TIN GRAPHIC SUMMARY FOR JULY 15, 2021
(TO BE USED WITH THE VERBAL PRESENTATION)

NOTE: It is recommended that you either make a copy to be viewed on the presentation night or prepare your computer to size this reference page to overlay on a portion of your EchoLink program as the presentation is made.

FIG #1
IPv6 addresses are represented as eight groups, separated by colons, of four hexadecimal digits. The full representation may be shortened.

It reads for example, 2001:0db8:0000:0000:0000:8a2e:0370:7334 becomes 2001:db8::8a2e:370:7334

FIG #2
Unlike with IPv4, routers never fragment a packet. Hosts are expected to use Path MTU Discovery to make their packets small enough to reach the destination without needing to be fragmented.

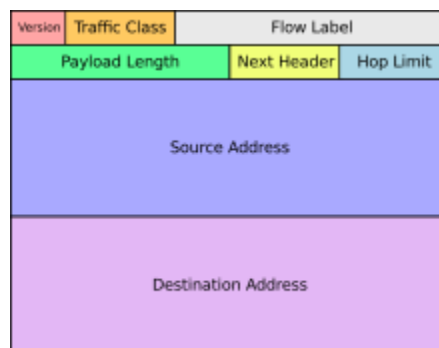| Version	Traffic Class	Flow Label	
Payload Length		Next Header	Hop Limit
Source Address			
Destination Address			

FIG #3

IPv6 is the successor to the first addressing infrastructure of the Internet, Internet Protocol version 4 (IPv4). In contrast to IPv4, which defined an IP address as a 32-bit value, IPv6 addresses have a size of 128 bits. Therefore, in comparison, IPv6 has a vastly enlarged address space. (At this point, please refer to our graphics information sheet Fig #3)
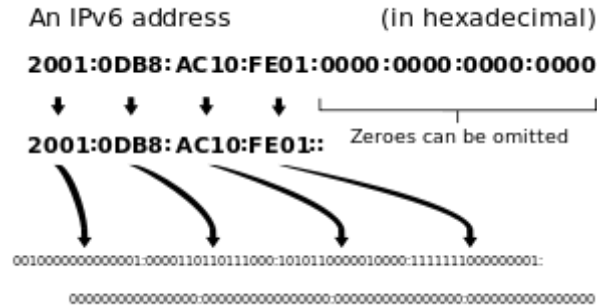
An IPv6 address   (in hexadecimal)

2001:0DB8:AC10:FE01:0000:0000:0000:0000

↓   ↓   ↓   ↓

2001:0DB8:AC10:FE01::   Zeroes can be omitted

0010000000000001:0000110110111000:1010110000010000:1111111000000001:
0000000000000000:0000000000000000:0000000000000000:0000000000000000

FIG #4
Here is an IPv6 address example:
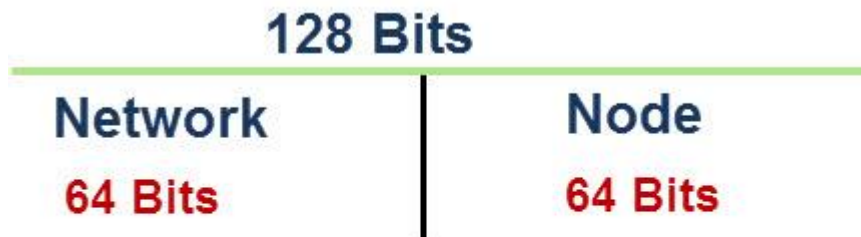
2001:0:9d38:6ab8:1c48:3a1c:a95a:b1c2

↑
0000 shortened to 0

IPv6 Address Example

FIG #5
The address is split into 2 64 bit segments the top 64 bits is the network part and the lower 64 bits the node part.

128 Bits

Network	Node
64 Bits	64 Bits

IPv6 Address Network and Node

FIG #6

If we look at the upper 64 bits in more detail, we can see that it is split into 2 blocks of 48 and 16 bits respectively the lower 16 bits are used for subnets on an internal networks, and are controlled by a network administrator.
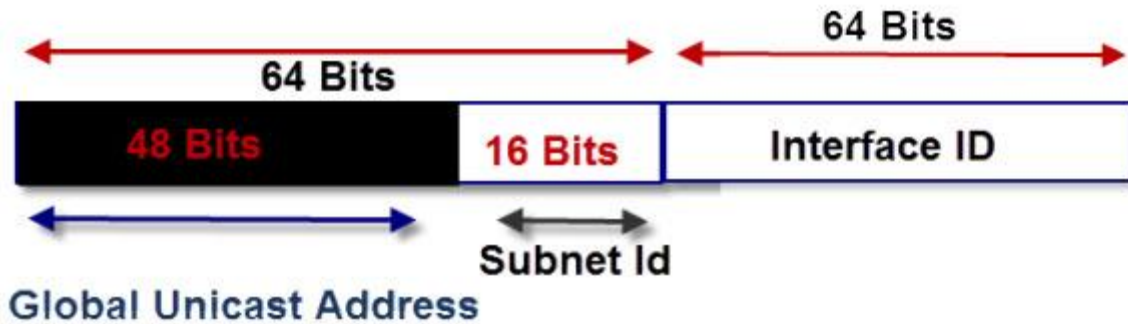
IPv6 Address Structure

The upper 48 bits are used for the global network addresses and are for routing over the internet.