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Underlying Concept

Packets routed from source to multiple destinations

→ Key for group communication

→ E.g. videoconferencing, video broadcasting

→ Address identifies a group
Multicast Addressing

- Class D addresses
- Begin with 1110
- 224.0.0.0 - 239.255.255.255
IPv4 Multicast - 5

- Address identifies a host group
- Packet is delivered to all hosts in the group
- Anywhere in the network
Host Group

- Hosts join and leave dynamically
- Recipients establish which hosts receive a packet
- In unicast it is the source
- Controlling traffic reach is more difficult
Within an IEEE 802 Network

→ Group delivery delegated to lower level (MAC)
IPv4 Multicast address mapped to a MAC multicast address

01-00-5E-0 → 1 bit

23 least significant bits of IP address
→ Interface card configured to receive that MAC multicast
→ Recipient initiated group join
→ Packets sent to the address are received by all joined hosts
Beyond a Single Network

- Routers discover host groups on each LAN
- Internet Group Management Protocol (IGMP)
- Routers announce host groups to others
- Multicast routing protocols
→ Routers build a distribution tree for each host group
→ To all LANs with at least a member
State of Deployment

- Not widely supported
- Not fit to common traffic control/engineering practice
- Mostly limited controlled environments
- E.g. video broadcasting over IP solutions