Analysis of IPV6 packet in wireshark

Introduction

This document provides a detailed analysis of an IPv6 packet captured in wireshark. The specific packet captured is Frame 128, which consists of 86 bytes and contains various protocol layers.

Frame summary

- **Frame number:** 128
- **Frame length:** 86 bytes
- **Capture length:** 86 bytes
- **Protocols in frame:** Ethernet, IPv6, ICMPv6

Detailed breakdown of the packet

Frame information

- **frame number:** 128
  the unique number identifier for this specific frame captured in the packet trace.
- **Frame length:** 86 bytes
  the total size of the packet, indicating headers and payload.
- **Capture length:** 86 bytes
  The amount of data captured for this packet. In this case, it matches the frame length, indicating no truncation.
- **Protocols in frame:** eth:ethertype:ipv6:icmpv6

A list of protocols encapsulated within this frame, indicating the hierarchy from Ethernet to application layer.

Ethernet II header

- Destination MAC Address (6 bytes):
  The hardware (MAC) address of the destination device.

- Source MAC Address (6 bytes):
  The hardware (MAC) address of the source device.

- EtherType (2 bytes):
  Indicates the protocol encapsulated in the payload.

IPv6 header

- Version (4 bits):
  Specifies the IP version. For IPv6, this value is 6.

- Traffic Class (8 bits):
  Used for packet prioritization and quality of service (QoS).

- Flow Label (20 bits):
  Used to identify packet flows requiring special handling.

- Payload Length (16 bits):
  The length of the payload (data) in bytes, including any extension headers, but not the base IPv6 header.

- Next Header (8 bits):

Identifies the type of header immediately following the IPv6 header, such as TCP, UDP, or another extension header.

- Hop Limit (8 bits):
  The maximum number of hops (routers) the packet can pass through. This value is decremented by one by each router that forwards the packet. When it reaches zero, the packet is discarded.

- Source Address (128 bits):
  The IPv6 address of the sender.

- Destination Address (128 bits):
  The IPv6 address of the receiver.

Conclusion

This analysis illustrates the structure and content of an IPv6 packet as captures in wireshark.