



# IPV6 EXTENSION

- ***Routing:***
- ***Fragmentation:***
- ***Authentication:***
- ***Encapsulation:***
- ***Hop-by-Hop Options:***
- ***Destination Options:***



# COMPARISON

## B/W

## IPV6 & IPV4



# IPv4 header

Version	IHL	Type of Service	Total Length	
Identification			Flags	Fragment Offset
Time to Live	Protocol	Header Checksum		
Source Address				
Destination Address				
Options				Padding

# IPv6 header

Version	Traffic Class	Flow Label	
Payload Length		Next Header	Hop Limit
Source Address			
Destination Address			



# LARGER ADDRESS SPACE



## IPv4

- 32 bits or 4 bytes long
- 4,200,000,000 possible addressable nodes.

## IPv6

- 128 bits or 16 bytes: four times the bits of IPv4
  - $3.4 * 10^{38}$  possible addressable nodes
  - 340,282,366,920,938,463,374,607,432,768,211,456
  - $5 * 10^{28}$  addresses per person

# IPV6 SECURITY

- **Different user communities have different security needs.**
- **IPv6 Authentication Header.**
- **IPv6 Encapsulating Security Header.**