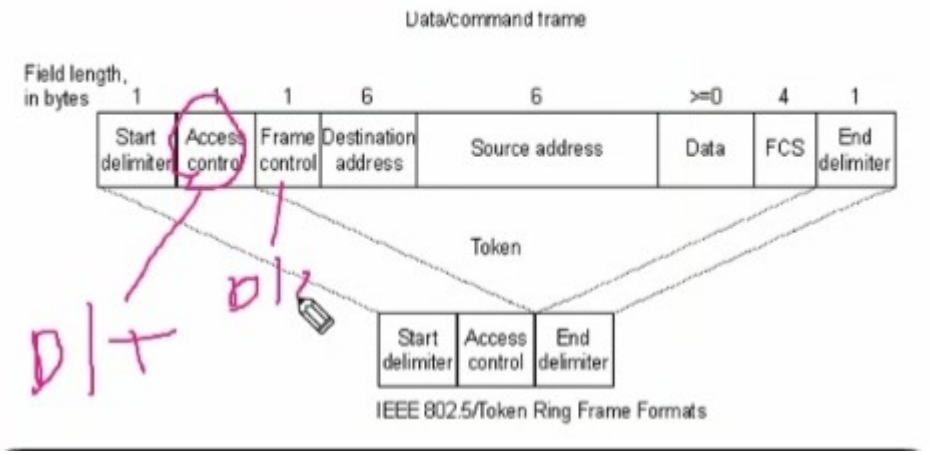
TOKEN RING (IEEE 802.5)Frame Format



CONNECTING DEVICES

Connecting devices into five different categories based on the layer in which they operate in a network.

Passive Hubs
Active Hubs
Bridges
Two-Layer Switches
Routers
Three-Layer Switches
Gateways

