The IPv4 Address Structure

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Networks and hosts

IPv4 is hierarchical and is **made up of two parts**, the network and the host

**Submask is used to identify the network on the host is connected**

Example: there is a host with an IPv4 address 192.168.5.11 with a subnet mask of 255.255.255.0

The first three octets, (192.168.5) = identifies the network portion of the address

The last octet (11) = identifies the host

**This is known as hierarchical addressing because the network portion indicates the network on which each unique host address is located.**

Routers only need to know how to reach each network, rather than needing to know the location of each individual host

**With IPv4 addressing, multiple logical networks can exist on one physical network if the network portion of the logical network host addresses is different**

For example: three hosts on a single, physical local network have the same network portion of their IPv4 address (192.168.18) and three other hosts have different network portions of thei IPv4 addresses (192.168.5). The hosts with the same network number in their IPv4 addresses will be able to communicate with each other, but will not be able to communicate with the other hosts without the use of routing. In this example, there is one physical network and two logical IPv4 networks

