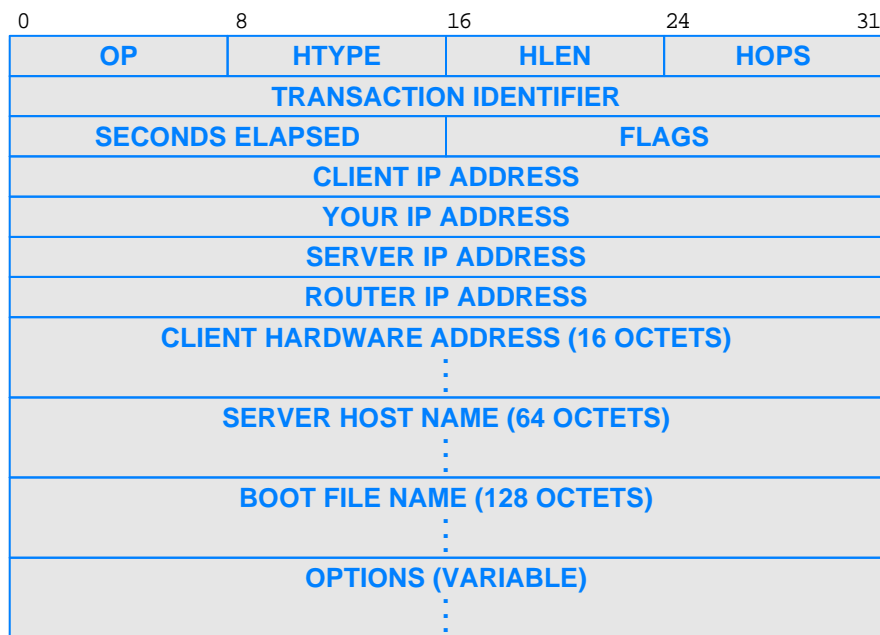


The third item means that DHCP takes steps to prevent synchronized requests. For example, synchronized requests might occur if all computers on a network reboot simultaneously after a power failure. To avoid having all hosts on a network flood the DHCP server with simultaneous requests, DHCP requires 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<sup>†</sup> 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.



**Figure 23.9** The DHCP message format. (All addresses are IPv4 addresses.)

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

<sup>†</sup>A later section describes IPv6's autoconfiguration.