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## 1PV6 - Addressing

An IPV 6 address is a 128 bit alphanumeric value that identifies an endpoint device in an internet Protocol Version 6 (IPV 6) network. It is the successor to a previous addressing infrastructure IPV 4 which had limitations IPV 6 was designed to overcome. Notably IPV 6 has drastically increased address space compared to IPV 4.

The internet Protocol (IP) is a method in which data sent to different computers over the internet. Each network interface, or computer, on the internet will have at least one IP address that is used to uniquely identify that computer.

In priecise terms on IPV6 address is 128 bits long and is corranged in eight groups each of which is 16 bits. Each group is expressed as four hexadecimal digits and

the groups are separated by colons. Ext - FEBO: CDOD: 0000: OCDE: 1257:0000:211E:729C

\* format of an IPV6 address:

An IPV6 address is split into two parts: a network and a rude component. The network component is the first

64 bits of the address and is used for receting. The mode component is the later 64 bits and is used by to identify the address of the interface

## Types of IPV6 addresses:

- · Global unicast: These addresses are routable on the internet and start with "2001" as the prefix group.

  · unicast address: used to identify the interface of
- · Anycast address: -
  - · Multicast address:-
  - · Link local address:

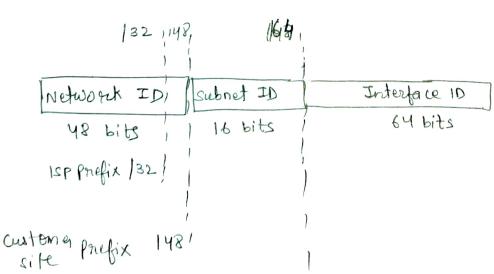
an individual node.

· unique local address:-

## \* Advantages of IPV6 address:

- · More efficient nowling with similar howling tables and aggregation of prefixes.
- · Simplified packet processing due to more streamlined packet headers.
- · support of multicast packet flows.
- · Hoste can generate their own IP addresses.

IPV6 subnetting: 1846 subnething is easier than 1844. His also different. want to divide or combine a subnet. All that is needed is to add or chop off digits and adjust the prefix length by a multiple of four. No longer is there a need to calculate subnet startlend addresses, usable address the null soute on the broadcast address. IPV6 doesn't have a suboret mask but instead calls it a parefix often shortened to parefix. Parefix length and CIDR masting work similarly; the priefix length denotes how many bits of the address define the network in which it exists. Most commonly the parefixes used with IPV6 are multiple of four. Using priefix lengths in multiple of four makes it easier for humans to distinguish 1PV6 subnits. All that is Hequired to design a larger or smaller subnet is to adjust the priefix by multiple of fewr.



han Profix/64