

IP MULTICASTING

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Underlying Concept 重点概念

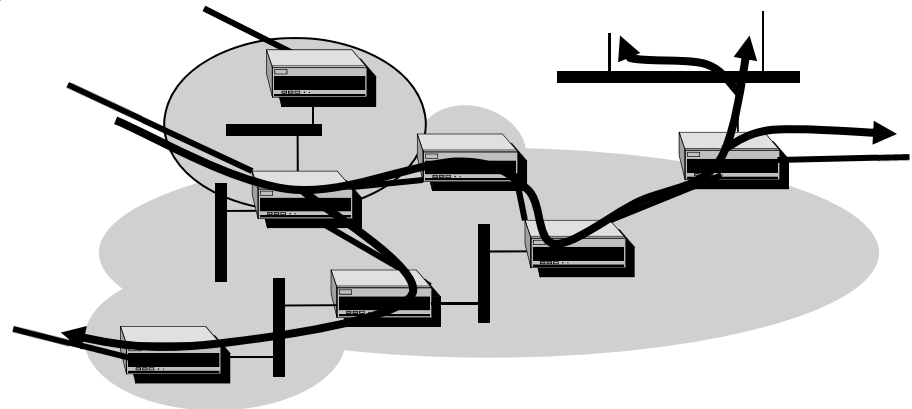
Packets routed from source to multiple destinations

→ Key for group communication

组会议的关键

→ 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

D类地址

地址定义一个主机组

- Address identifies a host group
- Packet is delivered to all hosts in the group
包发送给一个组里的所有主机
- Anywhere in the network

在网络的任何地址

Host Group 主机组

主机加入和离开是动态的

→ Hosts join and leave dynamically

→ Recipients establish which hosts receive a packet

接收方确定哪些主机接受数据包

→ In unicast it is the source

在单播中他是源

→ Controlling traffic reach is more difficult

控制流量范围比较困难

Within an IEEE 802 Network

→ Group delivery delegated
to lower level (MAC)



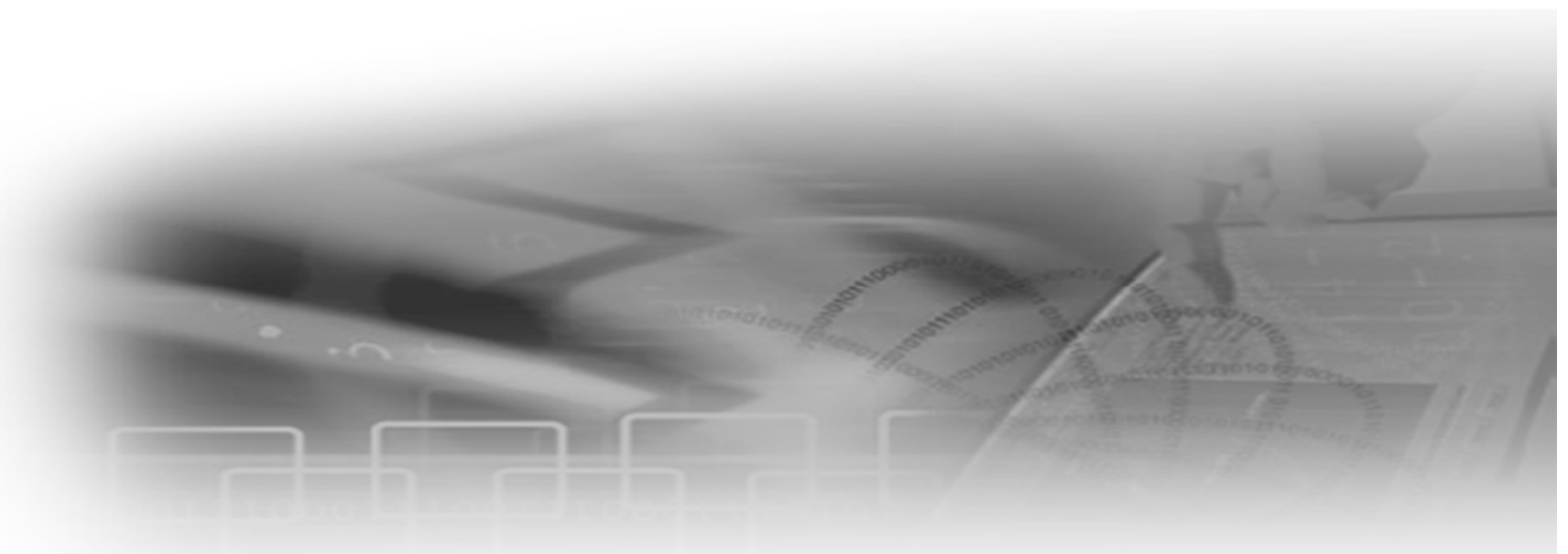
- IP multicast address mapped to a MAC multicast address
- 01-00-5E-0 ← 1 bit
- 23 least significant bits of IP address

- 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