21.1 Introduction

As shown in Figure 20.1, a unicast address identifies a *single* IP interface, a broadcast address identifies *all* IP interfaces on the subnet, and a multicast address identifies a *set* of IP interfaces. Unicasting and broadcasting are the extremes of the addressing spectrum (one or all) and the intent of multicasting is to allow addressing something in between. A multicast datagram should be received only by those interfaces interested in the datagram, that is, by the interfaces on the hosts running applications wishing to participate in the multicast group. Also, broadcasting is normally limited to a LAN, whereas multicasting can be used on a LAN or across a WAN. Indeed, applications multicast across a subset of the Internet on a daily basis.

The additions to the sockets API to support multicasting are simple; they comprise nine socket options: three that affect the sending of UDP datagrams to a multicast address and six that affect the host's reception of multicast datagrams.