The third item means that DHCP takes steps to prevent synchronized requests. For example, synchronized requests might occur if all computers on a network reboot simultaneously after a power failure. To avoid having all hosts on a network flood the DHCP server with simultaneous requests, DHCP requires each host to delay a random time before transmitting (or retransmitting) a request.

### 23.15 DHCP Message Format

Although DHCPv6 has been created to allow IPv6 addresses to be centrally administered, IPv6 was designed to use autoconfiguration† rather than DHCPv6. Therefore, we will focus on DHCP for IPv4. Because it was designed as an extension of BOOTP, the IPv4 version of DHCP adopted a slightly modified version of the BOOTP message format. Figure 23.9 illustrates the DHCP message format.

![DHCP Message Format](image)

Except for OPTIONS, each field in a DHCP message has a fixed size. The first seven fields contain information used to process the message. The OP field specifies whether the message is a Request or a Response. To distinguish among various messages that a client uses to discover servers or request an address or that a server uses to acknowledge or deny a request, DHCP includes an OPTION for a specific message type. That is, the OP field tells whether the message is traveling from the client to the

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†A later section describes IPv6’s autoconfiguration.