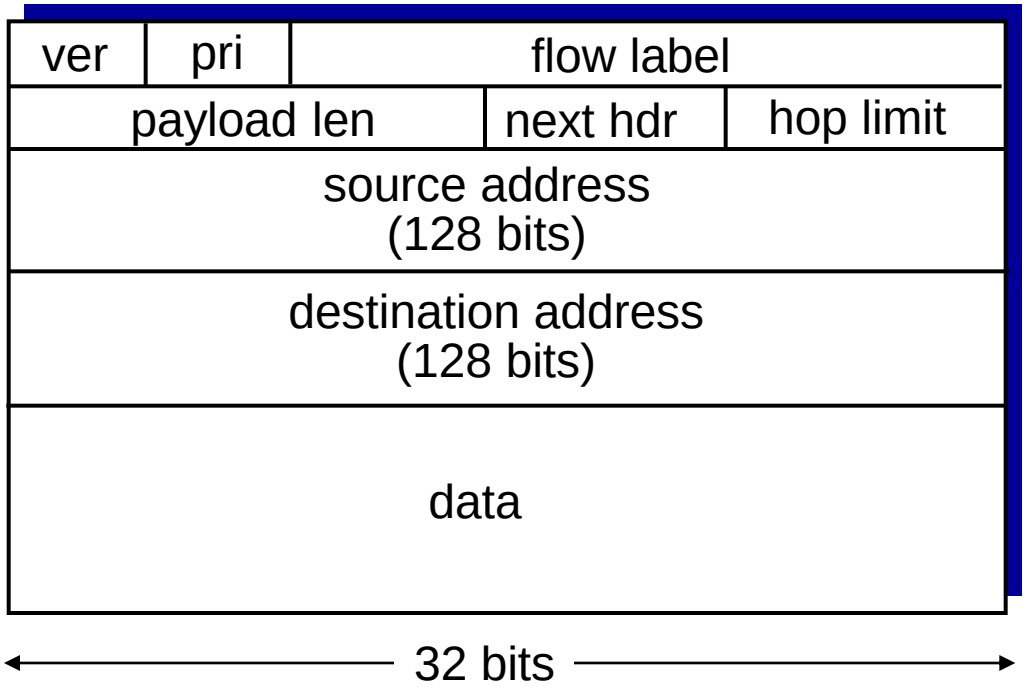
IPv6 datagram format

- priority: identify priority among datagrams in flow
- flow Label: identify datagrams in same "flow."
  (concept of"flow" not well defined).
- next header: identify upper layer protocol for data



Other changes from IPv4

- checksum: removed entirely to reduce processing time at each hop
- options: allowed, but outside of header, indicated by “Next Header” field
- ICMPv6: new version of ICMP
  - additional message types, e.g. “Packet Too Big”
  - multicast group management functions

IPv6 Fragmentation/Reassembly

- IPv6 does not allow for fragmentation and reassembly
- at intermediate routers; these operations can be performed only by the source and destination
- If an IPv6 datagram received by a router is too large to be forwarded over the outgoing link, the router simply drops the datagram and sends a “Packet Too Big” ICMP error message back to the sender
- The sender can then resend the data, using a smaller IP datagram size
- Fragmentation and reassembly is a time-consuming operation; removing this functionality from the routers and placing it squarely in the end systems considerably speeds up IP forwarding within the network