

[\[ Team LiB \]](#)[◀ PREVIOUS](#)[NEXT ▶](#)

## 21.5 Source-Specific Multicast

Multicasting on a WAN has been difficult to deploy for several reasons. The biggest problem is that the *MRP*, described in [Section 21.4](#), needs to get the data from all the senders, which may be located anywhere in the network, to all the receivers, which may similarly be located anywhere. Another large problem is multicast address allocation: There are not enough IPv4 multicast addresses to statically assign them to everyone who wants one, as is done with unicast addresses. To send wide-area multicast and not conflict with other multicast senders, you need a unique address, but there is not yet a global multicast address allocation mechanism.

*Source-specific multicast*, or SSM [Holbrook and Cheriton 1999], provides a pragmatic solution to these problems. It combines the group address with a system's source address, which solves the problems as follows:

- The receivers supply the sender's source address to the routers as part of joining the group. This removes the rendezvous problem from the network, as the network now knows exactly where the sender is. However, it retains the scaling properties of not requiring the sender to know who all the receivers are. This simplifies multicast routing protocols immensely.
- It redefines the identifier from simply being a multicast group address to being a combination of a unicast source and multicast destination (which SSM now calls a *channel*). This means that the source may pick any multicast address since it becomes the (source, destination) combination that must be unique, and the source already makes it unique. An SSM session is the combination of source, destination, and port.

SSM also provides a certain amount of anti-spoofing, that is, it is harder for source 2 to transmit on source 1's channel since source 1's channel includes source 1's source address. Spoofing is still possible, of course, but is much harder.

[\[ Team LiB \]](#)[◀ PREVIOUS](#)[NEXT ▶](#)