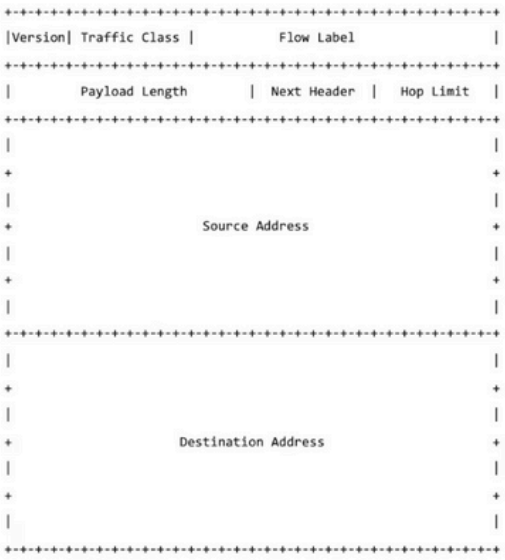
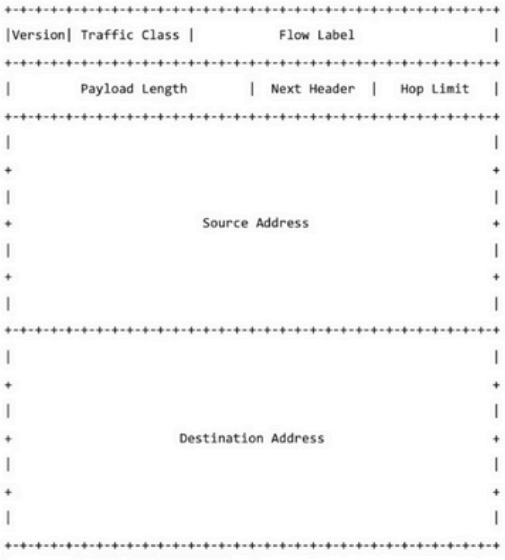
IPv6 header

- **Version**
  - This 4-bit field indicates the version of the IPv6 protocol used in the packet
  - For IPv6, this field always has a value of 6
- **Traffic Class**
  - This 8-bit field is used to specify the type of traffic and packet priority. It is used for Quality of Service (QoS) implementation and may include subfields such as Flow Label and DSCP (Differentiated Services Code Point).



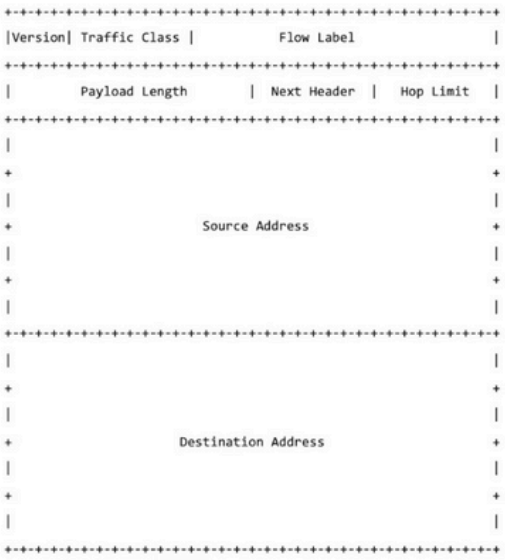
IPv6 header

- **Flow Label**
  - This 20-bit field is used to identify and label packet flows that require special handling within the network
  - It provides a way to maintain connection state for specific packet flows, which can be useful for QoS implementations and quality of service routing
- **Payload Length**
  - This 16-bit field indicates the length of the packet payload (data) in octets. It allows the receiver to determine the payload length for packet processing



IPv6 header

- **Next Header**
  - This 8-bit field indicates the type of header immediately following the IPv6 header in the packet's header chain. It can be a transport header (such as TCP, UDP), an IPv6 extension header (such as Hop-by-Hop options, Routing, Fragment, Authentication, etc.), or a destination header (such as ICMPv6).
  - Uses the same values as the IPv4 protocol field
- **Hop Limit**
  - This 8-bit field specifies the maximum number of hops allowed that an IPv6 packet can traverse before being discarded
  - Similar to the TTL (Time to Live) field in IPv4, it is used to prevent infinite loops and limit the scope of the packet in the network



IPv6 header

- **Source Address**
  - This 128-bit field specifies the IPv6 address of the sender of the packet
  - It is the IPv6 address from which the packet originates
  - It can be an IPv6 unicast address, an IPv6 multicast address, or an IPv6 anycast address
- **Destination Address**
  - This 128-bit field specifies the IPv6 address of the recipient of the packet
  - It is the IPv6 address to which the packet is being sent
  - It can be an IPv6 unicast address, an IPv6 multicast address, or an IPv6 anycast address