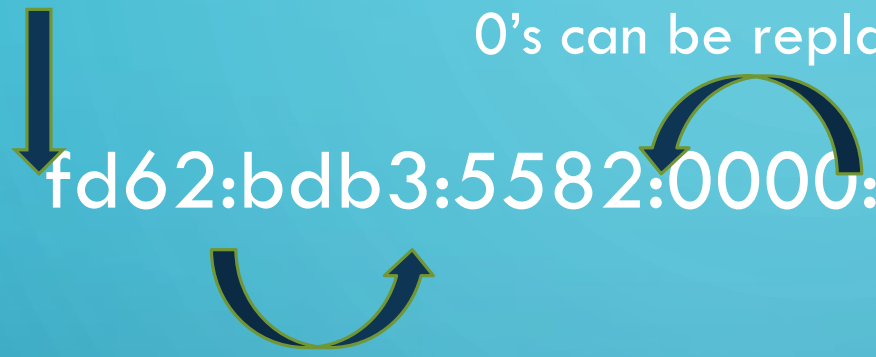
IPV6

- It supports very large number of addresses as it uses 128 bit addressing scheme. It is expressed in hexadecimal and it uses 8 blocks with 16 bit hexadecimal numbers in each. And each blocks are separated by colon (:). Each 16 bit hexadecimal block has 4 hexadecimal digits, each representing 4 bits. Each 16 bit hex block is called "quartet".

IPV6

- Example: -

4 Bits



- Consecutive blocks of "0s" can be replaced by "::" but only once. Like if any address is fd62:bdb3:0000:0000:0000:d138:3a50:392e can be written as fd62:bdb3::d138:3a50:392e

IPV6

- The subnet mask for an IPv6 address is always expressed in slash notation and the default subnet mask is /64. IPv6 is always classless and it has a lot of advantages over IPv4.

IPV6

- Advantages of IPv6 over IPv4 : -

1. Very large address space – IPv6 can support theoretically $3.4*10^{38}$ number of addresses.
2. Global reachability – Usually IPv6 does not need NAT, so very easily a direct point to point connectivity can be established between 2 devices across the internet.
3. Scoped address – IPv6 has distinct Global Scoped (Global Unicast) and Local Scoped (Link Local) addresses. The routers understand that Global Scoped addresses are routable and Local Scoped addresses are no routable.

IPV6

4. New header format – The IPv6 header is much streamlined than IPv4 header which makes it easier and faster for the routers to process it.
5. IPv6 supports multiple address on a single interface.
6. Automatic generation of address (Autoconfigured address)
7. Inbuilt support for IPSec and Mobile IP
8. Better support for prioritized delivery – IPv6 header contains an additional FLOW table to facilitate more priority specification.
9. No concept of Broadcast address – Only Unicast and Multicast

IPV6

10. Introduce the concept of Anycast address – It is common secondary unicast address for a group of device but at a time only the nearest device will respond to that address.
11. Replaced ARP with ICMP v6 to identify neighbours on the same LAN.

END OF DAY 16

NETWORKING (CCNA TRAINING)

INDIAN CYBER SECURITY SOLUTIONS

HTTP://INDIANCYBERSECURITYSOLUTIONS.COM (CONTACT - +919831165046)