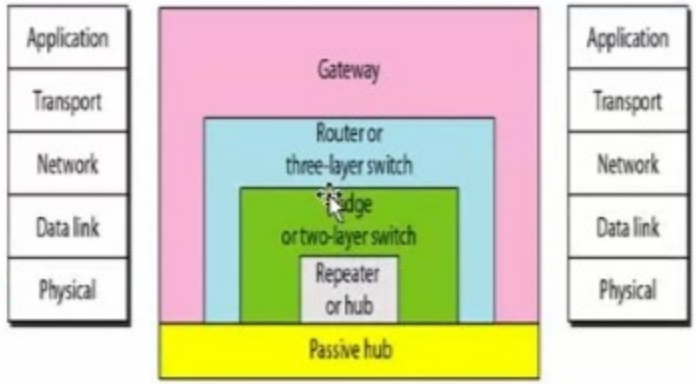


Figure *A repeater connecting two segments of a LAN*

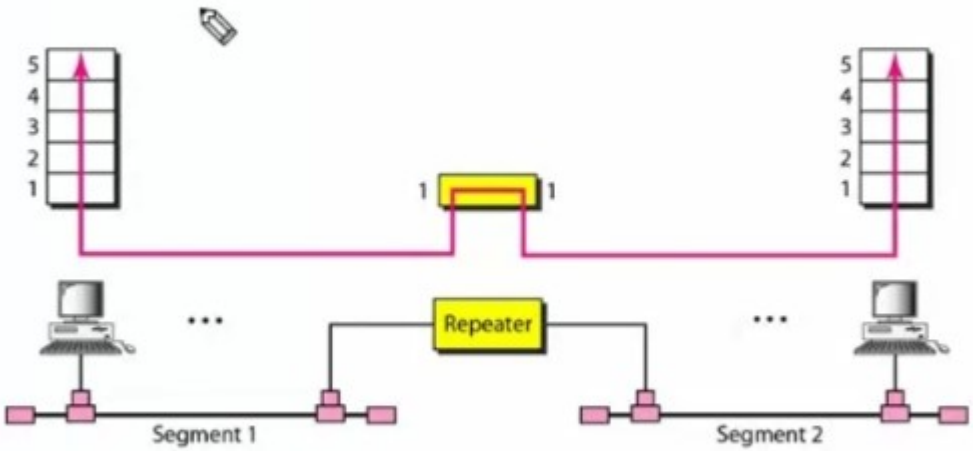
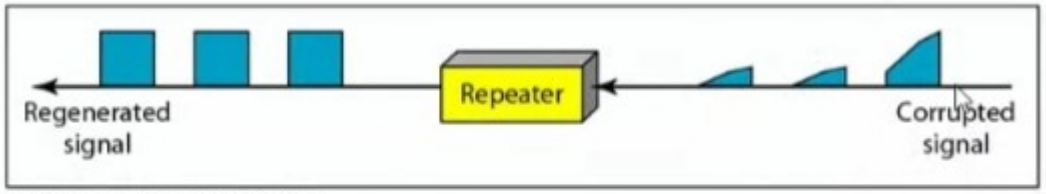
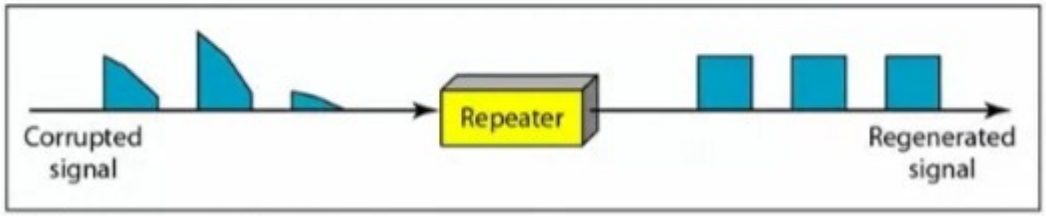


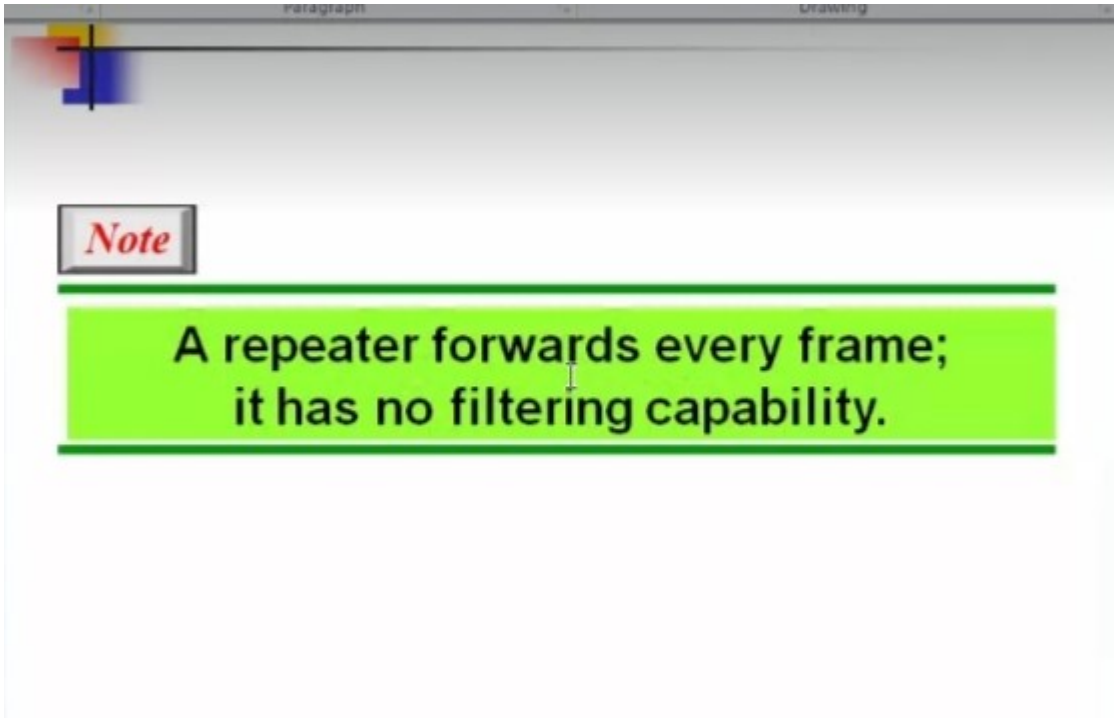
Figure 15.3 *Function of a repeater*



a. Right-to-left transmission.



