CS25010

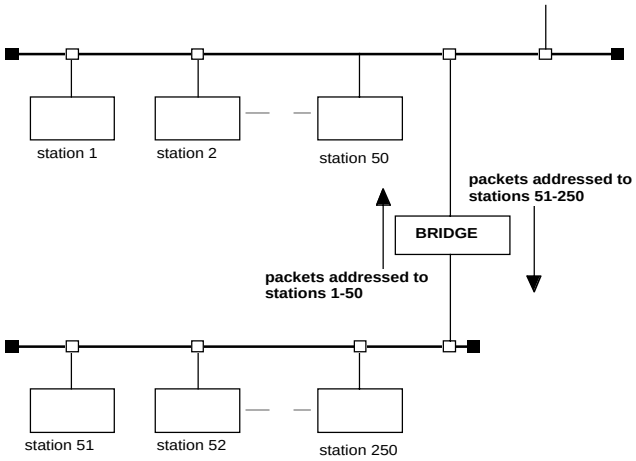
# Bridges

- Partition LAN to segregate load.
- Partition LAN to add reliability.
- Partition LAN to add security.
- Combine remote LAN segments into a single logical network.
- Combine separately developed and controlled LANs.



## Bridges

- IEEE 802 LANs often include bridges
- repeater cleans and forwards *all* data, basically forwards electrical information
- bridge selectively forwards data, stores and forwards complete packets
- forwarding based on header information.
- bridges sometimes known as a 'MAC level relay'.



## Bridge types

Two main types of bridges:

- **Source Routing Bridges**. Hosts discover the route to each other host and are very aware of the presence of multiple LANs coupled by bridges.

- **Transparent Bridges**. Bridge learns (or is told) the LAN on which each address exists. Hosts need not know anything about the location of other hosts and indeed are not even aware of the presence of the bridges.



## Source Routing Bridges

- Bridges and LANs have numbers.
- Hosts “discover” routes to other hosts.
- Data is transmitted with routing attached
- Bridges obey the routing.

# Transparent Bridges

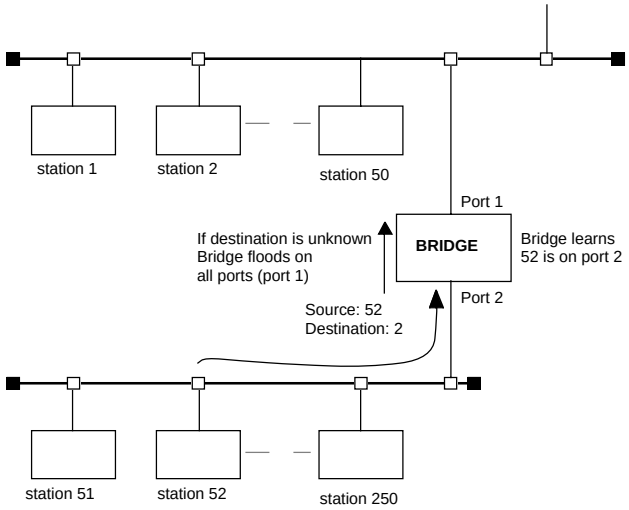
**frame forwarding:**

- Frames which arrive are handled in one of 3 different ways:
- Same LAN. If destination address on same LAN as source address then discard packet.
- Different LAN. If destination address on different LAN to source address then forward packet.
- Unknown destination. If location of destination address is not known then 'flood'.



**Address Learning:**

Bridges can update their forwarding database when a frame arrives on a particular port, since they know that the originating address must be on the port that the packet arrived on.



# Local and Remote Bridges

- Local Bridges - Connect two (or more) adjacent LANs. Throughput likely to be high. Hosts not likely to notice much performance degradation unless waiting for each packet to be acknowledged.

- Remote bridges - Connect two (or more) LANs which are widely separated. Bridge consists of two ‘half bridges’ connected by a WAN type link. Link typically 64Kbps or 2Mbps.