OSPFv3 over IPv4 for IPv6 Transition

draft-chen-ospf-transition-to-ospfv3-01

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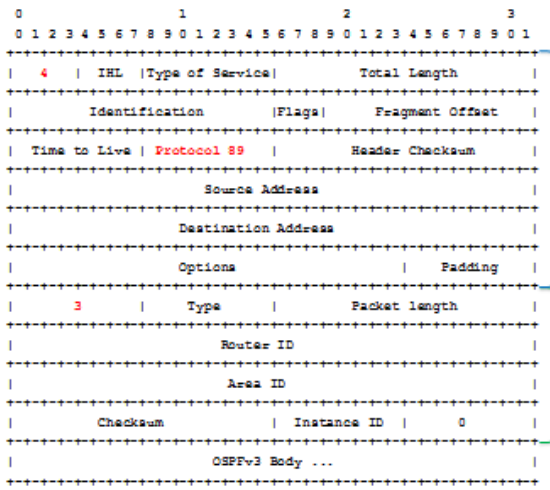
Existing Approach

- Transport OSPFv2 over IPv4
- Use OSPFv2 only for IPv4
- Transport OSPFv3 over IPv6
- Use OSPFv3 only for IPv6
- Manage 2 IGPs at the same time for the same site
  - This can increase operational complexity.
  - This also increases operational cost.

Proposal

- OSPFv3 over IPv4 is an alternative transition strategy for some sites
  - Use existing Address Family extension to carry both IPv4 prefixes & IPv6 prefixes in OSPFv3 at the same time
  - Use IP protocol number 89.
  - Start with transporting OSPFv3 over IPv4
    - To accommodate sites without IPv6.
  - Transition to transport OSPFv3 over IPV6
  - One transport technology is necessary
  - This lowers operational complexity & cost for some sites

OSPFv3 Packet in IPv4



Version 01 Updates

- IPv4-only use case
  - Help some sites transition to IPv6
  - Reduce operational costs
- General use case
  - Opportunity to focus future OSPF extensions on OSPFv3

IPv4-only Use Case

- Some equipment only supports IPv4 and ARP.
  - Has fixed filters to allow IPv4-related EtherTypes.
    - IPv4 Ethertype 0x0800
    - ARP Ethertype 0x0806
  - Fixed filters drop everything else
    - Example: IPv6 Ethertype 0x86dd
- Some equipment with serial interfaces only supports IPv4-over-PPP, not IPv6-over-PPP.
- Example: commonly used VSAT terminals

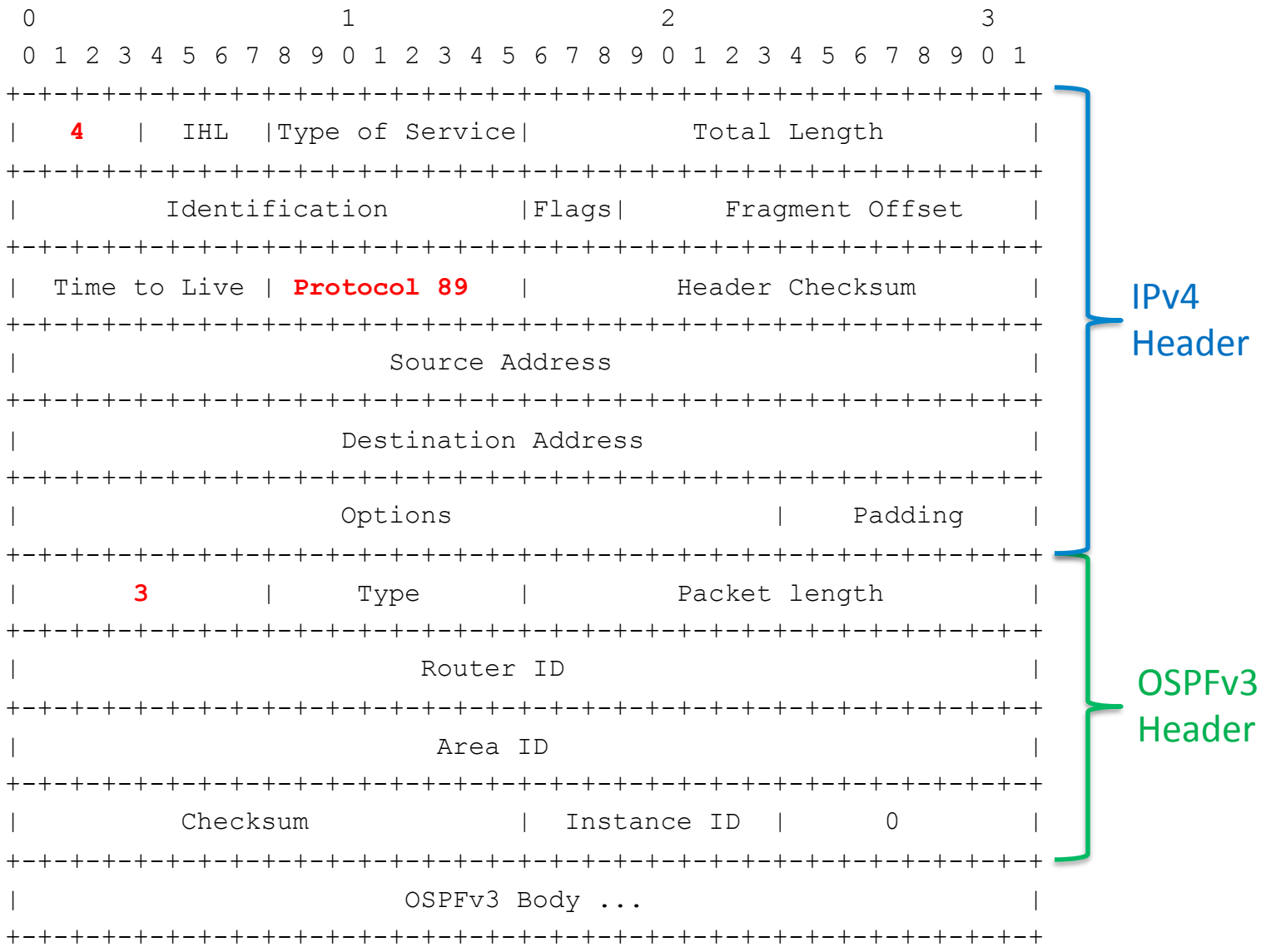
Virtual Link Transport

- Destination address must be a routable address.
- OSPFv2 virtual link
  - IPv4 destination address
  - IPv4 encapsulation and transport
- OSPFv3 virtual link
  - IPv4 unicast address family
    - IPv4 destination address
    - IPv4 encapsulation and transport
  - IPv6 unicast address family
    - IPv6 destination address
    - IPv6 encapsulation and transport

Working Group Adoption?

End of Presentation

OSPFv3 Packet in IPv4



Transition to OSPFv3