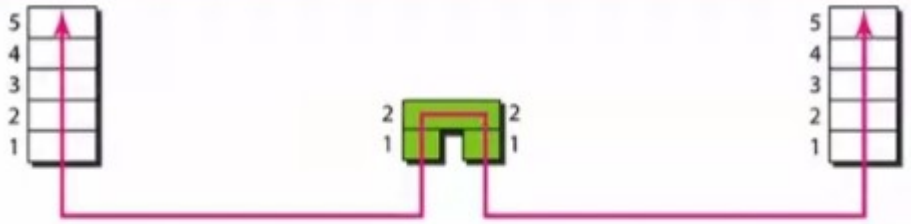
b. Left-to-right transmission.


Note
A repeater forwards every frame;
it has no filtering capability.

BRIDGES

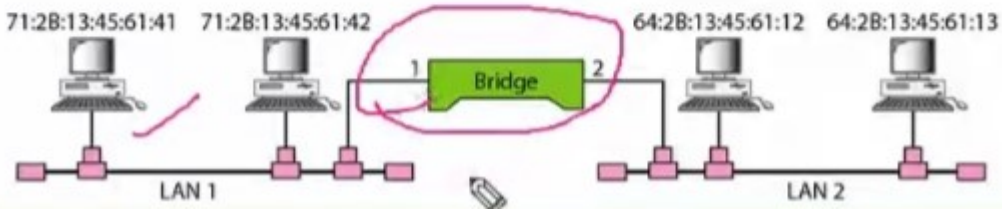
- A Bridge operates in both the Physical and the Data link layer.
- As a Physical layer device, it regenerates the signal it receives.
- As a data link layer device, the bridge can check the physical addresses contained in the frame.
- Compared to the repeaters, a BRIDGE has a filtering capability – forwarding & dropping of frames.
- If the frame is to be forwarded, the port must be specified.
- A bridge has a table used in filtering decisions.
- A bridge doesn't change the physical addresses contained in the frame.

BRIDGES - Filtering



Address	Port
71:2B:13:45:61:41	1
71:2B:13:45:61:42	1
64:2B:13:45:61:12	2
64:2B:13:45:61:13	2

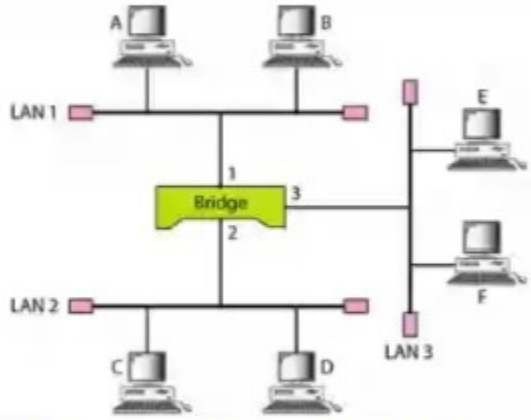
Bridge Table



Transparent bridges

- ✓ A Transparent bridge is a bridge in which the stations are completely unaware of bridge's existence.
- ✓ If a bridge is added or deleted from the system, reconfiguration of the stations is unnecessary.
- ✓ According to IEEE 802.1d, a system equipped with transparent bridges must meet three criteria.
  1. Forwarding.
  2. Learning.
  3. Loops should not be present.

Learning Process: *A learning bridge and the process of learning*



Address	Port

a. Original

Address	Port
A	1

b. After A sends a frame to D

Address	Port
A	1
E	3

c. After E sends a frame to A

Address	Port
A	1
E	3
B	1

d. After B sends a frame to C